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Criterion	Description
3.3.4	Number of research papers per teacher in the Journals notified on UGC website during last five years

Criteria 3

3.3.4

Number of research papers per teacher in the Journals notified on UGC website

(2018 – 2019)

3.3.4 Number of research papers per teacher in the Journals notified on UGC website during the academic Year 2018 - 2019

S.No	Name of the author/s	Department of the teacher	Title of paper	Name of journal	Year of publication	ISBN/ ISSN number	Link of the recognition in UGC enlistment of the Journal
1	P. Rajendran	CSE	Contrast Enhancement of Medical Images through Adaptive Genetic Algorithm (AGA) over Genetic Algorithm (GA) and Particle Swarm Optimization (PSO)	Multimedia Tools and Applications	2018 - 2019	ISSN: 1380-7501 (Print) 1573-7721 (Online)	UGC-CARE List Group A, Web of Science, Scopus https://link.springer.com/article/10.1007/s11042-018-6355-0
2	P. Rajendran	CSE	A new approach to classify and rank events based videos based on Event of Detection	Journal of Medical Systems	2018 - 2019	ISSN: 0148-5598 (Print) 1573-689X (Online)	UGC-CARE List Group A, Web of Science, Scopus https://link.springer.com/article/10.1007/s10916-018-1132-1
3	P.Rajendran	CSE	Improving the Accuracy of Feature Selection in Big Data Mining Using Accelerated Flower Pollination (AFP) Algorithm	Journal of Medical Systems	2018 - 2019	ISSN: 0148-5598 (Print) 1573-689X (Online)	UGC-CARE List Group A, Web of Science, Scopus https://link.springer.com/article/10.1007/s10916-018-1132-1
4	P.Rajendran	CSE	A Video analysis on user feedback based recommendation using A-FP hybrid algorithm	Multimedia Tools and Applications	2018 - 2019	ISSN: 1380-7501 (Print) 1573-7721 (Online)	UGC-CARE List Group A, Web of Science, Scopus https://link.springer.com/article/10.1007/s11042-019-7293-1
5	N.Santhiyakumari	ECE	An enhancement of computer aided approach for colon cancer detection in WCE images using ROI based histogram andSVM2	Journal of Medical Systems	2018 - 2019	ISSN / eISSN: 0148-5598 / 1573-689X	UGC-CARE List Group A, Web of Science, Scopus https://link.springer.com/article/10.1007/s10916-018-1153-9
6	M.Thangavel	ECE	Fuzzy rough subset method with region based mining to improve the retrieval and ranking of real time images over larger image database	Multimedia Tools and Applications	2018 - 2019	1-18(2019)	UGC-CARE List Group A, Web of Science, Scopus https://link.springer.com/article/10.1007/s11042-019-7289-x
7	P.Shanmuga sundaram	ECE	An enhancement of computer aided approach for colon cancer detection in WCE images using ROI based histogram andSVM2	Journal of Medical Systems	2018 - 2019	ISSN / eISSN: 0148-5598 / 1573-689X	UGC-CARE List Group A, Web of Science, Scopus https://link.springer.com/article/10.1007/s10916-018-1153-9

Springer Link

Contrast Enhancement of Medical Images through Adaptive Genetic Algorithm (AGA) over Genetic Algorithm (GA) and Particle Swarm Optimization (PSO)

Multimedia Tools and Applications

March 2019, Volume 78, Issue 6, pp 6487–6511 | Cite as

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Article
First Online: 22 July 2018

Abstract

Assessment of images after processing is a significant step for determining how good the images are being analyzed. Quality of image is usually estimated with the help of image quality metrics. Unfortunately, most of the commonly used metrics cannot sufficiently portray the visual aspect of the enhanced image. In this proposed system, an approach for medical image enhancement is presented. Here adaptive genetic algorithm is proposed for medical image contrast enhancement. Initially, the chromosomes having gene value of the image gray levels have been generated. After that the fitness function will be calculated for each generated chromosome based on the image edge and their overall intensity values. The selected best chromosomes which have the high fitness value will be given to crossover and mutation operation. In GA the adaptive property is introduced by including adaptive crossover and mutation operations. The proposed method is compared with two different types of optimization algorithms such as Genetic algorithm (GA) and Particle swarm optimization (PSO) that ensure accuracy and quality of medical images in proposed adaptive genetic algorithm (AGA). The experimental solutions are got with the help of metrics like PSNR, SDME, MSE, SSIM, MSSIM, AD, MD, NAE, PSO and SC which proves the proposed algorithm, produces better results as compared to the existing algorithms.

Keywords

(2)

2

Springer Link

A new approach to classify and rank events based videos based on Event of Detection

Journal of Medical Systems

January 2019, 43:13 | Cite as

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Image & Signal Processing
First Online: 07 December 2018

Part of the following topical collections:

1. Wearable Computing Techniques for Smart Health

Abstract

In the ongoing days, the development of sight and sound substance and information stockpiling produces colossally. Clients can extricate any kind of data they require from recordings. This outcomes in quick development of video information, client's discover complexity while procurement their important data. To address this, EBR (Event Based Ranking) propose another way to deal with group and rank mixed media occasions based recordings as per client's advantage. Clients are generally keen on the best positioned and occasion pertinent recordings of returned query output. An occasion based positioning methodology which empowers clients to iteratively peruse the video as per their inclination. The proposed conspire has new way to deal with order and rank occasions based recordings. It improves the exactness of video recovery which incorporates certain functionalities for customized look. The data of clients' input is used in re-positioning technique to additionally enhance the recovering exactness. It gives the customized lastly re-positioned pertinent outcomes to shape a brought together precise query output. EBR is more precise in foreseeing and positioning client particular inclinations and diminishes the time many-sided quality. This Paper proposed a calculation comprises of: video rank calculation, occasion term suggestion, and client criticism and client session.

(3)

Springer Link

Improving the Accuracy of Feature Selection in Big Data Mining Using Accelerated Flower Pollination (AFP) Algorithm

Journal of Medical Systems

April 2019, 43:96 | Cite as

- K. Venkatasalam (1) Email author (venkatasalamk@mahendra.info)
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Mobile & Wireless Health
First Online: 09 March 2019

Part of the following topical collections:

1. Wearable Computing Techniques for Smart Health

Abstract

In recent times, the main problem associated with big data analytics is its high dimensional data over the search space. Such data gathers continuously in search space making traditional algorithms infeasible for data mining in real time environment. Hence, feature selection is an important method to lighten the load during processing while inducing a model for mining. However, mining over such high dimensional data leads to formulation of optimal feature subset, which grows exponentially and leads to intractable computational demand. In this paper, a novel lightweight mechanism is used as a feature selection method, which solves the after effects arising with optimal feature selection. The feature selection in big data mining is done using accelerated flower pollination (AFP) algorithm. This method improves the accuracy of feature selection with reduced processing time. The proposed method is tested under larger set of data with high dimensionality to test the performance of proposed method.

Multimedia Tools and Applications
https://doi.org/10.1007/s11042-019-7293-1

A video analysis on user feedback based recommendation using A-FP hybrid algorithm

R. G. Sakthivelan[1] · P. Rjendran[2] · M. Thangavel[2]

Received: 11 October 2018 / Revised: 4 January 2019 / Accepted: 28 January 2019
Published online: 13 February 2019

Abstract
Video mining is an unsupervised finding of pattern in audio-visual content and also offers the optimized search based on event of interest associated to the target search over the search engine. Video mining is dawn related to other mining. Yet, the objective of existing search is to fetch a specific video from large database. Hence, our proposed goal is to retrieving of user's requisite video based on an event is the major core problem in video mining. This paper propounds a new feedback relevance based video retrieval uses a hybrid of Apriori and Frequent Pattern (A-FP) algorithm creates a new methodology that gives the design of the learning. The A-FP algorithm desire to elicitation the most frequent item search which is pragmatic to the user. It also affords scalable solution for generalizing efficient and highly ambiguous user expected video search.

Keywords A-FP hybrid algorithm · Event based recommender system · Relevance feedback

1 Introduction

Due to the contribution of internet technology makes our life more convenient and provides a variety of information from which one can browse their desired needs. Revolution of internet plays a major role in all domains. One can update the latest information occurring in and around the world is available through internet of things but sometimes it also contains irrelevant information. The main challenge is to provide efficient and wealthy information relevant to the search. Information mining is the extraction of specific information which is applicable to their enthusiasm from a crude material or database. It is the errand of watching fascinating examples from the lot of information which is put away in databases or other data storehouses. In the information mining, affiliation administer extraction is the most broadly

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Journal of Medical Systems (2019) 43:29
https://doi.org/10.1007/s10916-018-1153-9

IMAGE & SIGNAL PROCESSING

An Enhancement of Computer Aided Approach for Colon Cancer Detection in WCE Images Using ROI Based Color Histogram and SVM2

P. Shanmuga Sundaram [1] · N. Santhiyakumari [1]

Received: 31 October 2018 / Accepted: 25 December 2018

Abstract

The colon cancer is formed by uncontrollable growth of abnormal cells in large intestine or colon that can affect both men and women and it is third cancer disease in the world. At present, Wireless Capsule Endoscopy (WCE) screening method is utilized to identify colon cancer tumor at early stage to save the patient life who affected by the colon cancer. In this CTC method, the radiologist needs to analyze the colon polyps in digital image using computer aided approach with accurate automatic tumor classification to detect the cancer tumor at early stage. This kind of computer aided approach can operate as an intermediate between input digital image and radiologist. Therefore, in this paper, a novel computer aided approach is presented with ROI based color histogram and SVM2 to find the cancer tumor in WCE image. In this method, the digital WCE image can be preprocessed using filtering and ROI based color histogram depending on the salient region in colon. In common, the salient region can be distinctive because of low redundancy. Hence, the saliency is estimated by ROI based color histogram on the basis of color and structure contrast in given colon image for the further process of clustering and tumor classification in WCE image. The K-means clustering can be employed to cluster the preprocessed digital image to discover the tumor of colon. Subsequently, the features are extracted from the image in terms of contrast, correlation, energy and homogeneity by applying SGLDM method. The SVM2 classifier as input to classify the tumor is normal or malignancy using selected feature vectors. Here, the extracted features can also being combined to enhance the hybrid feature vector for the accurate tumor classification. Experimental results of proposed method can show that this presented technique can executes can tumor detection in colon image accurately reaching almost 95% in evaluation with existing algorithms.

Keywords Colon cancer · Computer aided approach · ROI extraction · Image clustering · Feature extraction · SVM2 classifier

Introduction

Colon cancer can be one kind of cancers that is occurred on the colon walls' inner side of large intestine. In this colon cancer, uncontrollable growth of abnormal cells is produced in colon continuously that can be known as polyp. It also called as colorectal cancer and it is second directing to cancer in industrial western countries and the mainly third diagnosed cancer in world-wide often. Many cancer tumors can be started as polyp in the colon surface in intestine of patient and it can take 10 years approximately to develop into a colon cancer and cancer development is based on the polyp's size. The colon cancer may lead to cause of patient death. If it is detected at early stages, then this colon cancer can be preventable and curable by giving the correct treatment [1–3]. Therefore, we need to find the malignant tumor and to examine molecular modifications in colon at early stage for the treatment of cancer to save the patient life. At present, many screening methods are used to detect the colon cancer tumor such as colonoscopy, upper gastrointestinal endoscopy to analyze and examine the large intestine for diagnosis. Nevertheless, this kind of screening method having many procedures as they need to treat the patient and it can also be painful. In addition, the small intestinal parts are taking surgery for observation. Hence, WCE is used to overcome the above problems. WCE is an invasive process that can

This article is part of the Topical Collection on *Image & Signal Processing*

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Published online: 05 January 2019

Multimedia Tools and Applications
https://doi.org/10.1007/s11042-019-7289-x

Fuzzy rough subset method with region based mining to improve the retrieval and ranking of real time images over larger image database

K. Venkatasalam [1] · P. Rjendran [2] · M. Thangavel [2]

Received: 11 October 2018 / Revised: 9 January 2019 / Accepted: 28 January 2019
Published online: 20 February 2019

Abstract
Region based image mining is considered as an interesting approach that divides the images into several regions, where the features are extracted out from it and the set of features represents the contents of image from database. However, feature dimensionality and space complexity is one of the big issues in Image Retrieval Based on Content (CBIR). In this paper, fuzzy neighborhood rough subset method is used for feature reduction in an image. This helps to reduce the irrelevant features related to given query. The Support Vector Machine (SVM) is further used with fuzzy rough subset method to classify the images related to given query. This extracts well the spectral data characteristics between the query and database images. Performance of proposed fuzzy rough subset method with SVM classifier is tested against conventional methods. The results proves that the proposed method attains better classification of hyper spectral images than the other methods.

Keywords Content based image · Feature reduction · Support vector machine · Fuzzy neighborhood rough subset method · Hyper spectral images

1 Introduction

Content based retrieval - retrieve image from database with metadata as a reference. CBIR helps to retrieve relevant images with basic information related to given query image. In general, retrieval of images from database is done by comparing query and database images, and sorting it based on similarity criteria. Finally, images are ranked

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Journal of Medical Systems (2019) 43:29
https://doi.org/10.1007/s10916-018-1153-9

IMAGE & SIGNAL PROCESSING

An Enhancement of Computer Aided Approach for Colon Cancer Detection in WCE Images Using ROI Based Color Histogram and SVM2

P. Shanmuga Sundaram [1] · N. Santhiyakumari [1]

Received: 31 October 2018 / Accepted: 25 December 2018

Abstract

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Keywords Colon cancer · Computer aided approach · ROI extraction · Image clustering · Feature extraction · SVM2 classifier

Introduction

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Published online: 05 January 2019

Criteria 3

3.3.4

Number of research papers per teacher in the Journals notified on UGC website

(2017 – 2018)

3.3.4 Number of research papers per teacher in the Journals notified on UGC website during academic Year 2017 - 2018

S.No	Name of the author/s	Department of the teacher	Title of paper	Name of journal	Year of publication	ISBN/ ISSN number	Link of the recognition in UGC enlistment of the Journal
1	T.K.Santhosh	EEE	Dual input dual output power converter with one-step-ahead control for hybrid electric vehicle applications	IET Electrical Systems in Transportation	2017 - 2018	ISSN / eISSN: 2042-9738 / 2042-9746	UGC-CARE List Group A, Web of Science, Scopus https://digital-library.theiet.org/content/journals/10.1049/iet-est.2016.0017
2	P. Rajendran	CSE	Efficient data collection in wireless sensor networks with block-wise compressive path constrained sensing in mobile sinks	Springer-Cluster Computing	2017 - 2018	ISSN: 1573-7543	UGC-CARE List Group A, Web of Science, Scopus https://link.springer.com/article/10.1007/s10586-017-1482-3
3	P. S. S. Srinivasan	MECH	IoT based industrial safety measures monitoring and reporting system using accident reduction model (ARM) control algorithm	Cluster Computing	2017 - 2018	ISSN: 1386-7857 (Print) 1573-7543 (Online)	UGC-CARE List Group A, Web of Science, Scopus https://link.springer.com/article/10.1007/s10586-017-1377-3
4	M Thangavel	ECE	An Accurate Efficient and Scalable Event Based Video Search Method Using Spectral Clustering	Journal of Computational and Theoretical Nano science	2017 - 2018	ISSN: 1546-1955 (Print): EISSN: 1546-1963 (Online)	UGC-CARE Deleted List https://www.ingentaconnect.com/content/asp/jctn/2018/00000015/00000002/art00019

IET Electrical Systems in Transportation

Research Article

Dual input dual output power converter with one-step-ahead control for hybrid electric vehicle applications

ISSN 2042-9738
Received on 17th March 2016
Revised 4th November 2016
Accepted on 21st December 2016
E-First on 19th June 2017
doi: 10.1049/iet-est.2016.0017
www.ietdl.org

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Abstract: The rapid conversion of automotive accessory loads to the electrical domain demands a power converter to interface between the on-board source and storage units with the accessories. This study proposes a simplified structure of dual input dual output (DIDO) with single-stage power conversion for hybrid electric vehicle accessory applications. The topology is synthesised using pulsating source cells. The generic switch model-based DIDO is realised with power switches based on switch realisation technique. Steady-state and equivalent circuit models describing the converter structure are presented. Numerical simulations were performed with the state-space averaged mathematical model. A one-step-ahead controller is used for inductor current control in conjunction with a mode selection logic to utilise its operating modes based on the availability of the sources and its protection. The performance of the proposed converter and its associated control scheme under steady-state, transient conditions are corroborated by simulation and experimental results.

1 Introduction

Transportation electrification is gaining momentum due to recent interest in energy efficiency and environment pollution. Though the clean carbon footprint of electric vehicle (EV) is debated seriously [1, 2], its acceptance rate is increasing [3]. Automotive sector electrified not only the power-train but also the accessories [4] that have transformed from mechanical to the electrical domain. Meanwhile, EV in its course of evolution has included several sources and storage units into its architecture [5]. With the increase of electrical loads in an EV, the demands have to be quenched by the on-board power sources and storage units. Several power converter architectures proposed for supplying multiple loads in the literature could be broadly classified into two types: isolated and non-isolated. Isolated converters are preferred if the voltage difference between the source and load voltage is comparatively large [6]. Isolated converters show a common trend of shared secondary winding with individual primary windings for multiple sources [7, 8]. Although isolated converters are beneficial in output voltage control and isolation, the peripheral circuitry and multi-source operation are highly difficult [9]. Non-isolated converters are preferred for rugged, compact structure with simple control. Non-isolated multiple input converters (MICs) were initially paralleled basic converters with time-multiplexed operation [10, 11]. The concept of pulsating source cells (PSCs) was introduced and two families of MICs were generated and analysed in [12]. Behjati and Davoudi [13] extended the concept of PSC to basic non-isolated converters and proposed rules to synthesise them. On the synthesis of MIC, the study of [14] is one of the earliest works done on the generation of DC/DC converters, and [15] extended this by proposing rules to recognise basic topologies that are suitable for extension to multiple input versions. A three port converter synthesis and its analysis are handled in [16]. Though these articles elaborate on multiple inputs and loads, the work done on the simultaneous utilisation of sources has received much less attention. This work investigates the feasibility of a non-isolated dual input dual output (DIDO) power converter suitable for automotive auxiliary applications.

The power converter also has several constraints on source utilisation, constant current operation and fault diagnosis. Out of the control techniques [17–24], predictive control method [22] is a suitable technique to ensure constant current operation irrespective of the load condition. This work utilises a modified predictive control [25] that applies the predictive control action considering duty cycle and load current constraints. This constant current operation could reduce the sudden variations in source current thereby improving its life cycle. This research work proposes a DIDO converter suitable for hybrid electric vehicle (HEV). The synthesis of DIDO with a generic switch model, switch realisation, mathematical modelling, design and control implementation are presented in this work. The originality of the work lies in the utilisation of one-step-ahead control to the synthesised DIDO power converter with mode selection logic.

2 Topology

This section deals with the synthesis and development of the DIDO power converter topology. The converter is initially assumed with generic switching devices and appropriate semiconductor switching devices are included based on the switch positioning analysis.

2.1 Converter synthesis

The prime objective is to design a topology that could utilise the input ports and supply two loads independently and simultaneously. Assuming the loads require a voltage higher than the input port, a generic switch model of the boost converter is initially considered as shown in Fig. 1*a*. For simultaneous utilisation, the new voltage source should be included in the loop shared with the primary source as shown in Fig. 1*b*. When applying Kirchoff's voltage law to the loop containing the inductor and the power sources, the inductor voltage is found to be the difference between V_i and V_b. This, in turn, reduces the inductor charging slope in the first switching state compared with the conventional boost converter. To make the new input port aid the primary source (V_i), inverting the polarity of the new voltage source could be a viable solution so that the inductor charging slope adds up V_i and V_b during the first switching state. Besides voltage inversion, the second input port lacks controllability and an additional switch replicating a boost PSC is added to the polarity inverted new input port [26]. This converter could be extended to supply two loads by adding another parallel load port [27] and the generic switch model is shown in Fig. 1*c*.

Cluster Comput
https://doi.org/10.1007/s10586-017-1482-3

Efficient data collection in wireless sensor networks with block-wise compressive path constrained sensing in mobile sinks

R. Lakshminarayanan[1] · P. Rajendran[2]

Received: 22 September 2017 / Revised: 28 November 2017 / Accepted: 5 December 2017

Abstract Recently, the energy efficiency is improved in the clustered wireless sensor networks (WSNs) using sink mobility in restricted path. However, due to path restriction, a constant speed is assigned with mobile sink and this has limited the time for communication to collect the sensor data in randomly deployed sensor networks. Further, the collection of sensor data increases the consumption of power in such network. Hence to improve this cluster based block wise compressed path constrained sensing is introduced in clustered sensor networks. Here, two techniques are deployed to reduce the consumption of power in sensor network. To limit the communication time in collecting the sensor data, the shortest path tree computation is used. Also, to reduce the inherent data sparsity block wise compression over spatially correlated data is used. The collection of data is done by the cluster heads and forwarded to the base stations (BSs) using shortest path tree computation. This is formulated as a mixed linear integer programming problem, which is solved using adaptive amoeba algorithm. The block wise compression method uses compressed sensing (CS) in clustered WSN and the measurement is done through block diagonal matrix. The forwarding of CS measurements is done through shortest path algorithm and this relays the measurements to the BSs. The validation is carried out in terms of total consumed power due to the effect of sparsity and transferring the CS measurements to BS. The performance is evaluated based on optimal clustering for attaining reduced power consumption. The experimental results show that the proposed method has higher throughput with increased energy efficiency than the other conventional methods.

Keywords Compressed sensing · Shortest path tree · Adaptive amoeba algorithm · Block diagonal matrix

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1 Introduction

Wireless sensor networks (WSNs) are used widely in civilian and in military applications [1]. The sensors, usually wireless in nature are deployed in a random manner within its sensing range, which has to be monitored. They work mostly in difficult conditions without any proper maintenance or it uses renewable power. Hence, the operation and connection of the wireless sensor networks depends mainly on the inexpensive and small devices with severe constraint due to rapid power consumption. Energy saving in such network during data collection is always been a critical problem, which has direct impact on network lifetime [2].

The spatial correlation from sensor data measurements results usually in an inherent sparse data on proper basis. The compressive sensing application is facilitated by the use of such inherent sparse data [3,4], which is utilized for reduced data compression during data collection [5,6]. Generally, the compressive sensing provides a novel framework for reconstructing the entire sensor readings using small compressive sensing measurements. This provides better opportunity to reduce the total power consumption, significantly in sensor networks.

Recently, several researches [7–11] have conducted to integrate the compressive sensing during the collection of data in wireless sensor networks. Generally, the measurements from the sensor nodes are multiplied with set of coefficients. Then the multiplied data is then from such nodes

Published online: 09 December 2017

Cluster Computing
https://doi.org/10.1007/s10586-017-1377-3

IoT based industrial safety measures monitoring and reporting system using accident reduction model (ARM) control algorithm

Palanivelu Rajmohan[1] · P. S. S. Srinivasan[2]

Received: 23 September 2017 / Revised: 31 October 2017 / Accepted: 13 November 2017

Abstract
In recent days, the innovation towards a new occupational health and safety group in which work cultures are directed towards active safety values. It is predicted that the safety analysis techniques now in place are quite difficult to address the potential risks which weaken the era. A novel approach to analyzing different crucial criteria in various industrial sectors is explained carefully in this work. In this unique approach, accident reduction model technique is applied to determine the respective weights of three main criteria and seventeen sub-criteria as a way of enriching the decision-making process while in a problem. A survey was initiated in different industrial sectors to obtain reliable data for the research. The results show that the main criteria 'human safety' acquired a weight of 72.5% while the respective weights of primary criteria machine security and work environment safety fall to 8.9 and 18.4%. The weight of the main criteria, human safety indicates that the sub-criteria such as eye protection, manual lifting, material handling practices, firefighting drills, training and safety officers are implemented to a greater extent in most of the surveyed industries.

Keywords ARM · Industrial safety · Reporting system · Control algorithm

1 Introduction

Accidents occurring in most Indian industries are a source of concern to everyone. Industries that reflect workers safety and health issues based on mechanical maintenance protection, and other management related issues. Environmental, Health and Safety (EHS or HSE) departments [1] have the top management in Indian industries fails to put in place adequate safety practices at their workplace to safeguard not only the employees and management but also clients and contractors and sub-contractors who might have some importance in the industry. Ineffective safety practices have an adverse impact on the organization as well as the workforce. Some of these include production delay medical and compensation charges,tool and apparatus impairment, construction loss, permitted costs, expenses on alternative materials, loss of commercial concern and moral of employees [2].

Being an industry related work practices employees, management, supervisor subcontractors, third parties, and visitors are exposed to several hazards and risks. The study aims to examine the effect of implementation of environment, health and safety practices in industrial activity. The working groups of each industry formed the population of the study. Four hundred and fifty respondents formed the sample size of the survey [3,4].

Presently, Internet of Things (IoT) has turned out to be a standout amongst the most powerful communication ideal models of the twenty first century. In the IoT environment, all articles in our everyday life prove to be a piece of the web because of their communication and figuring abilities (counting microcontrollers, handsets for advanced communication) [5]. IoT broadens the idea of the Internet and makes it more unavoidable. IoT permits consistent associations among various sorts of gadgets, for example, an environmental sensor, checking cameras, therapeutic applications soon. Based on that reason IoT has turned out to be more beneficial in a few ranges, for example, environmental pollution monitoring systems and aqua quality management framework, IoT include numerous sorts of modest sensors (embedded, and environment) that individuals to report and screen cutting edge quality administrations anyplace, at whatever time. Furthermore, it likewise mostly enhances as people personal satisfaction [6].

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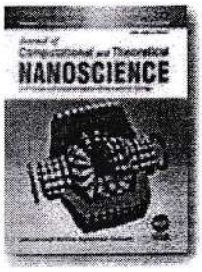
Published online: 03 January 2018



An Accurate Efficient and Scalable Event Based Video Search Method Using Spectral Clustering

Authors: Sakthivelan, R. G.; Rajendran, P.; Thangavel, M.
Source: Journal of Computational and Theoretical Nanoscience, Volume 15, Number 2, February 2018, pp. 537-541(5)
Publisher: American Scientific Publishers
DOI: https://doi.org/10.1166/jctn.2018.7118

Web mining discovers enormous set of data and gets hidden and valuable information which contains text, images, audio and video files from the web search engine which is software that provides a significant result of information. Video rehabilitation for the context gives efficient comprehension of the video content. Video retrieval refers to the task of retrieving most relevant videos from the video Search engine but the outcome listed result could not achieve the relevant videos according to the user needs. This paper addresses Event based Video Retrieval (EBVR) uses metadata, which gives the accurate result. The aim is detect the circumstances of a focal point such as birthday party. In order to overcome this issue, we proposed a personalization approach which captures the user query relevance to their event. Video preprocessing method used to extract related precision data and spectral clustering technique for Video Categorization which yields event extraction and contributes associated video.

Keywords: EVENT BASED VIDEO RETRIEVAL (EBVR); EVENT EXTRACTION; PERSONALIZED PREPROCESSING; SPECTRAL CLUSTERING

Document Type: Research Article

Publication date: February 1, 2018

Criteria 3

3.3.4

Number of research papers per teacher in the Journals notified on UGC website

(2016 – 2017)

3.3.4 Number of research papers per teacher in the Journals notified on UGC website during the academic Year 2016 - 2017

S.No	Name of the author/s	Department of the teacher	Title of paper	Name of journal	Year of publication	ISBN/ ISSN number	Link of the recognition in UGC enlistment of the Journal
1	N.Suthanthira Vanitha	EEE	Feature Selection Optimization Using Artificial Immune System Algorithm for Identifying Dementia in MRI Images	Journal of Medical Imaging and Health Informatics	2016 - 2017	ISSN / eISSN: 2156-7018 / 2156-7026	UGC-CARE List Group A, Web of Science, Scopus https://www.ingentaconnect.com/contentone/asp/jmihi/2017/00000007/00000001/art00011
2	K.Visagavel	MECH	Investigation of red mud as a catalyst in mahua oil biodiesel production and its engine performance	Fuel Proessing Technology	2016 - 2017	ISSN : 1361-9209	UGC-CARE List Group A, Web of Science, Scopus https://www.sciencedirect.com/science/article/pii/S1361920915300833
3	N. Panneerselvam	MECH	Biodiesel from plant seed oils as an alternate fuel for compression ignition engines- a review	Environmental Science and Pollution Research	2016 - 2017	ISSN 0944-1344	UGC-CARE List Group A, Web of Science, Scopus https://www.inderscience.com/info/inarticle.php?artid=75652
4	M.Senthil	MECH	Investigation of red mud as a catalyst in mahua oil biodiesel production and its engine performance	Fuel Proessing Technology	2016 - 2017	ISSN : 1361-9209	UGC-CARE List Group A, Web of Science, Scopus https://www.sciencedirect.com/science/article/pii/S1361920915300833
5	N. Jayapandian	CSE	Secure and efficient online data storage and sharing over cloud environment using probabilistic with homomorphic encryption	Cluster Computing	2016 - 2017	ISSN: 1386-7857 (Print) 1573-7543 (Online)	UGC-CARE List Group A, Web of Science, Scopus https://link.springer.com/article/10.1007/s10586-017-0809-4
6	N. Panneerselvam	MECH	Optimization of biodiesel produced from watermelon (Citrullus vulgaris) using batch-type production unit	Transportation Research Part D: Transport and Environment	2016 - 2017	ISSN 1556-7036	UGC-CARE List Group A, Web of Science, Scopus https://www.tandfonline.com/doi/abs/10.1080/15567036.2015.1048389
7	N.Panneerselvam,	MECH	Effect on direct injection naturally aspirated diesel engine charectreistics fuelled by pine oil, Ceiba pentandra methyl ester compared with diesel	Transportation Research Part D: Transport and Environment	2016 - 2017	ISSN : 1361-9209	UGC-CARE List Group A, Web of Science, Scopus https://www.sciencedirect.com/science/article/pii/S1361920915301176?via%3Dihub
8	Panneerselvam Nachiappan	MECH	The role of nano additives for biodiesel and diesel blended trasnspotation fuels	Transportation Research Part D: Transport and Environment	2016 - 2017	ISSN : 1361-9209	UGC-CARE List Group A, Web of Science, Scopus https://www.sciencedirect.com/science/article/pii/S1361920915300833?via%3Dihub

RESEARCH ARTICLE

Journal of Medical Imaging and Health Informatics
Vol. 7, 1, 2017

Feature Selection Optimization Using Artificial Immune System Algorithm for Identifying Dementia in MRI Images

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Dementia is a common neurodegenerative disease. Magnetic Resonance Imaging (MRI) is widely used for diagnosing dementia. Classification to diagnose neuroimaging issues are automated as standard clinical decisions are quicker, and unaffected by individual neuro-radiological opinions. Automatic dementia classification of MRI medical images using machine learning techniques is presented in this paper. For evaluation, MRI images from OASIS dataset are used. MRI images are segmented and features are extracted from segmented image using Discrete Wavelet Transform. Feature selection is via proposed Artificial Immune System (AIS), that searches solution space for correlation based feature selection. Naïve Bayes, CART, C4.5 and K nearest neighbour then classifies the selected features as dementia or non-dementia.

Keywords: Magnetic Resonance Imaging (MRI), Dementia Classification, Discrete Wavelet Transform, Feature Selection, Artificial Immune System (AIS), Naïve Bayes.

1. INTRODUCTION

Dementia is an increasing health issue, and Alzheimer's disease (AD) is the most common form of dementia among elderly.[1] At present more than 36 million people are affected globally. Dementia is not only weakening for a person, but it takes a great emotional toll on families and associates. AD has three phases: preclinical, mild cognitive impairment, and dementia. Preclinical means the beginning of AD. MCI includes "mild changes in memory." Dementia is the disease being severe. AD symptoms differ between patients. The following are common Alzheimer's Symptoms:[2]

- Memory failure disturbing daily life.
- Finds difficulty in resolving problems.
- Misperception regarding time/place.
- Anxiety grasping visual images/spatial relationships.
- Poor or unreliable judgment.

Neurological Magnetic Resonance Imaging (NMRI) helps physicians detect dementia better. Physicians have found that dementia is in various "mixed" forms.[3] Also, as neurological MRI scans are complicated and noisy, proper interpretation for an experienced neurological radiologist is still a challenge. This work applies machine learning techniques to recognize MRI scans indicating forms of dementia. Considering the learning, knowledge, and proficiency of radiologists, the aim is to offer a device to assist prioritize MRI scans that have probability for disease analysis. Machine-learning techniques have been used to distinguish MRI images either as a two class problem or multi-class problem.[4–6] If clinical MR scans are to aid dementia diagnosis, it should not depend on experts and produce accurate results. Further a global technique which analyzes the entire brain region rather than localized areas to identify Dementia is seen as abetter solution.[7]

Alzheimer's disease results in contracting of brain with time and death of cells in the brain. Doctors can appropriately identify AD most of the time based on behavioral symptoms, and MRI scan.[8] Automated AD diagnosis from MR images is being researched extensively. A main line of research in recent works was to develop dedicated brain image attributes that accurately help in prediction.[9]

A major challenge in using the features obtained from MRI is the large amount of feature vectors generated. To overcome this statistically relevant features are extracted using feature selection techniques. Feature selection methods identify relevant feature subset to build robust learning models by removing irrelevant and redundant features from data. This is however suboptimal due to the large number of feature subsets generated. To find optimal feature subset metaheuristic algorithms have been effectively used.[10]

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Fuel Processing Technology 149 (2016) 7–14

Contents lists available at ScienceDirect

Fuel Processing Technology

journal homepage: www.elsevier.com/locate/fuproc

Investigations of red mud as a catalyst in Mahua oil biodiesel production and its engine performance

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ARTICLE INFO

Article history:
Received 26 December 2015
Received in revised form 15 March 2016
Accepted 29 March 2016
Available online xxxx

Keywords:
Biodiesel
Diesel engine
Engine performance
Blending
Red mud
Characterization

ABSTRACT

Biodiesel productions from Mahua oil using two different catalysts, including KOH and activated red mud by catalytic cracking (waste from aluminum industry) were compared in distinctive blends of diesel fuel. Red mud was subjected to characterization studies to find the mechanism of red mud during catalytic cracking using Energy Dispersive Spectroscopy (EDS) and Scanning Electron Microscope (SEM). The cracking process was carried at 300 °C for 2 h and different blends of biodiesel (B25, B50, B75, and B100) were examined for physical properties. Furthermore, the different blends were subjected to a four-stroke diesel engine to study its engine performance. The results showed that the changes in elemental composition during EDS analysis could be an important reason for red mud to have a better calorific value (10,601 kcal/kg) compared to KOH as a catalyst. The NO_x emission from KOH biodiesel was 7.5% higher compared to red mud biodiesel when it was blended 100% at 1500 RPM at a maximum brake power (5.2 kW). From the findings of this study, it was evident that using red mud as a catalyst not just increases most of the properties of the fuel, but also reduces the stress on the environment in the form of less emission and fuel consumption. Since red mud was a hazardous waste from aluminum industry, utilizing it for biodiesel productions could also be an economically viable option.

1. Introduction

In India, diesel was mainly consumed as oil in 2013. It accounts for 42% of the total petroleum consumption in the country. During the same period, per day petroleum consumption was 418,414 m^3/day placed after China and Japan in Asia. The petroleum products' consumption has increased to more than 14% over the last five years [1]. While the need for the consumption is steadily increasing as witnessed, the fossil-fuel depletion poses an alarming question on sustainability and the need for the future.

Some of the possible alternative fuels include biogas, ethanol, and biodiesel of which the latter two are mainly used in the transportation sector [2]. Both fuels have been produced from energy crops, such as jatropha, maize, and vegetable oils (soybean oil, Mahua oil). [3] Biodiesel production in India was 268-m^3/day in 2012, accounting for 0.06% share of the total petroleum consumed during the same period [4,5]. The share of renewable is negligible, due to the reason which concerns over its profitability. The sustainability aspect of biodiesel depends on how economic and environmental friendly a process is.

Biodiesel is produced by the transesterification of fats and oil composed of triglycerides. During the transesterification process, an alcohol is added to fats and oil for the production of mono-alkyl ester and crude glycerol [6,7]. The mono-alkyl ester possesses the physical properties equivalent to fossil-fuel diesel. However, this reaction is not a spontaneous reaction and requires the addition of catalysts such as sodium hydroxide, potassium hydroxide, and sodium methoxide [8]. The cost of the catalyst plays an important role in the overall economy of the process. Reducing the cost of the catalyst thus, can increase the commercial acceptance of biodiesel globally. For that reason, the needs for alternative catalysts are inevitable.

The catalyst for biodiesel production should either be an alkali or acid [9,10]. One such alkali is red mud, which is the solid waste formed after the digestion of bauxite for the production of alumina [11,12]. About 90 million tons of red mud is produced globally, leaving an impact that utilizing the waste from one process and improving another process could lead an example to a better and efficient environment. Red mud has an alkaline pH in the range of 10–13, which is mainly due to the sodium hydroxide used in the processing of alumina [11, 13]. It has aluminum, iron, silicon, titanium oxide and hydroxides, and it is regarded as a hazardous waste [14,15]. The alkalinity in red mud can be used as a catalyst for biodiesel production [15]. Previously, Liu et al. [11] has mentioned the application of red mud as a catalyst for biodiesel production from soybean oil.

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http://dx.doi.org/10.1016/j.fuproc.2016.03.027
0378-3820/

Environ Sci Pollut Res (2016) 23:24711–24730
DOI 10.1007/s11356-016-7754-2

REVIEW ARTICLE

Biodiesel from plant seed oils as an alternate fuel for compression ignition engines—a review

C. Vijayakumar[1] · M. Ramesh[1] · A. Murugesan[2] · N. Panneerselvam[3] · D. Subramaniam[2] · M. Bharathiraja[1]

Received: 6 May 2015 / Accepted: 20 September 2016 / Published online: 15 October 2016

Abstract The modern scenario reveals that the world is facing energy crisis due to the dwindling sources of fossil fuels. Environment protection agencies are more concerned about the atmospheric pollution due to the burning of fossil fuels. Alternative fuel research is getting augmented because of the above reasons. Plant seed oils (vegetable oils) are cleaner, sustainable, and renewable. So, it can be the most suitable alternative fuel for compression ignition (CI) engines. This paper reviews the availability of different types of plant seed oils, several methods for production of biodiesel from vegetable oils, and its properties. The different types of oils considered in this review are cashew nut shell liquid (CNSL) oil, ginger oil, eucalyptus oil, rice bran oil, *Calophyllum inophyllum*, hazelnut oil, sesame oil, clove stem oil, sardine oil, honge oil, polanga oil, mahua oil, rubber seed oil, cotton seed oil, neem oil, jatropha oil, egunsi melon oil, shea butter, linseed oil, Mohr oil, sea lemon oil, pumpkin oil, tobacco seed oil, jojoba oil, and mustard oil. Several methods for production of biodiesel are transesterification, pre-treatment, pyrolysis, and water emulsion are discussed. The various fuel properties considered for review such as specific gravity, viscosity, calorific value, flash point, and fire point are presented. The review also portrays advantages, limitations, performance, and emission characteristics of engine using plant seed oil biodiesel are discussed. Finally, the modeling and optimization of engine for various biofuels with different input and output parameters using artificial neural network, response surface methodology, and Taguchi are included.

Keywords Plant seed oils · Biodiesel · Performance and emission · Artificial neural network

Responsible editor: Philippe Garrigues

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Introduction

Energy is one of the most essential resources for the development of mankind. The transportation sector is purely based on petroleum fuels. It is supposed that the petroleum products and crude oil will be not enough and will be pricey which has become a great curse to our nation's economy. The day by day increase in the prices and decreasing resources of conventional fuels have led to intensive studies on the use of alternative fuels, especially vegetable oils. In order to improve the fuel economy of engines, various researches and studies are going on. Due to the enormous increase in the number of vehicles, the demand and availability of petrol and diesel is somewhat unbalanced, and there is a need to balance the energy demands as reported by Haldar et al. (2009), Puhan et al. (2009), KombeGodlisten et al. (2012), and Al-IwayzySaddam and Yusaf (2013).

The scenario will be more catastrophic if this situation continues; the petrol and diesel will be more costly and inadequate. With increasing the usage and the depletion of fossil fuels, today more emphasis is given on the alternate fuels as discussed by Lakshminarayanaroa et al. (2008b).

The amount of carbon dioxide in the atmosphere may compile nearly 0.06 % as an outcome; the average temperature of the earth is increased by 2.5 to 6 °C. There is an essential need

Fuel Processing Technology 149 (2016) 7–14

Contents lists available at ScienceDirect

Fuel Processing Technology

journal homepage: www.elsevier.com/locate/fuproc

Investigations of red mud as a catalyst in Mahua oil biodiesel production and its engine performance

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ARTICLE INFO

Article history:
Received 26 December 2015
Received in revised form 15 March 2016
Accepted 29 March 2016
Available online xxxx

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1. Introduction

In India, diesel was mainly consumed as oil in 2013. It accounts for 42% of the total petroleum consumption in the country. During the same period, per day petroleum consumption was 418,414 m^3/day placed after China and Japan in Asia. The petroleum products' consumption has increased to more than 14% over the last five years [1]. While the need for the consumption is steadily increasing as witnessed, the fossil-fuel depletion poses an alarming question on sustainability and the need for the future.

Some of the possible alternative fuels include biogas, ethanol, and biodiesel of which the latter two are mainly used in the transportation sector [2]. Both fuels have been produced from energy crops, such as jatropha, maize, and vegetable oils (soybean oil, Mahua oil). [3] Biodiesel production in India was 268-m^3/day in 2012, accounting for 0.06% share of the total petroleum consumed during the same period [4,5]. The share of renewable is negligible, due to the reason which concerns over its profitability. The sustainability aspect of biodiesel depends on how economic and environmental friendly a process is.

Biodiesel is produced by the transesterification of fats and oil composed of triglycerides. During the transesterification process, an alcohol is added to fats and oil for the production of mono-alkyl ester and crude glycerol [6,7]. The mono-alkyl ester possesses the physical properties equivalent to fossil-fuel diesel. However, this reaction is not a spontaneous reaction and requires the addition of catalysts such as sodium hydroxide, potassium hydroxide, and sodium methoxide [8]. The cost of the catalyst plays an important role in the overall economy of the process. Reducing the cost of the catalyst thus, can increase the commercial acceptance of biodiesel globally. For that reason, the needs for alternative catalysts are inevitable.

The catalyst for biodiesel production should either be an alkali or acid [9,10]. One such alkali is red mud, which is the solid waste formed after the digestion of bauxite for the production of alumina [11,12]. About 90 million tons of red mud is produced globally, leaving an impact that utilizing the waste from one process and improving another process could lead an example to a better and efficient environment. Red mud has an alkaline pH in the range of 10–13, which is mainly due to the sodium hydroxide used in the processing of alumina [11, 13]. It has aluminum, iron, silicon, titanium oxide and hydroxides, and it is regarded as a hazardous waste [14,15]. The alkalinity in red mud can be used as a catalyst for biodiesel production [15]. Previously, Liu et al. [11] has mentioned the application of red mud as a catalyst for biodiesel production from soybean oil.

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http://dx.doi.org/10.1016/j.fuproc.2016.03.027
0378-3820/

Cluster Comput (2017) 20:1561–1573
DOI 10.1007/s10586-017-0809-4

Secure and efficient online data storage and sharing over cloud environment using probabilistic with homomorphic encryption

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Received: 11 December 2016 / Revised: 6 February 2017 / Accepted: 22 February 2017 / Published online: 29 March 2017

Abstract Cloud computing is one of the great tasks in the business world nowadays, which provides shared processing resources. In cloud area network, security is the main challenge faced by cloud providers and their customers. The advantage of cloud computing includes reduced cost, re-provisioning of resources etc. The cloud network makes use of standard encryption method to secure documents while storing in online. In this paper, we have depicted two efficient encryption algorithms that meet security demand in cloud. Probabilistic encryption, one of these algorithms may be used to produce randomness of text encryption. With this algorithm, if the same message is encrypted twice it should yield different secret coded texts on both calculations. Another crucial algorithm is homomorphic encryption, is a cryptographic method to define the sample system and to provide a software implementation. In order to maintain quality of service (QoS) and improve customer satisfaction, we are going to propose an efficient algorithm which combines the characteristics of both probabilistic and homomorphic encryption techniques, to provide high level of security. Our proposed scheme will yield better encryption techniques reduce security attacks, increased throughput and improve the QoS.

Keywords Cloud computing · Probabilistic · Homomorphic · Encryption · Data storage

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1 Introduction

Cloud computing is a model for permitting pervasive, suitable, on-demand network access to a common typical pool of configurable computing assets (e.g., servers, applications, etc.). For defining the best way of encryption we propose this paper for betterment and quality of service (QoS) in cloud security. In modern cloud encryption, NULL is a block cipher created for analysis of loss in antiquity there is already found of rumors that the National Security Agency suppressed publication of this algorithm, there is no correct proof for such action on their part null encryption other efficient way on selecting NONE or null cipher is choosing not to use crypt in a system where different type of encryption options are offers, such as for testing and debugging, or authentication-only communication. Thus the data is remaining same after encryption. In mathematics such a function is known as the identity function. NULL is defined mathematically by the use of the Identity function applied to a block of data N such that:

$$\mathrm{NULL}(N) = I(N) = N, \tag{1}$$

where I(N) is the encrypted text and N is the original text so it remain the original after the encryption. Here we can name null encryption as the null ciphers. Null ciphers provide a way of concealing a message within a larger content of plain text without the need for a complicated crypt system, and they can also be more secure depends on the memory size of the text compared to the amount of plain text. The secret text is encoded as every character of a plain text, but there's enormous error and attacks of discovered systems. To make more efficient we minimize the chances of that revealing, various method should be used to determine the way of secret characters, ideally that terms gives the appearance of ran-

ENERGY SOURCES, PART A: RECOVERY, UTILIZATION, AND ENVIRONMENTAL EFFECTS
2016, VOL. 38, NO. 16, 2343–2348
http://dx.doi.org/10.1080/15567036.2015.1048389

Taylor & Francis
Taylor & Francis Group

Optimization of biodiesel produced from watermelon (*Citrullus vulgaris*) using batch-type production unit

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ABSTRACT
In the present work the production of a biodiesel from watermelon seed oil (*Citrullus vulgaris*) by methanol-induced transesterification using an alkaline catalyst (potassium hydroxide, KOH) has been examined. The influence of the operating variables such as agitation speed, temperature, reaction time, alcohol amount, and catalyst concentration was determined experimentally and found to be 550 rpm agitation rate, 60°C reaction temperature, 55 min reaction time, 20% of methanol, and 13 g of catalysts concentration for 2.5 liters of oil. The yield of biodiesel from the watermelon methyl ester (WME) under optimized conditions is found to be 91%. The properties of biodiesel are measured as per ASTM standards and compared with the base diesel.

KEYWORDS
Biodiesel; KOH; optimization; transesterification; watermelon oil

1. Introduction

The global petroleum demand for running diesel engines has been increasing, whereas the reliability of petro-diesel is becoming limited, which has resulted in high diesel prices, in addition to creating to other negative effects such as air pollution and global warming. The switch to biodiesel brings a sustainable alternative source for diesel fuel. Biodiesel is a renewable and environmental-friendly fuel that is derived from vegetable oil (Amini-Niaki et al., 2013). In general, vegetable oil contains 97% of triglycerides and 3% of di- and monoglycerides and fatty acids. Transesterification is the chemical reaction between triglycerides and short-chain alcohol in the presence of catalyst to produce monoester. The long- and branched-chain triglyceride molecules are transformed to monoester and glycerin. Transesterification or alcoholysis is the displacement of alcohol from one ester by another alcohol in a process similar to hydrolysis. Transesterification is the process of using an alcohol (methanol or ethanol) in the presence of a catalyst, such as sodium hydroxide or potassium hydroxide (KOH), to chemically break the molecule of the raw oil into methyl or ethyl esters of the oil with glycerol as a by-product. This process has been widely used to reduce the viscosity of triglycerides. The transesterification reaction requires a catalyst for better efficiency of the process (Gaurav and Sharma, 2014; Sehmus Altun, 2014). From the above literature review, it is clear that a majority of the researchers have focused on the transesterification process of various types of vegetable oils for the production of biodiesel. However, none used watermelon seed oil methyl ester as a fuel for diesel engine. The main focus of this research is to produce biodiesel from watermelon seed oil by the transesterification process as a fuel and also to evaluate the properties of watermelon biodiesel blends with diesel (B20, B40, B60, B80, and B100) compared with diesel fuel.

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Color versions of one or more of the figures in the article can be found online at www.tandfonline.com/ueso.

Transportation Research Part D 48 (2016) 225–234

Contents lists available at ScienceDirect

Transportation Research Part D

journal homepage: www.elsevier.com/locate/trd

Effect on direct injection naturally aspirated diesel engine characteristics fuelled by pine oil, ceiba pentandra methyl ester compared with diesel

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ARTICLE INFO

Article history:

Keywords:
Pine oil
Ceiba pentandra bio-diesel
Performance
Emission and combustion

ABSTRACT

This paper explores the experimental investigation of the performance, emission and combustion characteristics of bio fuels from ceiba pentandra methyl ester (CPME), ceiba pentandra methyl ester-pine oil blends (CPMEP) and pine oil and the results are compared with diesel. In ceiba pentandra seed oil the CPME yield is 92% by using transesterification process with the optimum conditions of 560 rpm, reaction time 58 min, catalyst concentration 13 g and methanol amount 500 ml. The viscosity of CPME is high when compare with diesel. So the low viscosity of pine oil is blended with CPME and it can be directly used in diesel engine without any modification. At different loads the Pine oil, CPME and CPMEP blends were used in direct injection naturally aspirated compression ignition engine. The outcomes exhibited that at full load conditions for CPME and CPMEP blends increased brake specific fuel consumption, and decreased brake thermal efficiency, CO, HC emissions. NOx emissions decreased and smoke emissions are increased on CPME and CPMEP blends, expect B25 blend compared with diesel. The combustion analysis like the heat release rate, peak cylinder pressure, cumulative heat release rate and ignition delay for CPME, CPMEP blends slightly lower and combustion duration higher than diesel and pine oil. At the Same engine operating condition, the engine fuelled with pine oil the values of brake thermal efficiency 4.79%, peak cylinder pressure, heat release rate, cumulative heat release rate and ignition delay are increased. Brake specific fuel consumption, CO, HC, and smoke were 9.46%, 16.66%, 14.89% and 8.33% decreased. However, the NOx emission is 8.29% higher than that of diesel. Experimental fuels up to B50 (50% pine oil and 50% CPME) blends have proved good potential for future energy is needed.

1. Introduction

As global oil reserves decline and climate change resulting from the burn of fossil fuels becomes more apparent, it's plays a vital role to develop and exploit sustainable and non-polluting (ie carbon neutral) energy sources. At the same time, it has

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http://dx.doi.org/10.1016/j.trd.2016.08.023
1361-9209/

1361-9209

Transportation Research Part D 46 (2016) 145–156

Contents lists available at ScienceDirect

Transportation Research Part D

journal homepage: www.elsevier.com/locate/trd

The role of nano additives for biodiesel and diesel blended transportation fuels

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article info

Article history:

Keywords:
Biodiesel
Raw mahua oil
Mahua oil methyl ester
Nano additives
Engine performance and emissions

abstract

The energy crisis is due to two reasons, one is the rapid increase in worldwide population and the other is changing living style of human beings. The fossil fuel is also a major contributor to add the harmful pollutants into the atmosphere. Fuel modifications play a major role in increasing engine efficiency and reducing emissions. In the present investigation focused on fuel modifications in diesel engine. Initially the single cylinder diesel engine was operated with 20MEOM, 40MEOM, 60MEOM, 8MEOM and 100MEOM without additives with diesel at different loads at constant rated speed. From the experimental study proved that 20MEOM is the best fuel ratio compared to other blends. In second phase based upon first phase results the engine was operated 20MEOM blended fuel with adding 50 ppm copper oxide nano additives with diesel using solgel process. From the results, the brake thermal efficiency was 2.19% improved compared than 20MEOM blend without additive at full load condition. Emissions of HC, CO and smoke were considerably reduced. The present analysis reveals that the biofuel from mahua oil with nano additives is quite suitable as an alternate fuel for diesel engine.

Introduction

The transport sector plays a major role in the economic development of the country (Haiter Lenin et al., 2013). Diesel engines are used to power automobiles, locomotives, ships, and irrigation pumps and used widely to generate electric power (Ramreddy, 2014). Increase in population and living standards of human beings will lead to an energy crisis (Nandi, 2010). Due to the rapid increase in the demand for diesel and other petroleum products, India's dependence on oil import is expected to rise by 92% in the year of 2030 (Varathavijayan et al., 2013). Due to recent energy crises and dwindling reserves of crude oil the demand for alternate liquid fuels, particularly the biodiesel is increasing (Naramsetty et al., 2013). There are many advantages in using bio-diesel as an alternate liquid fuel such as easily availability, environment friendly, potential usage, biodegradable and contribution to sustainability (Demirbas, 2007).

Biodiesel can be extracted from various edible and non-edible vegetable oils. Many researchers have recommended non-edible oils to be a sustainable alternative for biodiesel production. They have identified several non-edible crops that can be

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http://dx.doi.org/10.1016/j.trd.2016.03.015
1361-9209/

Criteria 3

3.3.4

Number of research papers per teacher in the Journals notified on UGC website

(2015 – 2016)

3.3.4 Number of research papers per teacher in the Journals notified on UGC website during the academic Year 2015 - 2016

S.No	Name of the author/s	Department of the teacher	Title of paper	Name of journal	Year of publication	ISBN/ ISSN number	Link of the recognition in UGC enlistment of the Journal
1	Prof. H. Abdul Zubar	MECH	Evaluating lean execution performance in Indian MSMEs using SEM and TOPSIS models	International Journal of Operational Research	2015 - 2016	ISSN 1745-7653	UGC-CARE List Group A, Web of Science, Scopus https://www.inderscience.com/info/inarticle.php?artid=75652
2	K. Visagavel	MECH	Effects of Exhaust gas recirculation on emission Characteristics of Mahua biodiesel using Red mud as catalyst	Energy Sourses Part A : Recovery , Utilization and Environmental Effects	2015 - 2016	ISSN :1556-7036	UGC-CARE List Group A, Web of Science, Scopus https://www.tandfonline.com/doi/abs/10.1080/15567036.2015.1089340
3	H.Abdul Zubar	MECH	Cloud Computing Integrated With Testing to ensure quality	Jounal of Scientific and Industrial Research	2015 - 2016	IISSN: 0975-1084 (Online) ISSN: 0022-4456 (Print)	UGC-CARE List Group A, Web of Science, Scopus http://nopr.niscair.res.in/handle/123456789/33731
4	N.Suthanthira Vanitha	EEE	Identification of Open-Switch and Short-Switch Failure of Multilevel Inverters through DWT and ANN Approach using LabVIEW	Journal of Electrical Engineering and Technology	2015 - 2016	ISSN / eISSN: 1975-0102 / 2093-7423	UGC-CARE List Group A, Web of Science, Scopus http://home.jeet.or.kr/archives/view_articles.asp?seq=1397
5	N.Suthanthira Vanitha	EEE	S-Transform Based Time – Frequency Analysis of Leakage Current Signals of Transmission Line Insulators under Polluted Conditions	Journal of Electrical Engineering and Technology	2015 - 2016	ISSN / eISSN: 1975-0102 / 2093-7423	UGC-CARE List Group A, Web of Science, Scopus http://home.jeet.or.kr/archives/view_articles.asp?seq=1199
6	M. Senthil	MECH	Effects of Exhaust gas recirculation on emission Characteristics of Mahua biodiesel using Red mud as catalyst	Energy Sourses Part A : Recovery , Utilization and Environmental Effects	2015 - 2016	ISSN :1556-7036	UGC-CARE List Group A, Web of Science, Scopus https://www.tandfonline.com/doi/abs/10.1080/15567036.2015.1089340

7	N. Panneerselvam	MECH	Performance,emissionsand combustion characteristics of CI engine fuel with watermelon methyl esters	International journal of Ambient Energy	2015 - 2016	ISSN:043-0750	UGC-CARE List Group A, Web of Science, Scopus https://www.tandfonline.com/doi/abs/10.1080/17597269.2015.1123985?journalCode=tbfu20
8	N. Panneerselvam	MECH	Computational engine Performance and emission analysis using ceiba pentandra biodiesel	Biofuels	2015 - 2016	ISSN:1759-7277	UGC-CARE List Group A, Web of Science, Scopus https://www.sciencedirect.com/science/article/pii/S0378382016301369
9	N.Santhiyakumari	ECE	Evaluation of k-Means and fuzzy C-means segmentation on MR images of brain	The Egyptian Journal of Radiology and Nuclear Medicine	2015 - 2016	0378-603X	UGC-CARE List Group A Scopus https://www.sciencedirect.com/science/article/pii/S0378603X15000522
10	N.Santhiyakumari	ECE	Segmentation and volume estimation of tumor edema complex	Journal of Medical Imaging and Health Informatics	2015 - 2016	2156-7026	UGC-CARE List Group A, Web of Science, Scopus http://www.aspbs.com/jmihi/contents_jmihi2015.htm#v5n3
11	N.Suthanthira Vanitha	EEE	A Unified Approach to Detect the Record Duplication Using BAT Algorithm and Fuzzy Classifier for Health Informatics	Journal of Medical Imaging and Health Informatics	2015 - 2016	ISSN / eISSN: 2156-7018 / 2156-7026	UGC-CARE List Group A, Web of Science, Scopus https://www.ingentaconnect.com/content/asp/jmihi/2015/00000005/00000006/art00001
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14	Abdul Zubar. H	MECH	A hybrid Ant Colony optimization algorithm for job scheduling in computational grids	Journal of Scientific & Industrial Research	2015 - 2016	ISSN:0975-1084 (Online); 0022-4456 (Print)	UGC-CARE List Group A, Web of Science, Scopus https://www.ripublication.com/Volume/ijaerv10n50spl.htm

1745 - 1753

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Evaluating lean execution performance in Indian MSMEs using SEM and TOPSIS models

Article in International Journal of Operational Research · January 2016

DOI: 10.1504/IJOR.2016.075552

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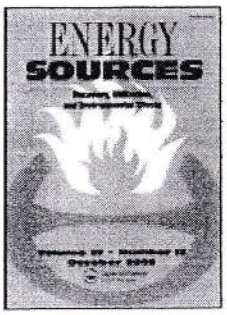

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Energy Sources, Part A: Recovery, Utilization, and Environmental Effects

ISSN: 1556-7036 (Print) 1556-7230 (Online) Journal homepage: http://www.tandfonline.com/loi/ueso20

Effects of exhaust gas recirculation on emission characteristics of Mahua (Madhuca Indica) biodiesel using red mud as catalyst

M. Senthil, K. Visagavel & A. Avinash

To cite this article: M. Senthil, K. Visagavel & A. Avinash (2016) Effects of exhaust gas recirculation on emission characteristics of Mahua (Madhuca Indica) biodiesel using red mud as catalyst, Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 38:6, 876-881, DOI: 10.1080/15567036.2015.1089340

To link to this article: http://dx.doi.org/10.1080/15567036.2015.1089340

Published online: 13 Apr 2016.

Journal of Scientific & Industrial Research
Vol. 75, February 2016, pp. 77-81

Cloud Computing Integrated with Testing to Ensure Quality

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Received 27 April 2014; revised 5 August 2015; accepted 20 December 2015

Cloud data is growing popular day by day. Cloud data is one of the continuous explosions of large volume of data that are generated, processed, stored and accessed by applications that handle instantaneously, several concurrent transactions of data. The transition from structured relational data to voluminous unstructured, non-semantic and highly complex data remains a great challenge to data managers, data workers, data analysers to hold and organize cloud data. Creators and analytics are working with it using several upcoming frameworks and technological supports. Test designers and testing squads are also included in this development. Testing big data is one of the biggest challenges faced by organizations because of lack of knowledge on what is to be tested and how much data is to be tested. Hence, the focus is on the testing of big-data deployed in cloud. The data to be tested and the tool to be used are determined. The tool chosen for analysis is Zoho Reports and the testing tool employed is Red Gate's ANTS performance profiler. The data deployment and retrieval are done through the web services.

Keywords: Big data, Cloud data, ANTS performance profiler.

Introduction

Enormous, voluminous, vast, complex, heterogeneous are some of the common terms that are perceived when Big Data is thought of. Big Data is the continuous explosion of large volume of data that are generated, processed, stored and accessed by applications that handle instantaneously several concurrent transactions of data. A transition from structured relational data to voluminous unstructured, non-semantic, but essentially, highly complex data remains a great challenge to data managers, data workers, data analyzers to hold and organize such Big Data. The basic process and construction of the cloud computing is explained as shown in the fig. 1.Whether static or dynamic, Big Data possesses four characteristics. They are volume, variety, velocity and veracity of data processing. Volume is the enormity of data, variety is the heterogeneity of data, velocity is the rate of transfer (speed) of data that comes in, flows within and goes out, and veracity is the trust worthiness of the data or information.Social Networking sites, Patenting websites, Geographical and Spatial data processing applications, remote sensing and meteorological systems have gone forward to collect data in fraction of a second and all of them are considered veracity data. Though system architects and designers are researching better ways to master Big Data, Test Architects and Test Engineers are also not far away from facing Big Test Data.

Relative work

Testing-as-a-service (TaaS) is a new model which provides testing capabilities to end users[1]. In this paper a prototype of TaaS over cloud is developed, and the performance is tested by increasing the work load. Scheduling and dispatching algorithms

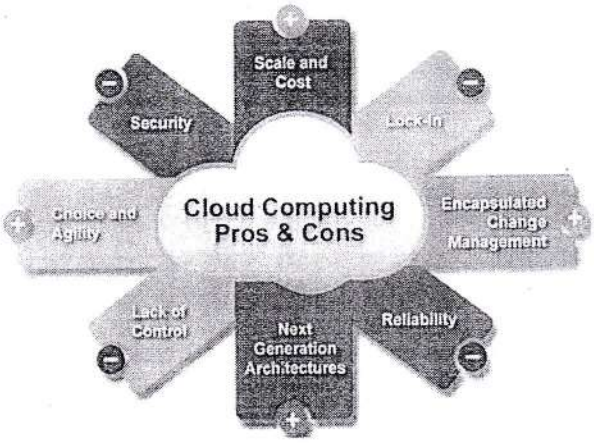

Fig. 1- Cloud Computing process and Construction

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J Electr Eng Technol.2015; 10(6): 2277-2287
http://dx.doi.org/10.5370/JEET.2015.10.6.2277

ISSN(Print) 1975-0102
ISSN(Online) 2093-7423

Identification of Open-Switch and Short-Switch Failure of Multilevel Inverters through DWT and ANN Approach using LabVIEW

E. Parimalasundar† and N. Suthanthira Vanitha*

Abstract – In recent times, multilevel inverters are given high priority in many large industrial drive applications. However, the reliability of multilevel inverters are mainly affected by the failure of power electronic switches. In this paper, open-switch and short-switch failure of multilevel inverters and its identification using a high performance diagnostic system is discussed. Experimental and simulation studies were carried out on five level cascaded H-Bridge multilevel inverter and its output voltage waveforms were analyzed at different switch fault cases and at different modulation index values. Salient frequency domain features of the output voltage signal were extracted using the discrete wavelet transform multi resolution signal decomposition technique. Real time application of the proposed fault diagnostic system was implemented through the LabVIEW software. Artificial neural network was trained offline using the Matlab software and the resultant network parameters were transferred to LabVIEW real time system. In the proposed system, it is possible to precisely identify the individual faulty switch (may be due to open-switch (or) short-switch failure) of multilevel inverters.

Keywords: Multilevel inverter, LabVIEW, DWT, Artificial neural networks, Fault diagnosis

1. Introduction

In recent years, multilevel power electronic inverters are finding increased attention in the design of large industrial electric drives in order to meet the high power demands required by them. The major advantages of multilevel inverters are the reduction in harmonic distortion of output voltage waveform with increase in number of levels and flexibility to use a set of batteries or fuel cells in any intermediate stages [1-3]. Even though multilevel inverters have made their way successfully to the industrial applications with a proven technology, failure of power electronic switches and its fault diagnosis is still a hot research topic of many researchers. In industrial applications, where safe and reliable operation is always expected, it is important to monitor the condition of power electronic switches in inverters. As the number of level increases, number of power electronic switches also increases which leads to increase in probability of failure of any switch and hence any such fault should be detected at the earliest in order to avoid the operation of drive and motor under abnormal conditions [4-14].

Among the various modes of failures of power electronic switches, open-switch and short-switch faults are most common and leads to current distortion and creates problems in gate drivers and hence reduces the system performance. Some researchers used the inverter current [8-9] and inverter output voltage [11-15] to develop the fault diagnostic system. Surin Khomfoi *et al.* [13], developed an open-switch fault diagnostic system of a multilevel inverter using the output voltage FFT pattern and five parallel neural networks with 40 input neurons per network. Since the size of the neural network is high, in another paper, Surin Khomfoi *et al.*, proposed an alternative methodology in which combination of FFT, principal component analysis, genetic algorithm and neural network approach was used to detect the fault type and fault location [14]. Identification of switch fault of multilevel inverters is still a hot research topic and many researchers are working hard to identify the fault accurately. However, reports on real time implementation of high performance fault diagnostic system for cascaded H-bridge multilevel inverter are scanty.

Considering the above facts, in this work, inverter output voltage is considered as an important parameter for faulty switch identification of multilevel inverter. Discrete Wavelet Transform (DWT) approach is used to extract important features such as energy content of output voltage waveform at different frequency bands [16-18]. Real time application of the proposed fault diagnostic system is implemented through LabVIEW software, which is a sophisticated tool for developing and running real time applications. LabVIEW utilizes graphical programming language developed by National Instruments and it has been successfully applied for data acquisition, instrument control and industrial automation [19-21]. Artificial Neural Network (ANN) is a powerful tool in the classification of patterns through learning and nonlinear mapping [22-23]. Deploying both

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Received: October 14, 2014; Accepted: June 23, 2015

J Electr Eng Technol.2015; 10(2): 616-624
http://dx.doi.org/10.5370/JEET.2015.10.2.616

ISSN(Print) 1975-0102
ISSN(Online) 2093-7423

S-Transform Based Time-Frequency Analysis of Leakage Current Signals of Transmission Line Insulators under Polluted Conditions

A. Natarajan† and Suthanthiravanitha Narayanan*

Abstract – Flashover of power transmission line insulators due to contamination is a major threat to the reliable operation of power system. This paper deals with the analysis of leakage current characteristics of polymeric insulator using S-Transform technique in order to develop a better diagnostic tool to identify the surface condition of outdoor polymeric insulators. In this work, experiments were carried out on 11 kV silicone rubber insulator under AC voltage at different pollution levels. Moving average technique was adopted to find the trend followed by LC peak at different relative humidity conditions. S-Transform was used to find the relationship between energy and frequency content of the leakage current signal with respect to increase in pollution level over a period of time. From the S-Transform time-frequency contour analysis, point of transition to severe arcing due to increase in pollution and its thershold limit were evaluated. Reported results show that the surface condition of insulators could be easily identified from the S-Transform time-frequency analysis of leakage current signals.

Keywords: Silicone rubber, Insulator, Flashover, S-Transform, Pollution, Time-frequency map

1. Introduction

Ceramic and polymeric insulators are widely used in power transmission and distribution systems. In recent times, silicone rubber polymeric insulators are mostly preferred because of their superior insulation and surface hydrophobicity characteristics compared with other insulators [1, 2]. The hydrophobicity of silicone rubber material provides high electrical surface resistance. The long term maintenance of the hydrophobicity of silicone rubber insulator is mainly due to its chemical stability and diffusion of low molecular weight contents from bulk volume to the surface of the material [3]. However, when these insulators are installed near industrial, agricultural or coastal areas, pollution builds up gradually on the surface of the insulator, which results in the flow of leakage current (LC) under wet conditions and finally leads to arcing and flashover. Contamination flashover of outdoor insulators results in power outages, waste of time and money and sometimes equipment damage. In addition, continuous arcing on the surface of the insulator results in material degradation and reduction in hydrophobicity, which in turn decreases the insulation strength. Therefore electrical utilities are keen in the development of a better diagnostic tool to predict exactly the surface condition of polymeric insulators under severe pollution conditions.

Analysis of surface deterioration of the polymeric insulators due to the formation of surface discharges is a complex process. Various approaches were used to predict the flashover and surface degradation of outdoor insulators [4-17]. R.S.Gorur et al., [7] measured the surface resistance to identify the surface condition of non-ceramic insulators. Many research papers deal with the measurement and analysis of LC, because it is directly related to arcing phenomena occurring on insulator [8-11]. S.Kumagai et al., [13] have compared the LC characteristics and aging of porcelain and polymeric insulator in both field and salt fog tests. They have concluded that the time variations of cumulative charges and their component ratios were useful for estimating the conditions of ceramic and polymeric insulating surfaces.

From the reported earlier investigations, it is clear that LC follows different pattern during the deveopment of flashover, from lightly polluted conditions to heavily polluted conditions. L.H.Meyer et al., [14] have shown that there exists a good correlation between the measured harmonic power components of dry band arcing and the surface temperature of silicone rubber samples. T.Suda [15], studied the LC waveforms and frequency characteristics of an artificially polluted cap and pin type insulator and classified the transition of LC waveforms into six stages in order to predict the flashover. Proper understanding of the various LC pattern and its time-frequency characteristics is very important in order to evaluate the surface condition of polymeric insulators.

M.Ugur et al., [16] proposed a methodology to classify the surface condition of the polymeric insulation structure using neural network approach by utilizing the features extracted from the FFT analysis of the LC during tracking

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Received: May 16, 2014; Accepted: October 13, 2014

Taylor & Francis

Energy Sources, Part A: Recovery, Utilization, and Environmental Effects

ISSN: 1556-7036 (Print) 1556-7230 (Online) Journal homepage: http://www.tandfonline.com/loi/ueso20

Effects of exhaust gas recirculation on emission characteristics of Mahua (Madhuca Indica) biodiesel using red mud as catalyst

M. Senthil, K. Visagavel & A. Avinash

To cite this article: M. Senthil, K. Visagavel & A. Avinash (2016) Effects of exhaust gas recirculation on emission characteristics of Mahua (Madhuca Indica) biodiesel using red mud as catalyst, Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 38:6, 876-881, DOI: 10.1080/15567036.2015.1089340

To link to this article: http://dx.doi.org/10.1080/15567036.2015.1089340

Published online: 13 Apr 2016.

International Journal of Ambient Energy

ISSN: 0143-0750 (Print) 2162-8246 (Online) Journal homepage: http://www.tandfonline.com/loi/taen20

Performance, emissions and combustion characteristics of CI engine fuel with watermelon (Citrullus vulgaris) methyl esters

N. Panneerselvam, A. Murugesan, C. Vijayakumar & D. Subramaniam

To cite this article: N. Panneerselvam, A. Murugesan, C. Vijayakumar & D. Subramaniam (2015): Performance, emissions and combustion characteristics of CI engine fuel with watermelon (Citrullus vulgaris) methyl esters, International Journal of Ambient Energy, DOI: 10.1080/01430750.2015.1087431

To link to this article: http://dx.doi.org/10.1080/01430750.2015.1087431

Accepted author version posted online: 01 Sep 2015.
Published online: 21 Oct 2015.

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Biofuels

ISSN: 1759-7269 (Print) 1759-7277 (Online) Journal homepage: http://www.tandfonline.com/loi/tbfu20

Computational engine performance and emission analysis using Ceiba pentandra biodiesel

N. Panneerselvam, A. Murugesan, K.P. Porkodi, Terefe Jima, C. Vijayakumar & D. Subramaniam

To cite this article: N. Panneerselvam, A. Murugesan, K.P. Porkodi, Terefe Jima, C. Vijayakumar & D. Subramaniam (2016): Computational engine performance and emission analysis using Ceiba pentandra biodiesel, Biofuels, DOI: 10.1080/17597269.2015.1123985

To link to this article: http://dx.doi.org/10.1080/17597269.2015.1123985

Published online: 07 Jan 2016.

The Egyptian Journal of Radiology and Nuclear Medicine (2015) 46, 475–479

Egyptian Society of Radiology and Nuclear Medicine

The Egyptian Journal of Radiology and Nuclear Medicine

www.elsevier.com/locate/ejrnm
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ORIGINAL ARTICLE

Evaluation of k-Means and fuzzy C-means segmentation on MR images of brain

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Received 17 September 2014; accepted 21 February 2015
Available online 24 March 2015

KEYWORDS

Glioblastoma multiforme;
Necrotic focus;
Vasogenic edema;
Bilateral filter;
Contrast limited adaptive histogram equilization

Abstract This paper does the qualitative comparison of Fuzzy C-means (FCM) and k-Means segmentation, with histogram guided initialization, on tumor edema complex MR images. The accuracy of any segmentation scheme depends on its ability to distinguish different tissue classes, separately. Hence, there is a serious pre-requisite to evaluate this ability before employing the segmentation scheme on medical images. This paper evaluates the ability of FCM and k-Means to segment Gray Matter (GM), White Matter (WM), Cerebro-Spinal Fluid (CSF), Necrotic Focus of Glioblastoma Multiforme (GBM) and the perifocal vasogenic edema from pre-processed T1 contrast axial plane MR images of tumor edema complex. The experiment reveals that FCM identifies the vasogenic edema and the white matter as a single tissue class and similarly gray matter and necrotic focus, also. k-Means is able to characterize these regions comparatively better than FCM. FCM identifies only three tissue classes whereas; k-Means identifies all the six classes. The experimental evaluation of k-Means and FCM, with histogram guided initialization is performed in Matlab®.

1. Introduction

Image segmentation is one of the most interesting and challenging problems in computer vision generally and medical imaging applications specifically. Segmentation partitions an image area or volume into nonoverlapping, connected regions, being homogeneous with respect to some signal characteristics (1). Segmentation approaches are subject to multiple challenges stemming from image noise, image inhomogeneities, image artifacts such as partial volume effect, and discontinuities of boundaries due to similar visual appearance of adjacent brain structures. A variety of segmentation techniques have been developed to address these challenges. Brain MR segmentation methods can be classified into three main categories: probabilistic and statistical-based, atlas-based, and deformable model-based techniques (2). Hence, there is a mandatory prerequisite to investigate the ability of the segmentation scheme to characterize the complete tissue classes, present in the image, separately, before employing any statistical segmentation frame work. MR images of tumor edema complexes exhibit homogenous intensity features

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Peer review under responsibility of Egyptian Society of Radiology and Nuclear Medicine.

http://dx.doi.org/10.1016/j.ejrnm.2015.02.008
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RESEARCH ARTICLE

Journal of Medical Imaging and Health Informatics
Vol. 5, 615–621, 2015

Segmentation and Volume Estimation of Tumor Edema Complex

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Defining the outline of brain tumors which have homogenous pixel intensities with adjacent tissues is always difficult. Glioblastoma Multiforme (GBM) is a deep rooted tumor and vasogenic edema is usually observed in its periphery. None of the imaging modalities has sufficient image quality to allow easy identification of the GBM boundary from the perifocal edema. Manual outlining of GBM-focus is time consuming and subjective. Here a novel approach is proposed to define the margin of GBM from the surrounding edema and for computing Gross Tumor Volume (GTV) as well as Clinical Target Volume (CTV). Segmentation of GBM-focus from perifocal edema is accomplished by *K*-Means clustering. Pre-processing include background removal, bilateral filtering, histogram equalization and skull stripping. The precise definition of tumor margins ensures accurate estimation of radio therapy target volumes. Segmentation results show that they are in good agreement with standard manual segmentation. The proposed method exhibits an average Dice Similarity Index (DSI) of 0.8017. Pre-processing, segmentation, volumetric estimation and validation are performed in Matlab®.

Keywords: Glioma, Glioblastoma Multiforme, Neoplasm, Jaccard Index, Dice Similarity Index, Necrosis, Vasogenicedema, Ependymoma.

1. INTRODUCTION

Glioblastoma Multiforme (GBM) is one of the most common high grade glioma. GBM is usually non-enhancing on images and present with areas of necrosis and edema.[1] None of the existing imaging modalities offer sufficient image quality to identify the extent of GBM infiltration into the edema. Beyond the visible extent, GBM may be present several centimeters deep into the edema. T1-weighted images without contrast are less sensitive to GBM and edema.[2] In T2-weighted sequences, the GBM focus is not well separated from surrounding edema. Even Magnetic Resonance Spectroscopy (MRS) fails to visualize the GBM extent from edema, as finding the point of spectral changes is difficult.[3]

Complete irradiation of GBM is accomplished by a series of biopsies and radiation through trial and error method. It is time consuming and cause psychological and financial burdens to the patient. Segmentation of GBM for treatment planning is through time-intensive and highly subjective manual outlining by radiation oncologists. Because of the uncertainty in contouring GBM from their CT or MRI image, an additional 2–3 cm margin is usually included for radiation. This excess margin, results in unwanted irradiation of more normal tissues. Injury to normal brain tissues causes disabilities.[4] Among the segmentation approaches, methods which are specific to GBM are hardly few. Xue et al.[5] applied an initial knowledge-based fuzzy clustering, followed by the Support Vector Machine (SVM) active learning approach, to segment GBM from multi-modal MR images. Literature[6] incorporated a fuzzy formulation of Region Growing with an automatic initialization of the seed points. This was accomplished through a Region Growing-Fuzzy C-Means hybrid. Huo et al.[7] demonstrated a Confidence Map Averaging (CMA) of three individual strategies, fuzzy connectedness, grow cut and voxel classification, to in-corporate multiple segmentation results into a single one. Phillips et al.[8] also claimed unsupervised Fuzzy C-Means (FCM) clustering to be a viable solution for GBM separation. Automatic strategy in Ref. [4] was based on decision forests, which uses context-aware spatial features.

In literature,[9] MR sequences are manipulated with a framework which combines Knowledge-Based (KB) techniques with multispectral analysis. Geremia et al.[10] described a fully automated attempt which uses 3D MR input images. This attempt relies on the discriminative random decision forest framework, to offer a voxel-wise probabilistic characterization of the Volume of Interest (VOI).

In Pedoia et al.[11] the clustering method was based on energy minimization through Graph-Cut (GC). GC was applied on the volume which was computed as a difference between the left hemisphere and the right hemisphere, mirrored across the symmetry plane. Literature[12] investigated a generative approach for

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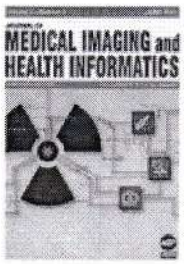

A Unified Approach to Detect the Record Duplication Using BAT Algorithm and Fuzzy Classifier for Health Informatics

Authors: Senthilkumar, P.; Vanitha, N. Suthanthira
Source: Journal of Medical Imaging and Health Informatics, Volume 5, Number 6, November 2015, pp. 1121-1132(12)
Publisher: American Scientific Publishers
DOI: https://doi.org/10.1166/jmihi.2015.1508

Generally, data cleaning techniques are employed in data engineering applications to improve the quality of data. Besides, removing duplicate records after the identification from the medical data sets are performed by data cleansing for improving the quality of medical data and that lights up the disease diagnosis and health wellbeing to the next level. Likely, significant efforts have been already made by the different researchers to identify the duplicate records from medical data using soft computing techniques. Accordingly, a genetic programming approach was given recently into record de-duplication that combined several different pieces of evidence extracted from the data content. In this paper, it is planned to develop a data duplication identification technique using soft computing methods for improved data assessment in medical data. The major problem in the field of medical data and other health information is the persistence of multiple data or redundant data. Thus in the proposed method, an algorithms based on bat algorithm and fuzzy classifier is addressed. In the method, the

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Int. J. Electrochem. Sci., 11 **(2016)** 3393 - 3414

International Journal of
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Corrosion Inhibition of Mild Steel in Hydrochloric Acid using4-(pyridin-2yl)-N-p-tolylpiperazine-1-carboxamide

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Received: 8 July 2015 / *Accepted:* 16 February 2016 / *Published:* 1 April 2016

4-(pyridin-2yl)-N-p-tolylpiperazine-1-carboxamide(PTC) was synthesized and characterized using FT-IR, ^{1}H NMR, and ^{13}C NMR spectra. The inhibitive action of 4-(pyridin-2yl)-N-p-tolylpiperazine-1-carboxamide(PTC) against corrosion of mild steel in a 1M HCl solution was investigated using weight loss measurements, potentiodynamic polarization and electrochemical impedance spectroscopy(EIS). The inhibition efficiency increases with increasing concentration of inhibitor whereas it decreases with increasing temperature. EIS results showed that the change in the impedance parameters (Rct and Cdl) with concentration of (PTC) is indicative of the adsorption of molecules leading to the formation of a protective layer on the surface of mild steel. Potentiodynamic polarization study showed that PTC is a mixed type inhibitor. Surface analysis by SEM confirmed the formation of adsorbed protective layer of the inhibitor on the steel surface. The adsorption of inhibitor follows the Langmuir adsorption isotherms. Thermodynamic parameters such as activation energy (Ea), free energy change (ΔGads), enthalpy change (ΔHads) and entropy change (ΔSads) were also calculated and discussed in detail.

Keywords: Corrosion; Inhibition efficiency: HCl, Mild steel, Weight loss, EIS, Tafel Polarization and adsorption.

1. INTRODUCTION

Mild steel is widely applied as the constructional materials in many industries due to its excellent mechanical properties and low cost [1]. Hydrochloric acid solutions are widely used in several industrial processes. Some of the important fields of application being acid pickling of steel, chemical cleaning and processing, ore production and pipelines , other corrosion products from the surface of equipment's such as heat exchangers, boilers, cooling towers, etc. [2-3] Because of the general aggression of acid solutions, inhibitors are commonly used to reduce the corrosive attack on metallic materials. The use of corrosion inhibitors constitutes one of the most economical

doi: 10.20964/10109

http://dx.doi.org/10.6113/JPE.2015.15.5.1178
ISSN(Print): 1598-2092 / ISSN(Online): 2093-4718

JPE 15-5-4

Synthesis and Implementation of a Multi-Port DC/DC Converter for Hybrid Electric Vehicles

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Abstract

A non-isolated Multiple Input Converter (MIC) with an input port, two storage ports and a load port is proposed. The synthesis of the proposed four port converter with its switch realization is presented. A steady state analysis of each operating mode with a small-signal model is derived, and a stability analysis is done. A mode selection controller is proposed to automatically choose a specific operating mode based on the voltage levels of the different source and storage units. In addition, a voltage control loop is used to regulate the output voltage. A 200W prototype is built with a TMS320F28027 DSP controller to test the feasibility of the operating modes. Simulation and experimental results show the ability of the proposed converter to handle multiple inputs either individually or simultaneously.

Key words: DSP, Hybrid Electric Vehicle, Multiple Input Converter, Stateflow model, Synthesis, Ultracapacitor

I. INTRODUCTION

With the increased attention towards energy efficiency and environmental pollution, alternatives with a small carbon footprint have found renewed interest in recent times. The traditional way to improve energy efficiency is to shift to all-electric. Transportation, a major contributing factor for greenhouse gas emissions has started to electrify its infrastructure. Electric Vehicles are the forerunners in electrified transportation and this technology is now growing by leaps and bounds. While the carbon footprint of an Electric Vehicle (EV) is actively debated [1], [2], it is seen as a promising alternative to curb fuel costs [3]. EV's have a unique power profile that has both power utilization and regeneration at different instants of its operation. Since a pure EV has a high efficiency (68%) and a low cost when compared to Fuel Cell (FC) based EVs (30%), research on the latter has been losing significance [4].

Electric vehicle growth is greatly impacted by power electronics technology with the introduction of different architectures [5], [6].

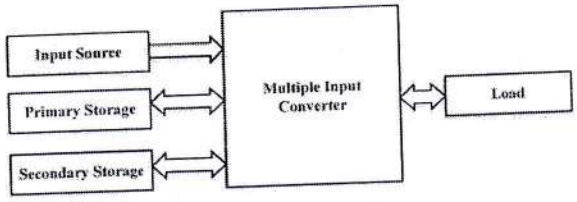

Fig. 1. Block diagram of Multiple Input Converter.

The Electric Vehicle, in the course of evolution, has included many onboard sources and storage units [7]. To quench and capture the intermittent requirements, high energy density ultra-capacitors are used in addition to a primary source [8]. The excellent performance of a battery with an ultracapacitor energy storage system has been reported in [9], [10]. This necessitates a multi-port power converter that manages power from all of the sources and delivers a regulated voltage to the load.

The multi-port converters available in the literature can be broadly classified into two major categories: Isolated and Non-Isolated Converters. Isolated converters are preferred if the voltage difference between the source and the load is high. Isolated converters show a common trend of shared secondary winding with individual primary windings for

Manuscript received Jan. 21, 2015; accepted Apr. 20, 2015
Recommended for publication by Associate Editor Joung-Hu Park.
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Journal of Scientific & Industrial Research
Vol 74, July 2015, pp. 377-380

A Hybrid Ant Colony Optimization Algorithm for Job Scheduling In Computational Grids

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Received 10 January 2014; revised 26 April 2015; accepted 18 June 2015

Grid computing links disparate computers having free resources to form a low cost infrastructure. Grid computing can provide enormous opportunities for organizations to use resources from multiple geographical locations. For efficient utilization of available resources, grid scheduling plays an important role in the grid system. Scheduling is challenging in grid due to the unique characteristics. Also, the complexity of scheduling algorithm is NP-Complete. In this study, a local search heuristic by way of multipoint mutation is introduced on the popular swarm intelligence inspired meta-heuristic, Ant Colony Optimization. Experiments show the proposed technique improves the Makespan and converges faster than conventional Ant Colony Optimization.

Keywords: Grid computing, Grid Scheduling, Ant Colony Optimization (ACO), Makespan, local search

Introduction

Grid computing is a high performance computing environment to solve large scale computational demands. The major components in the grid architecture for effective utilization of resources include the user interface to manage and upload jobs, directory brokering, Grid information services[1], resource allocation and monitoring, job scheduling[2], secure access to resources and services and the actual fabric containing clock cycles, storage and sensors. To effectively utilize the distributed resources and maintain quality of service, scheduling plays a very important role. However scheduling algorithms in Grid face issues of heterogeneity for both jobs and resources.The phases of grid scheduling include resource discovery, resource selection, scheduling and monitoring. The resource monitor queries the Resource Discovery System like MDS of Globus toolkit and collects the resources available in the network. The data thus collected is available locally for the resource mapper to map the ideal resources for the job in hand. Once the resources are selected, the scheduling algorithm maps the job to specific resources. Once the job is allocated to resources, the task manager allocates the task and monitors till output is given back to the originating application.Grid scheduling algorithms can either be local or global. In the global scheduling scenario, the scheduling technique can be either static or dynamic. In static technique every task is assigned once to the resource leading to a good prediction of computation cost. Dynamic scheduling techniques are used when the jobs arrival is dynamic in nature. Various heuristic based scheduling algorithms have been proposed in literature. The scheduling outcome of heuristic algorithms is suboptimal in nature proving Grid scheduling as NP-complete. Appropriate scheduling algorithm is selected in a given grid based on the task, machine and network connectivity. With grid technology maturing, educational institutions, public institutions and organizations requiring high resources will be rarely exploited.[3] Heuristic algorithms are a breed of algorithms which try to find best solutions among all possible solutions[4,5]. Heuristic algorithms do not guarantee that they will find the best solutions. Heuristic algorithms are generally fast and can be broadly classified into divide and conquer, branch and bound, dynamic programming and local search. For NP complete problems branch and bound, dynamic programming techniques are generally not preferred due to their high time complexity.Meta-heuristic algorithms are heuristic algorithms designed to find a lower-level heuristic that may provide a sufficiently

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International Journal of Applied Engineering Research ISSN 0973-4562 Volume 10, Number 22 (2015) pp 43125-43130

VLSI Architecture for Impulse Noise Reduction Using Modified Decision Tree Based Denoising Method

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Abstract

An impulse noise reduction using modified decision tree based denoising method (MDTBDM) and its VLSI architecture has been presented in this paper. The MDTBDM is used to detect and remove the impulse noise in the image and its VLSI architecture is used to achieve the goal of low cost and low complexity. Noisy pixels are identified using decision tree based impulse detector followed by adaptive median filter to reconstruct the noisy pixels. The MDTBDM method is a low cost, low complexity technique in terms of area, memory and power. The architecture takes a memory usage of 1MB less than decision tree based denoising method (DTBDM) and number of lookup table used is 169 which is 0. 18% better than the existing DTBDM, power is 0. 22W less than DTBDM. The computational complexity is less and it can be applied to many real time applications as its hardware cost is low.

Keywords: Very large scale integration (VLSI), image denoising, DTBDM, MDTBDM, Decision tree.

1 Introduction

Two main tasks of image processing are noise filtering and image enhancement. During image acquisition and transmission the images are corrupted by noise which will affect the performance of image processing methods, Therefore to improve the performance efficient denoising technique is necessary for image processing methods[1], [2]. Denoising methods can be classified into two low complexity methods and high complexity methods. In low complexity method the computational complexity is low but the image quality is not good. In high complexity method the computational complexity is high but the image quality is good. The presented paper focuses only on the low complexity denoising methods for salt and pepper noise removal. I. Andreadis and G. Louverdis [3] described a adaptive median filter [AMF] and its hardware module to detect the noise in the image. An adaptive median filter followed with regularization method has been used for salt and pepper noise removal was discussed by R. H. Chan. et al [4]. P. E. Ng and K. K. Ma[5] stated a switching median filter with the boundary discriminative noise detection(BDND) for denoising the corrupted images. P.-Y. Chen and C.-Y. Lien[6] devised an algorithm for salt and pepper noise removal in which the impulse noise detector followed with edge preserving filter is used for denoising the corrupted images. Y. Dong and S. Xu[7] described a new impulse detector, which identifies the noisy pixel using the difference between the current pixel and the aligned direction of the neighborhood pixel. B. De Ville [8] demonstrated a decision tree algorithm which is used for business intelligence and data mining application. The salt and pepper noise from the corrupted images are removed using the hybrid impulse detector was described by H. H. Tsai et al [9] A. S. Awad and H. Man [10] stated a method for impulse noise removal from the corrupted images using high performance detection filter. X. Zhang and Y. Xiong [11] described a adaptive mean filter which is based on switching operation is used for impulse noise removal. S.-C. Hsia [12] devised an algorithm based on digital signal processing approach for impulse noise removal. V. Fischer[13] et al demonstrated a VLSI implementation of e video filtering scheme for computer vision applications. T. Matsubara [14] et al described about a low complexity noise removal method and its FPGA implementation. P-Y. Chen et al [15] demonstrated an edge preserving method and its VLSI implementation for impulse noise removal. C.-Yuan et al[16] described a DTBDM and its VLSI architecture for the impulse noise removal. In this view an attempt has been made for noise reduction using MDTBDM and its VLSI architecture is discussed in this paper.

2 Decision Tree Based Denoising Method(DTBDM)

Two components of DTBDM [16] are Decision tree based impulse detector and a filter which is used to preserve the edges of an image.

Fig. 1. shows the flow diagram of DTBDM in which the decision tree based impulse detector followed with edge preserving filter is used to identify the noisy pixel and reconstruct its value.

Criteria 3

3.3.4

Number of research papers per teacher in the Journals notified on UGC website

(2014 – 2015)

3.3.4 Number of research papers per teacher in the Journals notified on UGC website during the academic Year 2014 - 2015

S.No	Name of the author/s	Department of the teacher	Title of paper	Name of journal	Year of publication	ISBN/ ISSN number	Link of the recognition in UGC enlistment of the Journal
1	N.Santhiyakumari	ECE	VLSI Architecture for impulse noise reduction using modified decision tree based denoising method	International Journal of applied Engineering Research	2014 - 2015	0973-4562	UGC-CARE Deleted List https://www.ripublication.com/Volume/ijaerv10n22.htm
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International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.93 (2015)
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Experimental Study On Granite Dust Brick

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Abstract

In this work, attempt has been made to develop strength brick from waste materials i.e. granite saw dust produced during the cutting and grinding of granite blocks and fly ash, quarry dust along with cement. The different body formulations have been made in order to study the effect of these three raw materials on the strength properties and water absorption of bricks. It will make low cast and also eco-friendly material.

In this paper the effect of using marble powder and granules as constituents of fines in mortar by partially reducing quantities of cement as well as other conventional fines has been studied in the terms of relative workability & compressive strength. Partial replacement of cement and usual fly ash by varying percentage of marble powder and marble granules reveals that increased waste marble powder (WMP) to the waste marble granule (WMG) ratio result in increased workability and compressive strengths of the mortar.

Keywords—concrete; bottom ash; sand; aggregate; cement.

I. INTRODUCTION

The disposal of industrial wastes comprises one of the major worldwide environmental problems, as these wastes render the environment unfriendly. The growing demand for waste utilization has made solid wastes, like waste powders from granite processing industry, quarry waste, and fly ash to be absorbed into the composition of bricks. The possibility of reduction of the production costs provides a strong logic for use of this waste.

Fly ash is the waste material from the thermal power plant which is derived during burning of coal. Fly ash is used as a bonding material. The stone waste is generally a highly polluting waste due to its manufacturing and processing techniques, which impose a health threat to the surroundings.

II. OBJECTIVES

Waste utilization is of paramount importance because the limitation on the number of dumping landfill sites and the general disposal methods has rendered the environment

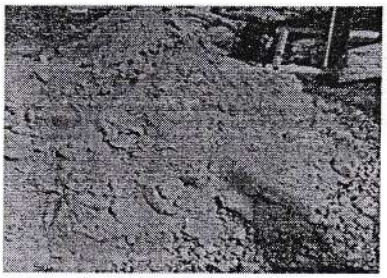
unfriendly. A huge quantity of quarry dust, fly ash and granite waste are produced by industry, the objectives of the present study have been outlined below:

1. Preparation of samples to study the effect of these raw materials on properties of the bricks.
2. In order to minimize the usage of the natural resources i.e. quarry dust, fly ash and granite waste is being used as an alternative material.
3. Fly ash is minimized by replacing quarry dust, and granite waste.
4. To determine the strength and water absorption properties of fly ash brick and marble waste brick.

III. PROCUREMENT OF THE SAMPLE

Granite dust

The granite dust was collected from the nearest granite quarry. The granite dust is obtained from the cutting and polishing process of the granite. This dusts are carried out by the help of water and the dust slurry is carried out to the storage tank and kept undisturbed for the dust particles to get settled down .then this dust is carried to other place and dumped.



International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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ALTERNATIVE REFRIGERANT FOR FREON 22 IN VAPOUR COMPRESSION REFRIGERATION SYSTEM

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Abstract: This project describes the alternative refrigerant for Freon 22.The main aim is to prepare and use of alternative blended refrigerant ammonia/ethane (R717/170) to replace Freon 22 for ozone friendly and elimination of global warming components such as HFC's, Halocarbons, N_2O and temperature rise due to F-gases which are the major defect of Freon 22. This refrigerant is chlorine free to reduce the global warming potential and potential of ozone depletion. Using alternative refrigerant vapor compression refrigeration system and the results are analyzed and compare with the results of Freon 22.

Keywords— ***refrigerant, Freon 22, ammonia propane, refprop software...***

I. INTRODUCTION

The problem could not be simpler cooling is the largest single demand on electrical consumption in the world and the synthetic refrigerants that are utilized by most cooling appliances add significantly to climatic change and ozone depletion. Global energy demand is projected to increase by more than 25% in the period to 2015. This scenario is wholly unsustainable even without any increase in HFC use. HFC control matters because of the very limited margin left before global warming becomes unstoppable due to positive feedback from the Earth's control mechanisms. Most HCFCs can be replaced by natural refrigerants, with the possible exception of the higher pressure HCFC, R22. There is commercial potential for a natural R22 substitute but there is no single component direct natural substitute for R22. R170-ethane and R717- ammonia, R290- propane and R1234yf 2, 3, 3, 3-Tetrafluoropropene, both have potential, but their higher pressure and lower critical temperature limit their suitability as R22 substitutes, particularly in refrigeration application.

In this long term strategy, the above mentioned refrigerants are considered. But all have advantage and disadvantages that should be considered by governments, equipment potentials, and equipment manufactures and equipment users. For instance, ammonia is more toxic than the other refrigerants and HFCs like propane and ethane are flammable to a certain extent. Energy efficiency remains an important issue for all refrigeration technologies, and should be considered along with the factors, since its directly related to global warming. Next to ozone depletion, global warming is the main issue governing the selection of refrigerant chemicals. Although this issue is not covered by the Montreal Protocol, it nevertheless forms important criteria in the on-going "environmental acceptability" discussion. We must take into account life cycle costs and related investment aspects.

II. FREON 22 AND ITS PROPERTIES

Ingredient Name: Chlorodifluoro methane. A significant issue is that most R22 systems operate with mineral lubricating oil, whilst many HFC refrigerants require polyol ester oil. It is time consuming and costly to change the oil in an existing system – the service blends are designed to avoid or minimize this problem. Another important consideration is the difference between use of a pure fluid or a blend. Your existing R22 plant uses a pure fluid as the refrigerant. This means that evaporation and condensation take place at a constant temperature. Most HFC blends exhibit a characteristic called "temperature glide" – which means that evaporation and condensation takes place across a range of temperature instead of at constant temperature. For some plant designs a high temperature glide could cause problems and it would be inadvisable to replace the R22 with a new refrigerant blend with a high glide. In general this problem occurs on flooded and pumped circulation systems – which tend to be used on large plants such as blast freezers, cold

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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SAND-WATER MIXTURE HYDRANT FOR NUCLEAR RADIATION SHIELD

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A. ABSTRACT

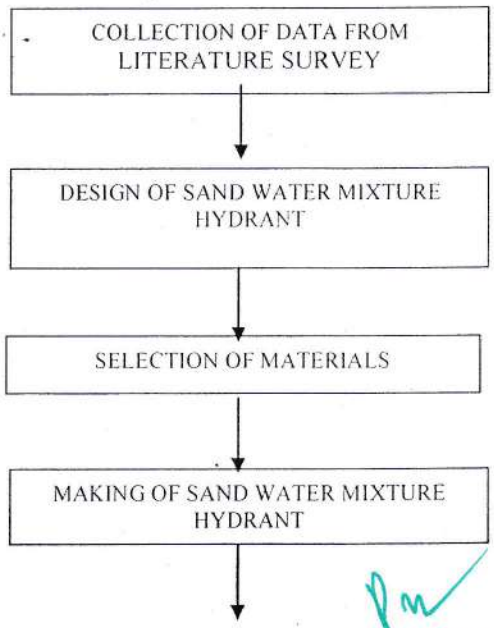
In the Present scenario, nuclear power plant accidents cause major environmental pollution. Even though more control measures are taken during accident, but high explosion radiation spread all over the area and affect the environment. This project mainly focused on control of radiation from the nuclear reactor by using sand-water mixtures. There are sand hydrants that have a high power displacement pump. The pump sucks water and sand mixture from the river or sea and pumped it to the reactor when the accident occurs. In case of any fire or increasing of reactor temperature coolant are used for cool reactor but it evaporate in high temperature and radiation spread. At the time sand water mixture hydrant absorb radiation particles. There is more amount of sand act like shield around the nuclear fuel. Then its radiation not spread over that area

KEYWORDS- SAND WATER MIXTURE, MOTOR PUMP

B. INTRODUCTION

Nuclear radiation shielding is more effectively performed by materials with high atomic mass number and high density. One of the materials is lead which has a drawback of its low melting point. Iron is mainly used for higher and lower energies. Iron is only selected based on physical, temperature, and economic considerations. Water can be used but it is a poor absorber of nuclear radiation, thus large amounts are required. Sand water mixture is a good nuclear attenuator as a general shield material. Sand water mixture is strong, inexpensive, and easily use to different types of construction. The major objective of this work is to shield the nuclear radiation during accident situation. The sand water mixture is much better in all characteristics than the concrete and iron. An extensive study has documented that the sand water mixture harder than others. It is one of our major issues to look into the possible Improvement in radiation absorption by sand water mixture.

D. METHODOLOGY



International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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Safety Operating system of chlorine gas in Co - Generation Power Plant

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Abstract

In power plant the chlorine gas is used for cooling tower water treatment. In any thermal power plant the cooling tower plays an important role in removing heat from the water (mainly from water cooled condenser) and again the same water is reused. In this method the cooling water needs chemical treatment regularly to avoid formation of hard scales algae which deposits on the walls of the pipe line. This severely affects the piping system to a great extent. To overcome above problem, it is essential to dose the chlorine gas in regular interval. The chlorine tank is placed nearby the cooling tower and the required dosing is regulated through the valve and rota meter. If any leakage occurs, immediately all the valves should be closed from remote and the cylinder should be driven to water Dyke along with caustic soda addition. This is the main objective of this project.

Keywords: Cooling Towers, Control system, Leak detection and solenoid valve

INTRODUCTION

The thermal power stations are requiring the steam to be condensate to return to the boiler in a liquid phase; i.e., water. The condensation process involves heat rejection from the working fluid, the steam. The heat rejection process requires cold water to be supplied to the condenser. Usually, this cold water is supplied from continuous water resource.

Chlorine gas which is easily liquefied under pressure. So, it has a sharp, pungent, odour. It has greenish-yellow colour, which the concentration in the air is above 1000 ppm. If the concentration is less it is colour less. This gas is 2.5 times heavier than air and has a tendency to flow downhill. Pure chlorine comes in gas and liquid forms. The liquid chlorine is a transparent, amber coloured, oily fluid which is a 1.5 times heavier than water and the ratio of liquid to gas is 1 to 460. This indicate that 1 litre of liquid chlorine gas will expand to 460 lifters of pure chlorine gas formation. Chlorine gas is mainly used as a water treatment agent in swimming pools, sewage water treatment, cooling tower water treatment. Chlorine gas boiling point liquid to gas at 34deg.C, freezing point is 101 ^{o} C and slightly soluble in water.

LITERATURE REVIEW

In thermal power generation plants and co-gen power plants which surface condenser for steam condensation requires cooling tower to remove the heat from the circulating water and reuse the same in a close circuit. The cooling tower water must be treated regularly to avoid scale formation film choke etc. For this purpose the chlorine gas is used to reduce the conductivity of the water which is a good indication for water contamination. Since chlorine gas is toxic in nature the storage, handling the cylinder is to be done by trained service personals only. Apart from the above it is very important to ensure the safety of the plant personal when leakage occurs. This paper dealt with the safe procedure and operating system.

HAZARDOUS IDENTIFICATION:

Chlorine is a hazardous chemical. Not flammable.

- Inhalation : Irritation of breathing path, coughing, headache suffocation and death
- Body contact : Itching, irritation and burning of body surfaces such as eyes, nose and throat and eyes can cause blindness
- Accelerates burning : Like oxygen
- Chemically reactive : Chlorine reacts with water to form highly corrosive acids
- Environmental impact : Chlorine will have an adverse effect on the environment

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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ELIMINATION OF STATIC OIL LEAKAGE IN SHOCK ABSORBER

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ABSTRACT

A suspension mechanism is a mechanism connecting the road wheels to the vehicle's frame or body. There is an appearance of oil droplets over the oil seal in static condition of the vehicle. This leakage of oil from the damper causes the reduction of oil level present inside the damper which in turn reduces the life of the shock absorber. It is found that the oil leaks through the chrome cracks that present in the piston rod. The cause of this formation of chrome cracks in the rod is found to be the manufacturing process. From this research, oil leakage is controlled by changing the manufacturing process.

1 .INTRODUCTION

A suspension mechanism is a mechanism which connecting the road wheel to the vehicle frame or body.

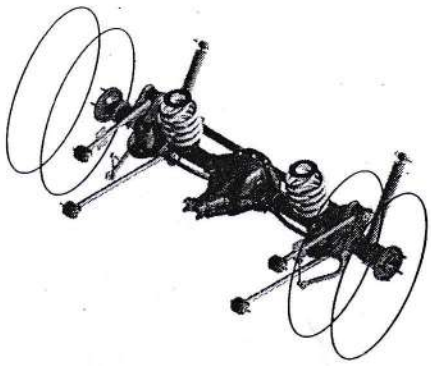

Fig.1 Suspension system

Shock Absorber

Shock Absorbers help in maintaining the tyre contact with the road irrespective of the contour of the road's surface

Shock Absorbers convert the energy of suspension spring oscillations and vehicle body movement to heat

Operation:

Damping control is generated by the resistance of oil forced to flow through restrictive valving.

Theory of Operation in Compression:

Motion of the piston toward the base valve builds pressure in chamber B. The pressure forces fluid through the piston intake valve into chamber A. Chamber A can't hold all of the fluid from chamber B due to the piston rod volume. The rod volume is forced through the base valve into chamber The air in chamber D is compressed to compensate for the change in volume

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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Hazard Identification and Risk Assessment in a High-Rise Building Construction Site

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Abstract

Hazard identification and risk assessment are the two key basic safety elements in a construction site. This helps in identifying the potential causes of an incident. The paper deals with the hazard identification and risk assessment of a high-rise building during its construction. It is observed that there are many good practices like following of a work permit system, maintaining health surveillance records and providing toolbox talk. Even though a better health and safety practices are followed in the construction site many hazards are identified in the work site which has higher potential to cause an incident. Some of the hazards identified are wooden blocks lying on the ground with protruding nails, unsecured power cables lying on the ground, unclean drinking water was found, manual handling of cement bags and workers working on incomplete mobile scaffold. A regular periodic hazard identification and risk assessment has to be done for reducing the accidents, thereby improving the level of safety in a construction site.

Keywords: Hazard identification, Risk assessment, High-rise building.

INTRODUCTION

According to OHSAS 18001:2007, a hazard is a source situation or an act that has a potential for harm in terms of ill health or human injury or a combination of these two. It can be a physical, chemical, biological, environmental or a mechanical agent. Hazard identification is the process of identifying the hazard and defining its characteristics. According to OHSAS 18001:2007, risk is a combination of likelihood of occurrence of a hazardous event and the severity of ill health or injury. Risk assessment is the process of evaluation of risk which helps in identifying the level of risk and helps in determining whether the risk is acceptable or not. Risk is generally classified as Very high level risk, High level risk, Medium level risk, Low level risk and Very low level risk.

Most of the manufacturing industries are lacking in health safety management [1]. Not only in manufacturing industries but also in construction sites the condition of health and safety management is not so good. Abdul Rahim Abdul Hamid done a study on 140 construction sites and found that most common hazards exists in noise, protective clothing and fire and emergency[2]. According to National Fire Protection Association (NFPA) any building which is higher than 75 feet (23 meters) or above 7 stories is considered as a high-rise building. In India around 33 million people are working in construction sectors, which is next to agriculture [3]. According to P. Sharma buildings are built for attractiveness, revenue, reputation, tribute and entertainment, whereas safety is not considered as a critical factor [4].

A hazard identification and risk assessment is done in the construction site of a high-rise building where civil, electrical and plumbing works were going on. Activities like cutting, loading and unloading materials, working at height are being going on.

METHODLOLGY

Hazard identification and risk assessment is used for identifying the hazard and the risk involved in an activity. OHSAS 18001:2007; 4.3.1 says on hazard identification, risk assessment and determining controls. It describes that all non-routine and routine

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)

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In this long term strategy, the above mentioned refrigerants are considered. But all have advantage and disadvantages that should be considered by governments, equipment potentials, and equipment manufactures and equipment users. For instance, ammonia is more toxic than the other refrigerants and HFCs like propane and ethane are flammable to a certain extent. Energy efficiency remains an important issue for all refrigeration technologies, and should be considered along with the factors, since its directly related to global warming. Next to ozone depletion, global warming is the main issue governing the selection of refrigerant chemicals. Although this issue is not covered by the Montreal Protocol, it nevertheless forms important criteria in the on-going "environmental acceptability" discussion. We must take into account life cycle costs and related investment aspects.

II. FREON 22 AND ITS PROPERTIES

Ingredient Name: Chlorodifluoro methane. A significant issue is that most R22 systems operate with mineral lubricating oil, whilst many HFC refrigerants require polyol ester oil. It is time consuming and costly to change the oil in an existing system – the service blends are designed to avoid or minimize this problem. Another important consideration is the difference between use of a pure fluid or a blend. Your existing R22 plant uses a pure fluid as the refrigerant. This means that evaporation and condensation take place at a constant temperature. Most HFC blends exhibit a characteristic called "temperature glide" – which means that evaporation and condensation takes place across a range of temperature instead of at constant temperature. For some plant designs a high temperature glide could cause problems and it would be inadvisable to replace the R22 with a new refrigerant blend with a high glide. In general this problem occurs on flooded and pumped circulation systems – which tend to be used on large plants such as blast freezers, cold

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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DESIGN OF ELECTRO-PNEUMATIC ASSISTED MANUAL GEAR BOX WITH DUAL CLUTCH

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ABSTRACT:

With increasing number of automobiles day by day the concern over the maintenance and smooth driving is becoming more important especially in field of commercial transportation this has become very vital. In this project we have made an try to reduce one among the important part which consumes more cost on maintenance compared to any other parts.

The part which we have attempt is clutches, on creation a small study on this clutch we found out that clutch wear is mainly due to amateur driving skill which most of the drivers now posses and it is found that some kind of assistance to driver for changing gears will help in reducing the clutch wear, and install a new clutch in extra to the existing one when high torque gears are in action will also help in this subject. In this project ELECTRO-PNEUMATIC support is provide for the existing manual gear box for preventing the direct engaging of second gear from rest and this could also help in easy shifting of gears, we have installed two divide clutch for extreme torque gears and high speed gears.

Even though there are many kinds of automatic gearbox available this days, They are very costly and there is a misconception that they provide less mileage compared to the manual one and many Indian drivers feel that varying speeds suddenly in this kind of gearbox is difficult one. To say about dual clutch they are being widely used in automatic transmission and they are capable of producing uninterrupted power supply to the axle. In this project dual clutch which is being widely used in automatic transmission is combined to manual gear box which can be controlled by the driver and pneumatic assistance is provided to the shifting arrangements, so that a manual gear box is converted to a semi automatic gearbox which is less costly and as efficient as an automatic gear box.

By introducing this setup In automobiles we were able to solve the following problem to certain extent.

1. **Reduce clutch wear**
2. **Easy shifting of gears**
3. **Less damage to transmitting elements**

Keywords- Elecro pneumatic, Dual clutch, Gear box, Programmable Logic Controller(PLC)

I. Introduction:

The transmission system is said to be the backbone of an automobile, any problem in this transmission system may lead to the breakdown of the vehicle and fuel efficiency to a certain extent is depended upon this system, so utmost care is being taken to reduce losses nowadays on this transmission system. Automation is also being introduced in transmission system for effective and efficient transmission of power.

In our project the problem solved is drastic clutch wear in trucks this is caused because of the following reasons. Tendency to move vehicle from idle condition with second gear which causes extra clutch wear. When the vehicle is transmit power through extreme torque gears more heat is generated in clutch surfaces which causes more wear
Loading the vehicle above the specified load
Amateur driving skill.

II. Methodology:

The main function of this hydraulic system is to engaging and disengaging of two clutch during its process. Based on the engine speed,

Journal of Scientific & Industrial Research
Vol 73, June 2014, pp. 381-386

Occupational Health and Safety Management in Manufacturing Industries

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The study aims at analysing the occupational health and safety of Manufacturing Industries in South India by gathering information on health management, safety management, motivation, leadership and training, welfare facilities, accident statistics, policy, organization and administration, hazard control and risk analysis, monitoring, statistics and reporting. Data were collected by using questionnaires which were developed on health and safety management system. The data collected are analysed by using graphical and D&S method. The overall status shows that the performance on health and safety management system needs improvement in order to ensure a better working condition for the workers.

Keywords: Accident statistics, Hazard Control and Risk Analysis, Manufacturing industries, Occupational health, Occupational Safety, Southern Part of India, Welfare Facilities.

Introduction

According to the study done on manufacturing industries in southern part of India, it was found that only some industries have an occupational health and safety management system, out of which only a few industries are strongly implementing, maintaining and following the occupational health and safety management system .This study can be used for the ground work for evaluating the occupational health and safety of manufacturing industries in south India.

The information for this study are collected on health management, safety management, motivation, leadership and training, welfare facilities, accident statistics, policy, organization and administration, hazard control and risk analysis, monitoring, statistics and reporting. The data for health management are collected on the basis of cleanliness, lighting, drinking water and ventilation & temperature. Safety management data's are collected by analysing the fire emergency procedure, hoists or lifts, means of exit, elevating devices, electrical devices and confined space.

The information collected for motivation, leadership and training are done by considering training, motivation, education, rest pause, job shift and personal protective equipment. The factors which are considered for collecting data on welfare facilities, canteen, first aid appliances and facilities for sitting. Near miss, dangerous occurrences, minor accidents, major accidents and fatal have been considered for preparing accident statistics. The information for policy, organization and administration are collected by considering resource allocation, policy, communication, responsibility allocation, management review and documentation.

The data for hazard control and risk analysis are collected on the basis of hazard identification, risk assessment, determination of control measures, and implementation of risk assessment and documentation of risk assessment. Proactive monitoring performance, reactive monitoring performance, incident investigation, corrective action and preventive action are considered for data collection on monitoring, statistics and reporting.

Literature review

Extremely slow and steady efforts are needed for developing and establishing a safety culture in an organization (Guirong Shia *et al.*, 2012). The government and enterprises have to give more importance to occupational safety and health management (XiaohongGuo., 2012). A risk assessment scheme has been implemented in order to overcome the limitations and defects in industrial safety and health act to develop an advanced industrial safety and health policy (Hyuckmyun kwon1 *et al.*, 2010). Working conditions and work situation can influence reporting, communicating and discussing of safety issues (AsaEkn *et al.*, 2013).

Risk perception and safety-related behaviour has a close relationship and up to some extent there is a relationship to the attributes towards safety. Studies

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International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)

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Amateur driving skill.

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International Journal of Applied Engineering Research ISSN 0973-4562 Volume 10, Number 22 (2015) pp 42858-42863

Wireless Capsule Endoscopy Video Enhancement using Modified Adaptive Gamma Correction Method

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Abstract

Wireless Capsule Endoscopy (WCE) has been widely used to diagnose the issues generated from the human Gastro Intestinal (GI) system. The following issues are occurred in small bowel such as bleeding, ulcer and tumor. Normally, the quality of video frame captured by WCE has been degraded due to non uniform luminance and inadequate illumination in the GI tract. During the diagnostic process of tumor subjects significant details like texture present in GI tract have been used. So far natural statistics of the WCE frames have not been preserved by the primitive form of Adaptive Gamma Correction (AGC). Hence in this article a modification in AGC has been proposed to preserve the originality of the frame. An arbitrary value $\alpha = 0.5$ have been used in order to hold the multiple WCE frames for analysis. The WCE frames have been enhanced using MAGC. It has also been compared with the WCE frames enhanced with Global Histogram Equalization (GHE), Contrast Limited adaptive Histogram Equalization (CLAHE), AGC and anisotropic diffusion for better visibility and quality. Gamma correction and algorithm design have been simulated using Matlab 2015a®.

Keywords-Wireless Capsule Endoscopy (WCE), Luminance, Adaptive gamma correction (AGC), Global Histogram Equalization (GHE), anisotropic diffusion, Transformed intensity.

I. Introduction

Wireless Capsule Endoscopy (WCE) is an imaging technique meant for the examination of the midway regions of the GI tract, especially the small bowel, which are beyond the access of the conventional endoscopy and colonoscopy. Perhaps, this may be the only technique which can directly visualize the internal walls of the small bowel. In WCE, the subject is allowed to swallow a pillcam which continuously transmits images of the internal walls of the GI tract to the external receiver, during its passage through the tract. Inadequate illumination in the GI tract adversely affects the quality and visibility of WCE. The resolution of WCE is constrained by the channel bandwidth allotted for Medical Implant Communication Service (MICS) band, which is only 300 kHz [1].Many image processing techniques [2-11] have been employed to enhance the quality of WCE off-line to assist the manual and computer aided diagnosis.

A locally adaptive gamma correction to compensate the non-uniform illumination in WCE frames was developed in Alizadeh *et al.* [2].A combination of geometric mean filter and gamma correction was adopted in Suman *et al.* [3] to enhance the quality of the WCE. Ramaraj *et al.* [4] investigated the Discrete Fourier Transform (DFT) and Discrete Wavelet Transform (DWT) based homomorphic filtering, in contrast space, to enhance the WCE.The Spectral Optimal Contrast-Tone Mapping (SOCTM) described in literature [5], for the enhancement of WCE is an extension of the Optimal Contrast-Tone Mapping (OCTM). In SOCTM, WCE image in Red Green Blue (RGB) space was transformed into Luminance and a and b color space and OCTM was applied on the intensity channel alone. Gaussian filter was employed in Shahril *et al.* [6] to smooth the WCE.

A tensor based anisotropic diffusion was described in B. Li and M.Q.H. Meng [7]. B.Li and M.Q.H. Meng [8-9] employed contrast driven forward and backward anisotropic diffusion to enhance the capsule endoscopy images. An adaptive contrast anisotropic diffusion which adjusts the scale space parameter locally, according to a Local Detail Descriptor (LDD) was put forth in Li et al. [10]. The Hessian matrix was used to represent the local contrast information in literature [8] and literature [10], whereas literature [7] employed Diffusion Tensor (DT). Based on the eigen values of the Hessian matrix of WCE image, the scale space parameter was adaptively chosen in the 'adaptive contrast diffusion' was described in B. Li and MQH. Meng [11]. A Fuzzy logic – based image enhancement method has been developed by Hanmandlu. M et al. [12] based on fuzzifying the color intensity property of the image. Hanmandhu. M et al. [13] suggested a Fuzzy based enhancement method where images are classified into underexposed and overexposed regions. Gaussian Median Filter (MF) was used for the fuzzification in underexposed region and Traingular MF for overexposed region. This method gave better results as compared with Genetic algorithm based and entropy based approaches. Naik.S et al. [14] suggested a grey scale image enhancement method to color images without encountering gamut problem. Pitas.I et al. [15] devised a multi channel methods for color image enhancement.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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Safety Operating system of chlorine gas in Co - Generation Power Plant

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Abstract

In power plant the chlorine gas is used for cooling tower water treatment. In any thermal power plant the cooling tower plays an important role in removing heat from the water (mainly from water cooled condenser) and again the same water is reused. In this method the cooling water needs chemical treatment regularly to avoid formation of hard scales algae which deposits on the walls of the pipe line. This severely affects the piping system to a great extent. To overcome above problem, it is essential to dose the chlorine gas in regular interval. The chlorine tank is placed nearby the cooling tower and the required dosing is regulated through the valve and rota meter. If any leakage occurs, immediately all the valves should be closed from remote and the cylinder should be driven to water Dyke along with caustic soda addition. This is the main objective of this project.

Keywords: Cooling Towers, Control system, Leak detection and solenoid valve

INTRODUCTION

The thermal power stations are requiring the steam to be condensate to return to the boiler in a liquid phase; i.e., water. The condensation process involves heat rejection from the working fluid, the steam. The heat rejection process requires cold water to be supplied to the condenser. Usually, this cold water is supplied from continuous water resource.

Chlorine gas which is easily liquefied under pressure. So. it has a sharp, pungent, odour. It has greenish-yellow colour, which the concentration in the air is above 1000 ppm. If the concentration is less it is colour less. This gas is 2.5 times heavier than air and has a tendency to flow downhill. Pure chlorine comes in gas and liquid forms. The liquid chlorine is a transparent, amber coloured, oily fluid which is a 1.5 times heavier than water and the ratio of liquid to gas is 1 to 460. This indicate that 1 litre of liquid chlorine gas will expand to 460 lifters of pure chlorine gas formation. Chlorine gas is mainly used as a water treatment agent in swimming pools, sewage water treatment, cooling tower water treatment. Chlorine gas boiling point liquid to gas at 34deg.C, freezing point is 101 ^{o} C and slightly soluble in water.

LITERATURE REVIEW

In thermal power generation plants and co-gen power plants which surface condenser for steam condensation requires cooling tower to remove the heat from the circulating water and reuse the same in a close circuit. The cooling tower water must be treated regularly to avoid scale formation film choke etc. For this purpose the chlorine gas is used to reduce the conductivity of the water which is a good indication for water contamination. Since chlorine gas is toxic in nature the storage, handling the cylinder is to be done by trained service personals only. Apart from the above it is very important to ensure the safety of the plant personal when leakage occurs. This paper dealt with the safe procedure and operating system.

HAZARDOUS IDENTIFICATION:

Chlorine is a hazardous chemical. Not flammable.

- Inhalation : Irritation of breathing path, coughing, headache suffocation and death
- Body contact : Itching, irritation and burning of body surfaces such as eyes, nose and throat and eyes can cause blindness
- Accelerates burning : Like oxygen
- Chemically reactive : Chlorine reacts with water to form highly corrosive acids
- Environmental impact :. Chlorine will have an adverse effect on the environment

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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ELIMINATION OF STATIC OIL LEAKAGE IN SHOCK ABSORBER

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ABSTRACT

A suspension mechanism is a mechanism connecting the road wheels to the vehicle's frame or body. There is an appearance of oil droplets over the oil seal in static condition of the vehicle. This leakage of oil from the damper causes the reduction of oil level present inside the damper which in turn reduces the life of the shock absorber. It is found that the oil leaks through the chrome cracks that present in the piston rod. The cause of this formation of chrome cracks in the rod is found to be the manufacturing process. From this research, oil leakage is controlled by changing the manufacturing process.

1 .INTRODUCTION

A suspension mechanism is a mechanism which connecting the road wheel to the vehicle frame or body.

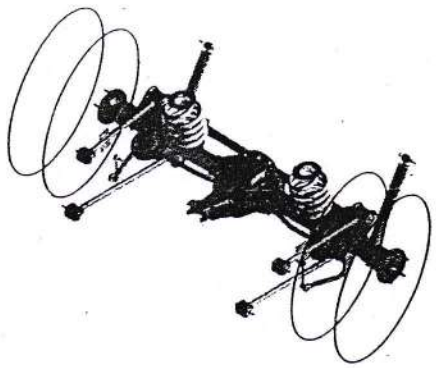

Fig.1 Suspension system

Shock Absorber

Shock Absorbers help in maintaining the tyre contact with the road irrespective of the contour of the road's surface

Shock Absorbers convert the energy of suspension spring oscillations and vehicle body movement to heat

Operation:

Damping control is generated by the resistance of oil forced to flow through restrictive valving.

Theory of Operation in Compression:

Motion of the piston toward the base valve builds pressure in chamber B. The pressure forces fluid through the piston intake valve into chamber A. Chamber A can't hold all of the fluid from chamber B due to the piston rod volume. The rod volume is forced through the base valve into chamber The air in chamber D is compressed to compensate for the change in volume

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)

INTELLIGENT HUMAN COUNTER BY USING SENSORS

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***Abstract*—Emergency situation like fire in a room, which has the potential to cause physical damage through burning ,So the emergency excavation is not possible till finding the exact number of people exposed inside the room. Thus the objective of this study is to find the people inside the room with a specialised method.**

When fire is present inside the room it will be sensed by smoke detector which activates the fire alarm and further excavation of people should be taken place at that time the exact number of people inside the room is not known , For that an innovative method to count the number of occupancy by using innovative method which includes two specialised sensor are placed, one at near INSIDE and another at near OUTSIDE of the room which will sense the human interrupt and count the people present inside and also display the count with the help of microcontroller.

This project can also applied to count the person present in the room, meeting hall, seminar, class rooms and many other places on reference with the BOCW Act.

Keywords— **Emergency Situation, Excavation, Specialised sensor, Interrupt, Controller.**

I. INTRODUCTION

The recent death statistics states that the un-natural causes like fire in a room or building causes more number of fatal which holds almost 10% of share in the whole death statistics. Fire Hazard is a situation in which there is greater than normal risk of harm to people or property due to fire.

The unsafe use, Storage, dispensing or disposal of flammable material can be the prime sources of fire. The most of the deaths occur because of the delay in excavation and not knowing the exact number of persons exposed to the fire inside the building.

That to in a building where the single way of exit and entry, as per BOCW act the single way of exit and entry is restricted to ensure the safety of the people[9].For that an intelligent method to show the exact number of people exposed to fire is been implemented [3] which is less expensive and reliable.

By the Morden methodology by placing the required senor [5] in its position and also by sending the required information via GSM [2] to the excavators are the fire fighters which will reduce the delay in excavation.

In this paper deals with finding the exact number of person exposed with a specialised methodology.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.93 (2015)

Experimental Study On Granite Dust Brick

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Abstract

In this work, attempt has been made to develop strength brick from waste materials i.e. granite saw dust produced during the cutting and grinding of granite blocks and fly ash, quarry dust along with cement. The different body formulations have been made in order to study the effect of these three raw materials on the strength properties and water absorption of bricks. It will make low cast and also eco-friendly material.

In this paper the effect of using marble powder and granules as constituents of fines in mortar by partially reducing quantities of cement as well as other conventional fines has been studied in the terms of relative workability & compressive strength. Partial replacement of cement and usual fly ash by varying percentage of marble powder and marble granules reveals that increased waste marble powder (WMP) to the waste marble granule (WMG) ratio result in increased workability and compressive strengths of the mortar.

Keywords—concrete; bottom ash; sand; aggregate; cement.

I. INTRODUCTION

The disposal of industrial wastes comprises one of the major worldwide environmental problems, as these wastes render the environment unfriendly. The growing demand for waste utilization has made solid wastes, like waste powders from granite processing industry, quarry waste, and fly ash to be absorbed into the composition of bricks. The possibility of reduction of the production costs provides a strong logic for use of this waste.

Fly ash is the waste material from the thermal power plant which is derived during burning of coal. Fly ash is used as a bonding material. The stone waste is generally a highly polluting waste due to its manufacturing and processing techniques, which impose a health threat to the surroundings.

II. OBJECTIVES

Waste utilization is of paramount importance because the limitation on the number of dumping landfill sites and the general disposal methods has rendered the environment

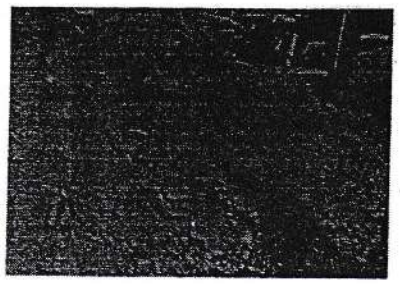
unfriendly. A huge quantity of quarry dust, fly ash and granite waste are produced by industry, the objectives of the present study have been outlined below:

1. Preparation of samples to study the effect of these raw materials on properties of the bricks.
2. In order to minimize the usage of the natural resources i.e. quarry dust, fly ash and granite waste is being used as an alternative material.
3. Fly ash is minimized by replacing quarry dust, and granite waste.
4. To determine the strength and water absorption properties of fly ash brick and marble waste brick.

III. PROCUREMENT OF THE SAMPLE

Granite dust

The granite dust was collected from the nearest granite quarry. The granite dust is obtained from the cutting and polishing process of the granite. This dusts are carried out by the help of water and the dust slurry is carried out to the storage tank and kept undisturbed for the dust particles to get settled down .then this dust is carried to other place and dumped.



International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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DESIGN OF SEMI-AUTOMATIC MOBILE FIRE FIGHTING SYSTEM TO CONTROL FIRE AT CEILING HEIGHT

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Abstract---*A water type fire fighting system comprises a telescopic pneumatic cylinder and a means for discharging a fire to suppressant over a fire front in a target area at a ceiling height. The means for suppressing the fire comprises a retractable bellows type hose to carry the fire suppressant existing from the reservoir and a nozzle assembly attached to the free end of the retractable hose. A telescopic arm means achieves swinging of the retractable hose to obtain desired vertical reach and angular coverage over the fire front is coupled to the hose. This system used to discharge the fire occurs at a ceiling height by means of novel designed telescopic pneumatic cylinder with bellows hose. The system comprises of a retractable hose by means of telescopic cylinder with one end connected to nozzle and other end to the water pump. The air is used as the median for extension and retraction of telescopic pneumatic cylinder through an air compressor. The battery is used as a power supply for pump and compressor. The main aim of this system is to discharge the fire suppressant and extinguish the fire occurs at a ceiling height at any instant. This type of system is totally different from existing fire extinguisher and any other firefighting system*

Keywords---*Telescopic pneumatic cylinder, Bellows hose, Fire suppressant, Ceiling height.*

I. INTRODUCTION

The novel design invention deals to suppress the fire in a certain area where fire occurs which relates to a firefighting equipment including a bellows type hose with a nozzles in the telescopic pneumatic cylinder.

Fire fighting systems have utilized various methods to extinguish or suppress fires. The economic waste made by fire is huge and demands continuous improvement in fire fighting.

An effort to develop efficient and economical firefighting equipment has spawned extensive research and experimentation to improve techniques and equipment.

There are many systems to suppress the fire in a building such as sprinkler system, fire monitor, fire hydrant etc. But these systems consume more water to suppress the fire when fire caught at for a certain area as well as it is not possible to implement in all kind sort of buildings. For that type of fire we can use this novel type of system where water consumption is low as well as cost wise.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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ANALYSIS OF COMPOSITE LAMINATE IN THE EFFECT OF FIBER ORIENTATION USING HYPERMESH & MSC/NASTRAN

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Abstract-The main objective this paper is to gain better understanding of properties of composite laminates. The effects of composite laminates are investigated under various circumstances by using HYPERMESH software. In this paper, the analysis of composite laminateshas been made with the orientation of fibers at an angle of 0°, 45°, 60°, 90°,-45° and -60°. The results obtained from this investigation prove that multiple oriented fibers have more strength and they can be used for various purposes like in aerospace, military and automotive industries.

Keywords: Buckling analysis, fiber orientation, laminated composites.

I.Introduction:

A composite generally refers to a combination of two or more distinct materials (composed of different physical or chemical behaviors), to develop a new material with behaviors different from the individual components. Normally, composite material consists of reinforcements like fibers, fillers,flakes etc., enclosed in a matrix (ceramics or polymers). The overall mechanical properties of the matrix are improved by the reinforcement, which is hold by the matrix to form the desired shape. In present scenario, the exertion of composite materials is raised to great extent. The major advantage is its higher strength to weight ratio.

II. Literature Review

Related to metals, polymeric composites have higher fatigue strength, higher corrosion resistance and lower weight[1,2] polymeric composites are liable to mechanical damages when they are subjected to efforts of tension, flexural, compression which can lead to material failure.

The Effect of Fiber Angle Orientation on Stress, Deformation and Buckling Torque of the Composite Drive Shaft was reviewed [2]. To diagnose the effects of fiber cross sectional aspect ratio on tensile & flexural properties and failure approach of glass fiber/epoxy composites by using fibers of different cross sectional shapes, a compressive experimental study was carried out [3].

The insistence for enhanced performance of the composite materials makes it crucial to evaluate these composites under multi-axial loading. Due to fiber orientations in the Fiber-reinforced composites, theyexhibit strong anisotropic mechanical behavior. These orientations cause a variety of failure mechanisms, which are more complex under multi-axial loading conditions. The influence of fiber orientation and fiber content of epoxy resin components on mechanical prosperities was investigated [4]. The influence of fiber orientation and Thickness on Tensile Properties of laminated polymer composites has inspected [5].

The bending analysis of laminate composite plates using finite element method has been explored [6]. The basic concept about composite materials along with details of earlier works relevant to it was interpreted [7]. In this present work HYPERMESH package is used for analyzing the multiple fibers oriented composite laminate. Further the results of this analysis are used for determining buckling strength and mechanical properties.

III. Geometry:

A panel of typical wing skin structure between ribs and stringers has been taken. For this 3.6mm thick skin laminate has the size of 225mm X 115mm.The geometric dimensions and boundary conditions of the laminate are shown in fig.1.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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ASSESSMENT OF STATIC ELECTRICITY IN PETROLEUM INDUSTRY

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Keywords— **static electricity, petroleum industry, oil and gas**

Abstract:

During Loading and unloading of petroleum products, major accidents were occurred due to static electricity. Here 76 accidents due to static electricity were assed, based on information collected from published literature. Accidents happened during the storage and transportation of petroleum protects. Carry out the Statistical study for the all accidents. These accidents were performed based on the conditions, Place of accidents occurred, type of product, Type of tank and type of accidents. It is shown that about 85% of the accidents occurred in tanks, refineries, and 96% of the accidents included fire or explosion. The fishbone diagram used to find the effects and the causes of the effects. The results show that three major reasons were responsible for accidents, including improper operation during loading and unloading petroleum products, poor grounding and static electricity on human bodies, which accounted for 32%, 28% and 14% of the accidents, respectively. Safety actions are suggested to avoid similar situations in the future.

Introduction

Petroleum products are flammable and explosive. An accident occurred in the process of petroleum products storage and transportation may lead to major property loss and a few days of production interruption, and claims, stock reduction, or company closing. There are many causes for the accident, an important one of which is static electricity. In order to prevent electrostatic accidents and to moderate their consequences, many strict engineering guidelines and standards for the control of static electricity in industry have been published by government. Though most companies have followed those standards and guidelines, electrostatic accidents still occurred in petroleum industry. Therefore, it is of great significance to learn from the history for the future safe operation of petroleum products storage and transportation. The purpose of this paper is to sort the causes that lead to 76 electrostatic accidents occurred in the process of Petroleum protects storage and transportation in last 20 years, and to decrease potential hazards related with static electricity.

Overall statistics

The 76 electrostatic accidents were studied on the evidence collected from published paper-based literature [3-11] and web reports in this paper, which occurred in the process of petroleum products storage and transportation over last 20 years. As indicated in table 1, accidents occurred more frequently at gas stations with 47 cases (61.4%).The second most frequently involved place was tank farms (12 cases, 15.7%). About 7.3% of accidents happened in petroleum refineries (11.1%), petrochemical plants (6.1%), oil fields (1.0%), and other types of industrial facilities (8.1%) such as gas plants, pipelines. The atmospheric external floating roof tank was the most frequent type and the inner floating roof storage tank was the second most frequent type as could be seen in table 2. Both types were used extensively for the storage of crude oil and oil products such as gasoline, diesel, fuel oil, etc. Table 3 showed that fire was the most frequent type of loss with 39cases, and explosion was the second most frequent type of loss with 37 cases. In other words, fire and explosion together accounted for 96% of total cases.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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DESIGN AND DEVELOPMENT OF AUTOMATIC FIRE FIGHTING SYSTEM FOR VEHICLES

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Abstract-**Through the centuries there has been such an intimate connection of fire with the cultural growth of humanity. Every system in the environment has its own fire regime so that they are revised to that fire regime. Fire is both inevitable and is the ultimate contradiction; often beautiful, terrifying, destructive, renewing and life-giving, all at the same time. The measures taken to control fire have a dramatic change in the habits of early humans. This is one of such work opted to control fire at the source in vehicles. Therefore, a novel design was developed to control fire at the source of vehicles which comprises of pneumatic actuators, solenoid valves, and extinguisher. The pneumatic actuator actuates the rod to control the fire. Therefore the system is called as ecofriendly system since air is used as a medium which actuates the rod extinguisher. This paper describes the nature of occurrence of fire and the system used to control them at the source.**

Keywords — fire fighting system, automatic, vehicle, pneumatic system

I. INTRODUCTION

Tens of thousands of lives have been lost globally in the last few decades due to car entrapment deaths. One of the major hazards associated with firefighting operations is the toxic environment created by combustible/flammable materials.

A. Tyes of Vehicle Fire hazards

The four major hazards associated with these situations are smoke, the oxygen deficient atmosphere, elevated temperatures, and toxic atmospheres. Additional risks of fire include falls and structural collapse of vehicles. To combat some of these risks, firefighters carry self-contained breathing apparatus. The first step of a firefighting operation is a reconnaissance to search for the origin of the fire and identification of the specific risks and any possible casualties. This shall leads to damages to lives and property of people.

B. Consequences of vehicle fire

The vehicle fires can produce toxic gases. Automobiles, trucks, and other motor vehicles are made of many synthetic materials that emit harmful, if not deadly gases when they burn. A main by-product of fires is a lethal concentration of carbon monoxide, which is a colorless, odorless, and tasteless gas. Flames from burning vehicles can often shoot out distances are 10 feet or more.

C. Reasons for vehicle fire

Parts of the vehicle can burst because of heat, shooting debris great distances. Bumper and hatchback door struts, two-piece tire rims, magnesium wheels, drive shafts, grease seals, axle, and engine parts, all can become lethal shrapnel. Although relatively rare, gas tanks of motor vehicles can rupture and spray flammable fuel, posing a clear potential for serious injury. In even more extraordinary instances, gas tanks have been known to explode. Hazardous Materials, such as battery acid, can cause injury without warning.

This paper is categorized into two works: a. Hazard assessment b. Design of a automatic fire fighting system. In the first part hazard assessment is carried out to identify potential hazards in the vehicle. In the second part, a fire fighting system is developed as a control measure to handle vehicle fires.

II. HAZARD ASSESSMENT AND ANALYSIS

In order to picture out the potential fire hazards in vehicles, it is necessary to carry out a hazard assessment. The hazard assessment is carried out as per IS 15656: 2006: Hazard Identification and Risk Analysis, Code of Practice.In this work, the hazards are identified with the help of a checklist which is been distributed to a group of vehicle drivers. The hazard assessment checklist is given in Annexure–I. Fig 1. shows percentage wise causes for vehicle fires. Fig 1.shows that nearly 30% of people voted major vehicle fire is caused due to improper insulation of wires. Nearly 20% of the people voted that vehicle fire is caused due to improper maintenance of batteries.[1] Approximately 10% people voted that for the reason for vehicle fire is storage of flammable materials in vehicles. Nearly 5% of the people voted that the reason for vehicle fire is excess heat from engine. 10% of people voted that reason for vehicle fire is due to leakage of fuel or gas. Nearly 5% of people claimed that accumulation of static charge is a cause for vehicle fire.Fig 1.Shows the percentage wise causes for vehicle fires.

Another checklist consists of a questionnaire analyzed the perception of drivers requirement of an automatic fire fighting

Journal of Scientific & Industrial Research
Vol 73, June 2014, pp. 381-386

Occupational Health and Safety Management in Manufacturing Industries

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The study aims at analysing the occupational health and safety of Manufacturing Industries in South India by gathering information on health management, safety management, motivation, leadership and training, welfare facilities, accident statistics, policy, organization and administration, hazard control and risk analysis, monitoring, statistics and reporting. Data were collected by using questionnaires which were developed on health and safety management system. The data collected are analysed by using graphical and D&S method. The overall status shows that the performance on health and safety management system needs improvement in order to ensure a better working condition for the workers.

Keywords: Accident statistics, Hazard Control and Risk Analysis, Manufacturing industries, Occupational health, Occupational Safety, Southern Part of India, Welfare Facilities.

Introduction

According to the study done on manufacturing industries in southern part of India, it was found that only some industries have an occupational health and safety management system, out of which only a few industries are strongly implementing, maintaining and following the occupational health and safety management system .This study can be used for the ground work for evaluating the occupational health and safety of manufacturing industries in south India.

The information for this study are collected on health management, safety management, motivation, leadership and training, welfare facilities, accident statistics, policy, organization and administration, hazard control and risk analysis, monitoring, statistics and reporting. The data for health management are collected on the basis of cleanliness, lighting, drinking water and ventilation & temperature. Safety management data's are collected by analysing the fire emergency procedure, hoists or lifts, means of exit, elevating devices, electrical devices and confined space.

The information collected for motivation, leadership and training are done by considering training, motivation, education, rest pause, job shift and personal protective equipment. The factors which are considered for collecting data on welfare facilities, canteen, first aid appliances and facilities for sitting. Near miss, dangerous occurrences, minor accidents, major accidents and fatal have been considered for preparing accident statistics. The information for policy, organization and administration are collected by considering resource allocation, policy, communication, responsibility allocation, management review and documentation.

The data for hazard control and risk analysis are collected on the basis of hazard identification, risk assessment, determination of control measures, and implementation of risk assessment and documentation of risk assessment. Proactive monitoring performance, reactive monitoring performance, incident investigation, corrective action and preventive action are considered for data collection on monitoring, statistics and reporting.

Literature review

Extremely slow and steady efforts are needed for developing and establishing a safety culture in an organization (Guirong Shia *et al.*, 2012). The government and enterprises have to give more importance to occupational safety and health management (XiaohongGuo., 2012). A risk assessment scheme has been implemented in order to overcome the limitations and defects in industrial safety and health act to develop an advanced industrial safety and health policy (Hyuckmyun kwon1 *et al.*, 2010). Working conditions and work situation can influence reporting, communicating and discussing of safety issues (AsaEkn *et al.*, 2013).

Risk perception and safety-related behaviour has a close relationship and up to some extent there is a relationship to the attributes towards safety. Studies

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International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.93 (2015)
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Experimental Study On Granite Dust Brick

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Abstract

In this work, attempt has been made to develop strength brick from waste materials i.e. granite saw dust produced during the cutting and grinding of granite blocks and fly ash, quarry dust along with cement. The different body formulations have been made in order to study the effect of these three raw materials on the strength properties and water absorption of bricks. It will make low cast and also eco-friendly material.

In this paper the effect of using marble powder and granules as constituents of fines in mortar by partially reducing quantities of cement as well as other conventional fines has been studied in the terms of relative workability & compressive strength. Partial replacement of cement and usual fly ash by varying percentage of marble powder and marble granules reveals that increased waste marble powder (WMP) to the waste marble granule (WMG) ratio result in increased workability and compressive strengths of the mortar.

Keywords—concrete; bottom ash; sand; aggregate; cement.

I. INTRODUCTION

The disposal of industrial wastes comprises one of the major worldwide environmental problems, as these wastes render the environment unfriendly. The growing demand for waste utilization has made solid wastes, like waste powders from granite processing industry, quarry waste, and fly ash to be absorbed into the composition of bricks. The possibility of reduction of the production costs provides a strong logic for use of this waste.

Fly ash is the waste material from the thermal power plant which is derived during burning of coal. Fly ash is used as a bonding material. The stone waste is generally a highly polluting waste due to its manufacturing and processing techniques, which impose a health threat to the surroundings.

II. OBJECTIVES

Waste utilization is of paramount importance because the limitation on the number of dumping landfill sites and the general disposal methods has rendered the environment

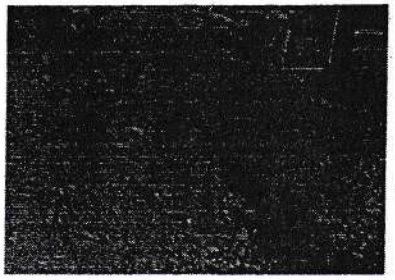
unfriendly. A huge quantity of quarry dust, fly ash and granite waste are produced by industry, the objectives of the present study have been outlined below:

1. Preparation of samples to study the effect of these raw materials on properties of the bricks.
2. In order to minimize the usage of the natural resources i.e. quarry dust, fly ash and granite waste is being used as an alternative material.
3. Fly ash is minimized by replacing quarry dust, and granite waste.
4. To determine the strength and water absorption properties of fly ash brick and marble waste brick.

III. PROCUREMENT OF THE SAMPLE

Granite dust

The granite dust was collected from the nearest granite quarry. The granite dust is obtained from the cutting and polishing process of the granite. This dusts are carried out by the help of water and the dust slurry is carried out to the storage tank and kept undisturbed for the dust particles to get settled down .then this dust is carried to other place and dumped.



Journal of Scientific & Industrial Research
Vol. 73, June 2014, pp. 361-368

Safety device to prevent cell phone accidents

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With the use of cell phone for conversation and Internet have become essential in everyday life. The number of cellular subscriber has reached more than 6.8 billion subscribers around the globe (i.e., 97 phones per 100 citizens). This significant rise in use of cellular phone leads to increase in road accidents while driving. Various researches have proved that the use of Cell phone while driving plays a major contributing factor in a growing number of vehicular crashes. As the technology becomes more conventional and users become more technologically dependent, the need to reduce distraction-related risk while operating a motor vehicle also increases. This paper proposed a new innovative real time safety device based on Surface Mount Technologies (SMT) which helps in preventing the cell phone accidents. This system is also tested in roads and the effectiveness of the system by comparing with other existing system have also been discussed.

Keywords: Cell Phone Accident, Safety Device, Cell phone Accidents

Introduction

The growth in mobile phone use has brought attention to safety associated with the technology. The Major concern includes Distraction due to cell phone use while driving because many drivers have a mobile phone and use it while driving up to 974,000 at any moment during the day. According to National Highway Traffic Safety Administration (NHTSA), Drivers distraction is anything that diverts the driver's attention from the primary tasks of navigating the vehicle and responding to critical events. To put it another way, a distraction is anything that takes your eyes off the road (visual distraction), your mind off the road (cognitive distraction), or your hands off the wheel (manual distraction). NHTSA estimate 20-25% of crashes or 1.4 million crashes per year involve some type of driver distraction[1]. A survey carried consisting of 1,367 drivers involved in a collision found, over 30% of drivers experienced at least one distraction at the time of collision, with distraction contributing to 13.6% of all collisions[2].

Distraction was a primary factor in 28% of head-on crashes on rural, two-lane collector or arterial roads[3]. Similarly, the 100-Car Naturalistic Driving Study videotaped the drivers of 100 vehicles for more than one year. Analysis of the data showed, that reaching for an object (reaching a cell phone) increased risk of a crash or near crash by 9 times, looking at an external object (look down for dialing a number in cell phone) by 3.7 times, reading by 3 times, applying makeup by 3 times, dialing a handheld device by almost 3 times, and talking or listening on a handheld device by 1.3 times[4].

Drivers conversing on a cell phone were involved in more rear-end collisions, and their initial reaction to vehicles braking in front of them was slowed by 8.4%, relative to baseline. In addition, compared to baseline, it took participants who were talking on the cell phone 14.8% longer to recover the speed that was lost during braking. Drivers using a cell phone attempted to compensate for their increased reaction time by driving 3.1% slower than baseline and increasing their following distance by 4.4%[5].

The risk of crash based on eye glance analysis show, the tasks with the highest risks have the longest duration of eyes off road time. The study includes light vehicle drivers and truck drivers indicate that using a cell phone can substantially increase the risk of safety-critical events such as crashes or near-crashes. An overview of different tasks and their effect on accident hazard is provided in Table 1[6].

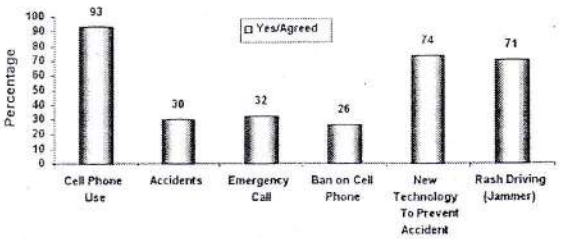

Fig. 1—Summary of Complete study

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Journal of Scientific & Industrial Research
Vol. 73, June 2014, pp. 387-393

Experimental investigation of CO_2 laser cutting on AISI 316L sheet

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Laser cutting is a difficult cutting process involves a coherent model for forecast of the process execution. The primary purpose of this study was to examine the influence of cutting condition on Top Kerf width and Bottom Kerf Width while CO_2 laser cutting of AISI 316L.The input factors considered was the laser power, cutting speed, gas pressure and Thickness of work material. Design of experiment approaches was implemented by using box-Behenken design to make the experiment lay-out. Top Kerf Width and Bottom Kerf Width model for laser cutting were built using Response Surface Methodology, The modified to reduced cubic model have the best agreement with experimental data, and also the Thickness of work material plays a substantial role in achieving to minimize the kerf width.

Keywords: CO_2 Laser Cutting, Response Surface Methodology, Kerf Width, ANOVA

Introduction

The kerf dimension is one of the predominant responses for laser beam cutting. The poor kerf dimension makes improper assembly due to tapers. The different types of lasers, Nd: YAG and CO_2 are the most broadly utilized in modern manufacturing industries. Straight off a day's LBC important for close assembly for fitting while welding and any other assembly for link mechanism and other switch gear assembly. For that reason, this work concentrated about kerf dimension and associated cutting parameters. The Nd: YAG laser is a solid state laser, working at a wavelength of 1.06 μm. CO_2 laser is a gas type laser that radiates at wavelength of 10.6 μm[1,2]. Nd: YAG lasers have low beam power, but when operating in pulsed mode, and to obtain maximum peak power is able to cut still thicker sheet metals[3]. CO_2 laser is proper for well cutting of sheet metals at high speed because it delivers the maximum average beam power, superior efficiency and good quality of beam. Conversely, Due to maximum peak power at high speed of CO_2 laser, it is reflected to a lesser extent by metallic surfaces and this high absorptive of the CO2 laser enable to process even highly reflective materials with relatively high cutting speed[4]. Therefore, CO_2 laser is suitable for cutting of metals in general and reflective materials in particular.

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Laser cutting of sheet metals has a most important research area for marking out the best quality of cut[5]. The quality of cuts mainly depends upon the variety of process parameters such as laser power, gas pressure, cutting speed and sheet metal thickness[6,7] have been investigating about the outcome of laser cutting parameters on kerf dimension and surface quality of cut. Most of the researchers to varying the only one parameter at a time approach to study the effect of process parameters on responses. However, this approach consumes more time and money in favor of a large number of experimental runs since only one parameter is varied in each experimental run, and then keeps other parameters as constant. As well as in this method the interaction effects process parameters are not considered. To beat such that problems, Design of experiments (DOE) commonly used in experimental approach[8].

Hassan adeli *et al*[9] has been applied Response surface methodology for the mechanical strength properties of poly (l-lactide) /multi-walled carbon nano tube scaffolds. Amit Sharma and vinod yadava[10] were used Tagchi based Grey relay analysis, concept on Material removal rate, tool wear rate and surface roughness for metal matrix composite as pulse current, gap voltage, pulse on time and pulse off time are the decision variables for Electro discharge machining. Parthiban *et al*[11] has been applied hybridization of Response surface methodology and Genetic algorithm for optimization of Kerf dimension

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 9 No.27 (2014) pp. 9601-9604
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Assessment Of Ergonomics In Manufacturing Industries

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Abstract: **Ergonomics is one of the highly discussed problems in modern manufacturing sector as it has a direct and indirect impact on production and employee welfare. The prime motive of many manufacturing industries is to reduce the ergonomic hazards which cause acute and chronic issues. The study aims at studying and analysis of ergonomic problems in manufacturing industries by dividing the manufacturing industries into Small Scale Industry (SSI), Medium Scale Industry (MSI) and Large Scale Industry (LSI). The study is done in 46 manufacturing industries by direct survey and mailing questionnaires. It is found that 84%, 57% and 37% of the employees who are involved in lifting use manual lifting in SSI, MSI and LSI. The working position of the employees has to be altered as the results are not so good. Ergonomic training is absent in 78%, 63% and 40% of the employees in SSI, MSI and LSI. 74%, 61% and 53% of the employees have a poor awareness on ergonomics. The use of manual lifting technique has to be reduces and has to be replaced by semiautomatic and automatic techniques. Awkward postures of employees has to be eliminated which ultimately reduces the ergonomic disorders. Periodic training on ergonomics has to be provided which improvises the ergonomic aspects and awareness among the employees.**

Key words : **Manufacturing industry, ergonomics, lifting, working position.**

1. INTRODUCTION

Manufacturing is a process of making a product with tools, machines, chemical processing and employees. It is the production of finished goods from raw materials (Anil Mital et al., 1997). It includes the production of hand-made products to huge components by multi-technology production in single level and batch levels. It involves many operations which start from simple to complex level. Manufacturing is done by manually, by the aid of semi-automatically and automatically. Bulk manufacturing is done mainly by automatic machines and tools, as it is capable of providing high efficiency and effectiveness. The accuracy levels of automatic machines are high as compared with others, the cost of production will be more, is not suitable for small scale production. In manual manufacturing the entire manufacturing operations are done by human beings. Most of the industries in the modern world use all the three modes or a combination of manual operation with automatic machines or manual operation with semi-automatic machines. The manual operation is common in all modes or combinations.

As human beings are employed in manufacturing process many ergonomic problems arise which affects the health. To reduce the effect on ergonomic problems a detailed ergonomic assessment has to be done on manufacturing industries. Ergonomics is the law of fitting the job to the worker. Ergonomics is defines as the appropriate application of technology to assist the human in work (Anil Mital et al. 1997). The word ergonomics deals with human comfort. It is related with making the workplace comfortable, safe and efficient. Ergonomics plays an interrelationship among the employee, work and the work station. There are many ergonomic factors which decide the ergonomic issues and problems. Work system design is given less consideration as poorly designed work systems are common in industries (Ibrahim H Garbie). The working capability, working limitations and physical characteristics of the employees has to be considered while designing a work station(Baba Md Deros et al. 2011).

Qutubuddin S M et al.(2013) made an ergonomic study on workers in manual brick kilns and found that workers who worked in awkward postures suffered discomfort in different body parts.Tarwinder Singhetal. (2012) made an ergonomic study on indian electronic industry and found that the employees are at high ergonomic risks. Qutubuddin S M et al. (2012) made a study on computer assisted system for enhancing the application of ergonomics in manufacturing systems and found that the level of ergonomics in manufacturing industries has to be improved. M Harish Babuetal. (2014) made a study on ergonomics risk during team lifting and found that improper lifting movements and poor postures can leads to local mechanical stress on the physique, ligaments and joint. There is a lack of awareness on ergonomics in employees in industries (Himanshu Chaudhary etal. 2013). Table.1 shows the ergonomic studies made in various manufacturing industries.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.93 (2015)
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Replacement of sand by bottom ash from neyveli and mettur thermal power stations

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Abstract - **Developments through industrialization, urbanization etc. had been resulting in generation of wastes in huge quantities that can cause environmental hazards if left untreated or not disposed properly. An example of such waste is the bottom ash which is a byproduct obtained during burning of coal in thermal power plants. These wastes pose health hazards including airborne diseases in living beings and environmental hazard such as infertility of the surrounding lands. Hence utilization of them is necessitated.We know that in all developing and developed countries building industry also grows rapidly these days. As a result there has been a greater demand for its resource materials such as cement, fine and coarse aggregate.**

Keywords—*concrete; bottom ash; sand; aggregate; cement.*

I. Introduction

About 14million m3 of cement is consumed annually in Tamilnadu.Assuming an average mix ratio of concrete 1:2:4, the consumption of sand annually is likely to be around 28 million m3. But including that used for sand filling, plastering etc, and the consumption can be approximated to 30 million m3.

Compared to other resources, the availability of sand is decreasing day by day. Hence there is a need for an alternative material to sand available at low cost and with suitable properties. At Neyveli Thermal Power Station in Tamilndu, about 11 million tons of bottom ash have been collected in ash pits until now. There has been no proper way of utilizing them or disposing them safely. It remains a problem both to the atmosphere and land. Nowadays recycling and reuse of waste materials are also given a greater importance. With this in mind, the project is connected with enhancing the use of the waste material, bottom ash in concrete building technology in place of the scarce material sand. Thus the project yields

II. OBJECTIVES

With the above questions in mind, the project has been carried out for the following objectives.

i. Determination of properties of bottom ash such as specific gravity and fineness modulus.
ii. Determination of mix proportion of concrete for different proportions of bottom ash.
iii. Determination of mix characteristic strength on 7th and 28th days.
iv. Identification of optimum percentage of replacement.
v. Feasibility of bottom ash in the place of sand.

III. Procurement of the Sample

A. Bottom ash

The bottom ash was collected from Neyveli thermal Power Plant, Neyveli Lignite Corporation and from Mettur Thermal Power Station, Salem.

B. Cement

Cement is a well known building material and has occupies an indispensable place in construction works. There are varieties of cement available in the market and each type is used at certain conditions due to their special properties. Cement is a material having the property of setting and hardening when made into a paste with water and has adhesive and cohesive properties capable of bonding with materials like bricks, stones etc.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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Cam actuated auto- feeding and blanking machine

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Abstract*: *There are many press working operation, in that the most common operation is blanking. It is cutting out of a flat piece of any shape or profile from the sheet metal. It is done by the blanking machine which is used in the company.

In common blanking machine the slider crank mechanism is often used to put blank holes in the sheet metal. Its cost is high, size is larger and it produced single blank at single stroke only.

By this cam actuated automatic feeding and blanking machine we can produce multiple number blanks at a time in a single stroke by using cam and number of punches based on the production. It will increase the production at less time, and low cost.

The nature of my invention and improvements consists in making two revolving cams and collar or double cam to operate the punch bar and punch, one cam to set or adjust the punch to the thickness of the plate metal or other material to be punched, and the other cam to force the punch through the plate metal or other material to be punched, both cams and collar or double cam being arranged to turn or work on the punch-bar.

And it requires minimum space in the company environment. This project would be fruitful in both domestic & industrials backgrounds.

Keywords*: *blanking machine, cam, slider crank mechanism.

1. INTRODUCTION

In most common blanking machine slider crank mechanism is used to put the holes in the sheet metal. Its size is larger and blank in the single stroke it takes time more and its cost is high so by this cam actuating auto feeding and blanking machine we can reduce the time and cost of the machine and by connecting more number of punches we can produce more number of blanks at a time.

Progressive dies generally include blanking and piercing operations but a complicated progressive die can do the operation of bending, forming, curling and heading also [3].

The cam and the lever give a powerful purchase and enable the punch to cut through a considerable thickness of sheet metal

In a punching machine the combination of a die and punch, a cylindrical stripper for punch having on its outside surface a spiral groove, an arm having a vertical recess through which said stripper passes and an internal projection in recess for engaging spiral groove.

The behavior of the blank material during the blanking process can be divided into five stages. During the start of the process, the sheet is pushed into the die and the blank material is deformed, first elastically. The process continues and the yield strength of the blank material is reached, first at the outer fibers and later at all the fibers in the zone between the punch and the die [1].

2. COMPONENTS REQUIRED

Table 1.

S.No	components	Material	Capacity & quantity
1	Electric motor	Mild steel	12v,5amps,0.25 hp & 1
2	Geneva wheel	Mild steel	1
3	Cam	Mild steel	1
4	Punch machine	Steel	1
5	Bearing	Steel	2
6	SMPS	Plastic	1
7	Roller	Mild steel	2
8	Spring	Steel	3
9	Sprockets	Steel	2
10	Chain	Steel	1
11	Sheet metal	Aluminium	0.27mm thickness & 1

3. COMPONENTS AND DESCRIPTION

3.1 ELECTRIC MOTOR

An electric motor which used as the source and to give the load with the help of Geneva wheel to operating the punch for blanking. Its specification is 12v, 5amps, 0.25hp.

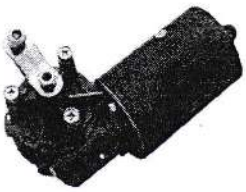

Fig 1.

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RISK EVALUATION AND IMPROVEMENT OF OCCUPATIONAL HEALTH AND SAFETY IN CONSTRUCTION INDUSTRY

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Abstract

Occupational health and safety is the challenging factor in worldwide construction industries, which generates colossal issues and adverse effect for employee, employer and environmental. The international labor organization estimates there were 47,000 deaths from occupational accidents in India in 2003, the latest year for which figures are available, an increase of 17% from a year earlier. OSHA revealed that 4,585 labors were died in the job of 2013. The national government and some states have plans to compensate victims and their families. Some states pay as much as 100,000 rupees, or about $2,500, for death. But frequently companies silences families with an immediate, lesser payout or stonewall to prevent a claim. This paper is related to evaluate the risk assessment techniques and improved safety cultures in construction industry for evade the occupational hazards. This research paper observed and scrutinized the hazards in a construction industry and recommendations to avoid hazards. The hazards associated with construction activities, which creates fall, slip, trip, fatal, fall of material, entanglement, drawing, nip point hazard, trapping, welfare etc., the observed findings were discussed and solutions were revealed as per the prescribed manner. The goal of the study is meticulously evaluate the risk and suggested alternative solutions to endure the occupational health safety and environment.

Keywords: *Risk assessment, health, safety, Training.*

---

1. Introduction

Construction industry safety is a challenging factor for employer and employees such industry has number of hazardous activities such as working at height, working at confine space, handling of heavy equipment etc. While much is known about work-related injuries and illnesses in construction from the national workers' compensation dataset (NDS), less is known about work health and safety attitudes and perceptions. Yet it is attitudes and perceptions that have the greatest influence when it comes to improving work health and safety.

Specifically, the report demonstrates that there is a gap between what an employer perceives as the success of a Workplace Health and Safety Strategy and what an employee perceives. It is this gap that must be closed to achieve improved work health and safety.

Almost all construction employers reported that they make work practices safe, remove hazards as much as possible and use personal protective equipment in the workplace. Workers and employees had high levels of agreement that these safety practices were used in their workplace.

However, workers' level of agreement was less than that of their employers. Of some concern was the finding that only four in 10 employers indicated that their workplace reviewed incident reports and statistics. If reports and statistics are not reviewed regularly, then it is unlikely appropriate solutions are implemented.

While employers in medium and large construction businesses appeared to provide their employees with some safety training, 45 per cent of employers in

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ENVIRONMENTAL FRIENDLY BUILDINGUSING M-SAND IN CONCRETE

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***ABSTRACT--** The large amount of concrete where spent by the construction industry in all over the world, may be the second largest one next to water in India, the predictable concrete is produced by using natural sand from riverbeds as fine aggregate. Failing of sand resources poses the environmental problem and hence government restrictions on sand quarrying resulted in scarcity and significant increase in its cost. The paper presents the study of concrete with artificial sand as fine aggregate. Such sand can be used for all kinds of construction work, plastering, concreting etc.., and it is better substitute to river sand. In this process we have building eight cubes. The four cubes contain of river sand as fine aggregates and the additional four cubes contain of artificial sand as fine aggregates. Two several kinds of cubes where tested in (7'14'28')day curing process the final result of comparing the two cubes which catches high strength. The most useful of doing this project is about obtain high efficiency at low cost with environment friendly for reducing little dust pollution.*

Keywords--- m-sand, concrete, environmental friendly building, fine aggregates.

I. INTRODUCTION

A. GENERAL

Natural sand are weathered and worn out particles of rocks and are of various grades or size depending on the accounting of exhausting. The natural and Cheapest resource of sand where get from the river beds. Dams are constructed on every river hence these

Resources are excluding very fast. Now a Days sand where conveyed from long distanceit is a need of the time to find some substitute to natural river sand. The Artificial sand where manufactured by crushing machines can be a better substitute to river sand.

Now a days, government have put ban on exhausted sand from river bed.In this project we used one grade of concrete m30 by replacing manufactured sand as fine aggregate and we cast 12 cubes of standard size and have compared the compressive strength at 7,14,28 days of curing to attain the maximum compressive strength.

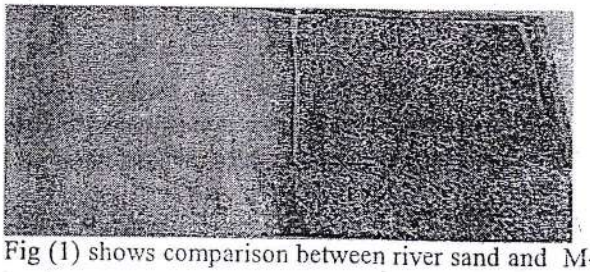

Fig (1) shows comparison between river sand and M-sand

II. MANUFACTURED SAND

A. PROCESS OF M-SAND

RAW QUARRIED STONES
↓
VIBRATING FEEDER
↓
PRIMARY JAW CRUSHING
↓
SECONDARY IMPACT CRUSHING
↓
VIBRATING SCREEN
↓
SAND WASHING MACHINE
↓
BELT CONVEYOR
↓
FINAL ARTIFICIAL SAND

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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HAZARD ANALYSIS OF AN AUTOMOTIVE INDUSTRY FOR IMPLEMENTING THE ON SITE EMERGENCY PLAN

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ABSTRACT

Emergency preparedness is important in any place, but in industry it plays' vital role in safety point of view. In maximum care of emergency we don't know where to move & how to react the critical situations. So planning for emergency exit through which placing the exit plan everywhere, train the worker, creating the emergency response team (ERT) and creating awareness to the worker more important. This paper presents detail review of emergency preparedness and emergency response team in an automotive industry by considering Fire hazards, Natural hazards and other Hazards.

KEYWORDS: ***Emergency exit plan, Emergency response team.***

---

1. INTRODUCTION

The events of the Victoria Hall Disaster in Sunderland, England in 1883 in which more than 180 children died because a door had been bolted at the bottom of a stairwell, the British government began legal moves to enforce minimum standards for building safety. This slowly led to the legal requirement that venues must have a minimum numbers of outward opening emergency exits as well as looks which could be opened from the inside. 146 workers died in Triangle Shirtwaist Factory Fire in 1911 when they were stopped by locked exits and 492 people died in the Cocoanut Grove Fire in a Boston nightclub in 1942. This led to regulations requiring that exits of large buildings open outward, and that enough emergency exits are provided to accommodate the building's capacity [2]. These are the some of the example disasters in the world history and we learned so many things in these disasters. So only we have taken this issue to reduce the accident. Here we have eliminate the hazard and save the worker. This paper detailed review of the on-site emergency plan and the fire load calculation for the industry its helps to find out the how the damages is going to be happen in future. We found that LPG yard and Shot Blasting area are the most hazards area. So providing more safety system in those areas are more important. To inspect the fire hydrants, fire extinguishers, fire alarms, smoke detectors are fixed properly. Provide the wind sack system to know the direction of wind. If we want to implement the emergency exit plan you should need to create Emergency Response Team (ERT) that divided into more groups then prepare the exit plan for the industry and train the worker as well as team. Display the emergency exit plan and emergency contact numbers in everywhere in the plant to save the victim and improve the safety.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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ENHANCING SAFE BEHAVIOUR OF EMPLOYEES THROUGH TRAINING AND AWARENESS

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ABSTRACT

First aid accident is a major problem in the process industry. Unsafe act of workers plays a vital role in the occurrence of first aid accidents. The reason is that, the employees are not having enough training and awareness about their role. According to Tamil Nadu factories rule 1950, the works carried out in foundry is considered as a dangerous operation. This paper reveals the formation of training module to the dangerous machines in foundry. The new training module of the machine will bring the greater understanding of operators about their individual role related to safety. The significance of training module is to reduce the consequences of first aid accident scenario. The training module includes the process hazards, safe operation procedure, emergency procedure, and past near miss incident etc. During the training session the mode of the training will be as reality as possible.

I.INTRODUCTION

Occupational health and safety is very important in work place. According to ILO 15% of the world population suffers a minor or major occupational accident or work related Disease in any one year. There are many obstacles in the way of achieving the safe work practice. The financial constraints, performance targets are some of the examples of such obstacles. It is estimated that in Britain every day there are half a million skin injuries of sufficient size to need at least a first–aid dressing.(lancent,1961).The investigation report says that unsafe act of workers (i.e. human behavior) is the root cause of occurring the first aid accident(seo,2005).out of 100 accidents 80 accidents are the fault of the person involved in the incident(department of labor & industry bureau of workers compensation)

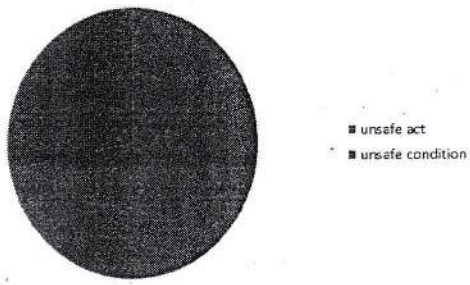

Fig 1: causes for accidents

This is because the workers should not have enough awareness, training and understanding of the specific hazards and risk associated with their jobs and working environment. They are working with incomplete instruction. Aksorn and Hadikusumo (2008) found that safety management practices including training, accident investigation, and job hazard analysis reduced the number of unsafe act.

In foundry there are lots of dangerous machines are there. So the first aid accident rate is

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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Design of Extended Robotic Arm Type fire fighting System

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I ABSTRACT

Fire hydrant is manufactured and installed for the purpose of fire fighting in any kind of industry and organization. The fire hydrant is a fixed and manually operated. The recent studies and accident cases tells that manual firefighting operations is an endanger to the firefighters. This system should replace by extensive automated device. The innovation of this project it eliminates the manual operations is been carried out in firefighting operations. The design of extended mobile type robotic arm firefighting system is archived, the systems control the injury and the damages cost to the firefighters when exposed to the fire. The design of extended mobile type robotic arm firefighting system is archived, which includes the robotic arm. The arm is been actuated by pneumatic system. The movement of the arm is controlled by the stepper motor which constrains the inclined and rotation motions.

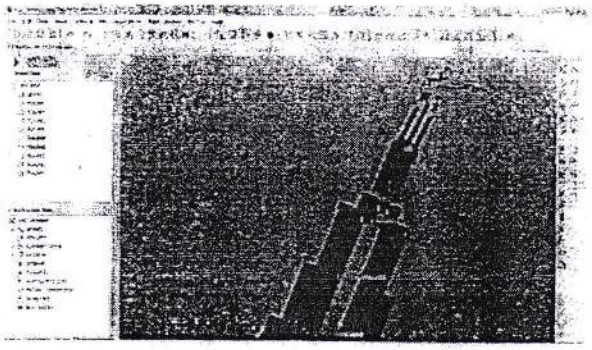
Keywords— Fire hydrant, Robotic arm, DC motor, Fire Extinguisher

II INTRODUCTION:

In general, a robot is a mechanical or virtual intelligent agent or any operated machine that can perform tasks automatically or with guidance and replaces human effort, typically. In practice a robot is usually an electromechanical ma-chine that is guided by computer and electronic programming. Robots can be autonomous, semiautonomous or re-motley controlled. The word robot first appeared in a play by the Czech writer Karel Capek in 1920. Robots may or may not resemble and perform functions like human beings. But they are often designed to perform tasks repeatedly and in an efficient manner [1]. Nowadays, robots do a lot of different tasks in many fields and the number of jobs entrusted to robots is growing steadily [2].

III DESIGN SOFTWARE:

This step involves paper work as well as design implementation in software. Before buying or ordering the components, parts and other robotic elements, one must draw a circuit associated with the required task and mechanical structure pertaining to the robot's movements. In addition to this, simulation in software's like CAD (pro/e, cattie) helps to simulate the robot, which gives necessary steps to overcome the limitations of building a robot.



IV DEGREE OF FREEDOM:

The number of degrees of freedom is the number of

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INVESTIGATION OF PROCESS PARAMETERS AND EXPERIMENTAL ANALYSIS TO MINIMIZE THE CASTING COLD SHUT DEFECT USING TAQUCHI METHOD

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ABSTRACT

This proposed work is to minimize the Cold Shut casting defect in foundry an optimization technique for process parameters of green sand casting process. Taguchi is a powerful problem solving tool for improving quality of the casting product.it is used to imprisonment the effect of signal to noise ratio of the experiments analysis based on the L_{27} orthogonal array used due to optimum conditions are found. The parameters considered are moisture content (%), green strength (g/cm^2), Permeability (nu), sand practical size(AFS).The conclusion of this paper that the selected process parameters continuously affect the casting defects in foundry. The consequence of this paper that the selected process parameters always affect the cold shut casting defect in foundry. The improvement expected in reduction of cold Shut casting defect is found to be 45.43 percent.

KEYWORDS: *Casting defect, Control factors, Iron foundry, Sand casting and Taguchi method.*

1.0 INTRODUCTION

The excellence is must importance of the products. This is used to all the iron casting foundry. Casting defect continuously occurring on the casting components' It's due to some improper sand properties and improper gating system and labor fault. But mostly occurring related to only insufficient of sand reinforcement. The Taguchi is powerful problem solving technique for improving process performance yield and productivity [2,4].some of the application Taquchi's method in the foundry firm have shown that the variation in casting quality caused by uncontrollable process variables can be minimized [5,6 .]Seeks to make both the process and product insensitive to disturbing factors that occasionally or systematically affect the variability of the process that lead to imperfections in the products.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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DESIGN AND DEVELOPMENT OF AUTOMATIC FIRE FIGHTING SYSTEM FOR VEHICLES

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***Abstract*-Through the centuries there has been such an intimate connection of fire with the cultural growth of humanity. Every system in the environment has its own fire regime so that they are revised to that fire regime. Fire is both inevitable and is the ultimate contradiction; often beautiful, terrifying, destructive, renewing and life-giving, all at the same time. The measures taken to control fire have a dramatic change in the habits of early humans. This is one of such work opted to control fire at the source in vehicles. Therefore, a novel design was developed to control fire at the source of vehicles which comprises of pneumatic actuators, solenoid valves, and extinguisher. The pneumatic actuator actuates the rod to control the fire. Therefore the system is called as ecofriendly system since air is used as a medium which actuates the rod extinguisher. This paper describes the nature of occurrence of fire and the system used to control them at the source.**

Keywords* — *fire fighting system, automatic, vehicle, pneumatic system

I. INTRODUCTION

Tens of thousands of lives have been lost globally in the last few decades due to car entrapment deaths. One of the major hazards associated with firefighting operations is the toxic environment created by combustible/flammable materials.

A. Tyes of Vehicle Fire hazards

The four major hazards associated with these situations are smoke, the oxygen deficient atmosphere, elevated temperatures, and toxic atmospheres. Additional risks of fire include falls and structural collapse of vehicles. To combat some of these risks, firefighters carry self-contained breathing apparatus. The first step of a firefighting operation is a reconnaissance to search for the origin of the fire and identification of the specific risks and any possible casualties. This shall leads to damages to lives and property of people.

B. Consequences of vehicle fire

The vehicle fires can produce toxic gases. Automobiles, trucks, and other motor vehicles are made of many synthetic materials that emit harmful, if not deadly gases when they burn. A main by-product of fires is a lethal concentration of carbon monoxide, which is a colorless, odorless, and tasteless gas. Flames from burning vehicles can often shoot out distances are 10 feet or more.

C. Reasons for vehicle fire

Parts of the vehicle can burst because of heat, shooting debris great distances. Bumper and hatchback door struts, two-piece tire rims, magnesium wheels, drive shafts, grease seals, axle, and engine parts, all can become lethal shrapnel. Although relatively rare, gas tanks of motor vehicles can rupture and spray flammable fuel, posing a clear potential for serious injury. In even more extraordinary instances, gas tanks have been known to explode. Hazardous Materials, such as battery acid, can cause injury without warning.

This paper is categorized into two works: a. Hazard assessment b. Design of a automatic fire fighting system. In the first part hazard assessment is carried out to identify potential hazards in the vehicle. In the second part, a fire fighting system is developed as a control measure to handle vehicle fires.

II. HAZARD ASSESSMENT AND ANALYSIS

In order to picture out the potential fire hazards in vehicles, it is necessary to carry out a hazard assessment. The hazard assessment is carried out as per IS 15656: 2006: Hazard Identification and Risk Analysis, Code of Practice.In this work, the hazards are identified with the help of a checklist which is been distributed to a group of vehicle drivers. The hazard assessment checklist is given in Annexure–I. Fig 1. shows percentage wise causes for vehicle fires. Fig 1.shows that nearly 30% of people voted major vehicle fire is caused due to improper insulation of wires. Nearly 20% of the people voted that vehicle fire is caused due to improper maintenance of batteries.[1] Approximately 10% people voted that for the reason for vehicle fire is storage of flammable materials in vehicles. Nearly 5% of the people voted that the reason for vehicle fire is excess heat from engine. 10% of people voted that reason for vehicle fire is due to leakage of fuel or gas. Nearly 5% of people claimed that accumulation of static charge is a cause for vehicle fire.Fig 1.Shows the percentage wise causes for vehicle fires.

Another checklist consists of a questionnaire analyzed the perception of drivers requirement of an automatic fire fighting

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PNEUMATIC GEAR CHANGING SYSTEM FOR FOUR WHEELERS

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ABSTRACT:

The main purpose of this project is automating the gear changing mechanism in vehicles. This is the new innovative model mainly used to control the heavy vehicle. In this project we design the pneumatic gear changing mechanism in heavy vehicles by using the pneumatic cylinder. By using this we can easily control the vehicle and improve the performance of the vehicle also we can avoid the wear and tear of the gear.

In this study a gear shifting mechanism was designed and applied to make the shifting process faster and less destructible for the driver. The new device must be able, has a small dimensions, low construction and maintenance cost. This paper aims to improve gear shifting process using devices as: a manual four speed gear box, four pneumatic double acting cylinders, four pneumatic two position five ways directional control valves, and power supply. According to suggested gear shifting method the driver can select the transmission gear ratio without moving this hands from the steering wheel by putting the gear shifting push buttons on the steering wheel.

Keywords : *pneumatic cylinder, gear mechanism, air compressor*

I. Introduction:

Vehicles, derived from the Latin word, vehiculum, are non-living means of transport. Most often they are manufactured (e.g. bicycles, cars, motorcycles, trains, ships, boats, and aircraft), although some other means of transport which are not made by humans also may be called vehicles; examples include icebergs and floating tree trunks. A vehicle maybe propelled or pulled by animals, for instance, chariot, a stage coach, a mule-drawn barge, or an ox-cart. However, animals on their own, though used as a means of transport, are not called vehicles, but rather beasts of burden or draft animals. This distinction includes humans carrying another human, for example a child or a disabled person. The main advantages of all pneumatic systems are economy and simplicity. Automation plays an important role in mass production.

II. Problem identification:

When we driving a heavy vehicle it's difficult to change a gear at driver comfortable. The wear gets increased due to manual gear changing and it required lubrication to shift the gear.In this study, a gear shifting mechanism was designed and applied to make the shifting process faster and less destructible for the driver. The new device must be reliable, has a small dimensions. This paper aims to improve gear shifting process using devices a manual four speed gear box, four pneumatic double

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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Design of Extended Robotic Arm Type fire fighting System

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I ABSTRACT

Fire hydrant is manufactured and installed for the purpose of fire fighting in any kind of industry and organization. The fire hydrant is a fixed and manually operated. The recent studies and accident cases tells that manual firefighting operations is an endanger to the firefighters. This system should replace by extensive automated device. The innovation of this project it eliminates the manual operations is been carried out in firefighting operations. The design of extended mobile type robotic arm firefighting system is archived, the systems control the injury and the damages cost to the firefighters when exposed to the fire. The design of extended mobile type robotic arm firefighting system is archived, which includes the robotic arm. The arm is been actuated by pneumatic system. The movement of the arm is controlled by the stepper motor which constrains the inclined and rotation motions.

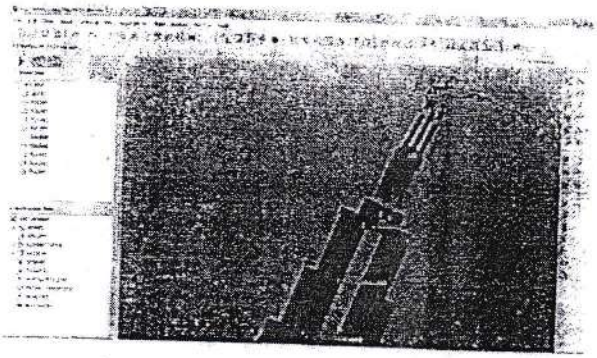
Keywords— Fire hydrant, Robotic arm, DC motor, Fire Extinguisher

II INTRODUCTION:

In general, a robot is a mechanical or virtual intelligent agent or any operated machine that can perform tasks automatically or with guidance and replaces human effort, typically. In practice a robot is usually an electromechanical ma-chine that is guided by computer and electronic programming. Robots can be autonomous, semiautonomous or re-motley controlled. The word robot first appeared in a play by the Czech writer Karel Capek in 1920. Robots may or may not resemble and perform functions like human beings. But they are often designed to perform tasks repeatedly and in an efficient manner [1]. Nowadays, robots do a lot of different tasks in many fields and the number of jobs entrusted to robots is growing steadily [2].

III DESIGN SOFTWARE:

This step involves paper work as well as design implementation in software. Before buying or ordering the components, parts and other robotic elements, one must draw a circuit associated with the required task and mechanical structure pertaining to the robot's movements. In addition to this, simulation in software's like CAD (pro/e, cattie) helps to simulate the robot, which gives necessary steps to overcome the limitations of building a robot.



IV DEGREE OF FREEDOM:

The number of degrees of freedom is the number of

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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RISK EVALUATION AND IMPROVEMENT OF OCCUPATIONAL HEALTH AND SAFETY IN CONSTRUCTION INDUSTRY

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Abstract

Occupational health and safety is the challenging factor in worldwide construction industries, which generates colossal issues and adverse effect for employee, employer and environmental. The international labor organization estimates there were 47,000 deaths from occupational accidents in India in 2003, the latest year for which figures are available, an increase of 17% from a year earlier. OSHA revealed that 4,585 labors were died in the job of 2013. The national government and some states have plans to compensate victims and their families. Some states pay as much as 100,000 rupees, or about $2,500, for death. But frequently companies silences families with an immediate, lesser payout or stonewall to prevent a claim. This paper is related to evaluate the risk assessment techniques and improved safety cultures in construction industry for evade the occupational hazards. This research paper observed and scrutinized the hazards in a construction industry and recommendations to avoid hazards. The hazards associated with construction activities, which creates fall, slip, trip, fatal, fall of material, entanglement, drawing, nip point hazard, trapping, welfare etc., the observed findings were discussed and solutions were revealed as per the prescribed manner. The goal of the study is meticulously evaluate the risk and suggested alternative solutions to endure the occupational health safety and environment.

Keywords: *Risk assessment, health, safety, Training.*

---

1. Introduction

Construction industry safety is a challenging factor for employer and employees such industry has number of hazardous activities such as working at height, working at confine space, handling of heavy equipment etc. While much is known about work-related injuries and illnesses in construction from the national workers' compensation dataset (NDS), less is known about work health and safety attitudes and perceptions. Yet it is attitudes and perceptions that have the greatest influence when it comes to improving work health and safety.

Specifically, the report demonstrates that there is a gap between what an employer perceives as the success of a Workplace Health and Safety Strategy and what an employee perceives. It is this gap that must be closed to achieve improved work health and safety.

Almost all construction employers reported that they make work practices safe, remove hazards as much as possible and use personal protective equipment in the workplace. Workers and employees had high levels of agreement that these safety practices were used in their workplace.

However, workers' level of agreement was less than that of their employers. Of some concern was the finding that only four in 10 employers indicated that their workplace reviewed incident reports and statistics. If reports and statistics are not reviewed regularly, then it is unlikely appropriate solutions are implemented.

While employers in medium and large construction businesses appeared to provide their employees with some safety training, 45 per cent of employers in

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
© Research India Publications; http://www.ripublication.com/ijaer.htm

DESIGN OF SEMI-AUTOMATIC MOBILE FIRE FIGHTING SYSTEM TO CONTROL FIRE AT CEILING HEIGHT

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Abstract---*A water type fire fighting system comprises a telescopic pneumatic cylinder and a means for discharging a fire to suppressant over a fire front in a target area at a ceiling height. The means for suppressing the fire comprises a retractable bellows type hose to carry the fire suppressant existing from the reservoir and a nozzle assembly attached to the free end of the retractable hose. A telescopic arm means achieves swinging of the retractable hose to obtain desired vertical reach and angular coverage over the fire front is coupled to the hose. This system used to discharge the fire occurs at a ceiling height by means of novel designed telescopic pneumatic cylinder with bellows hose. The system comprises of a retractable hose by means of telescopic cylinder with one end connected to nozzle and other end to the water pump. The air is used as the median for extension and retraction of telescopic pneumatic cylinder through an air compressor. The battery is used as a power supply for pump and compressor. The main aim of this system is to discharge the fire suppressant and extinguish the fire occurs at a ceiling height at any instant. This type of system is totally different from existing fire extinguisher and any other firefighting system*

Keywords---*Telescopic pneumatic cylinder. Bellows hose, Fire suppressant, Ceiling height.*

I. INTRODUCTION

The novel design invention deals to suppress the fire in a certain area where fire occurs which relates to a firefighting equipment including a bellows type hose with a nozzles in the telescopic pneumatic cylinder.

Fire fighting systems have utilized various methods to extinguish or suppress fires. The economic waste made by fire is huge and demands continuous improvement in fire fighting.

An effort to develop efficient and economical firefighting equipment has spawned extensive research and experimentation to improve techniques and equipment.

There are many systems to suppress the fire in a building such as sprinkler system, fire monitor, fire hydrant etc. But these systems consume more water to suppress the fire when fire caught at for a certain area as well as it is not possible to implement in all kind sort of buildings. For that type of fire we can use this novel type of system where water consumption is low as well as cost wise.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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HAZARD ANALYSIS OF AN AUTOMOTIVE INDUSTRY FOR IMPLEMENTING THE ON SITE EMERGENCY PLAN

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ABSTRACT

Emergency preparedness is important in any place, but in industry it plays' vital role in safety point of view. In maximum care of emergency we don't know where to move & how to react the critical situations. So planning for emergency exit through which placing the exit plan everywhere, train the worker, creating the emergency response team (ERT) and creating awareness to the worker more important. This paper presents detail review of emergency preparedness and emergency response team in an automotive industry by considering Fire hazards, Natural hazards and other Hazards.

KEYWORDS: ***Emergency exit plan, Emergency response team.***

1. INTRODUCTION

The events of the Victoria Hall Disaster in Sunderland, England in 1883 in which more than 180 children died because a door had been bolted at the bottom of a stairwell, the British government began legal moves to enforce minimum standards for building safety. This slowly led to the legal requirement that venues must have a minimum numbers of outward opening emergency exits as well as looks which could be opened from the inside. 146 workers died in Triangle Shirtwaist Factory Fire in 1911 when they were stopped by locked exits and 492 people died in the Cocoanut Grove Fire in a Boston nightclub in 1942. This led to regulations requiring that exits of large buildings open outward, and that enough emergency exits are provided to accommodate the building's capacity [2]. These are the some of the example disasters in the world history and we learned so many things in these disasters. So only we have taken this issue to reduce the accident. Here we have eliminate the hazard and save the worker. This paper detailed review of the on-site emergency plan and the fire load calculation for the industry its helps to find out the how the damages is going to be happen in future. We found that LPG yard and Shot Blasting area are the most hazards area. So providing more safety system in those areas are more important. To inspect the fire hydrants, fire extinguishers, fire alarms, smoke detectors are fixed properly. Provide the wind sack system to know the direction of wind. If we want to implement the emergency exit plan you should need to create Emergency Response Team (ERT) that divided into more groups then prepare the exit plan for the industry and train the worker as well as team. Display the emergency exit plan and emergency contact numbers in everywhere in the plant to save the victim and improve the safety.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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Cam actuated auto- feeding and blanking machine

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***Abstract**: There are many press working operation, in that the most common operation is blanking. It is cutting out of a flat piece of any shape or profile from the sheet metal. It is done by the blanking machine which is used in the company.*

In common blanking machine the slider crank mechanism is often used to put blank holes in the sheet metal. Its cost is high, size is larger and it produced single blank at single stroke only.

By this cam actuated automatic feeding and blanking machine we can produce multiple number blanks at a time in a single stroke by using cam and number of punches based on the production. It will increase the production at less time, and low cost.

The nature of my invention and improvements consists in making two revolving cams and collar or double cam to operate the punch bar and punch, one cam to set or adjust the punch to the thickness of the plate metal or other material to be punched, and the other cam to force the punch through the plate metal or other material to be punched, both cams and collar or double cam being arranged to turn or work on the punch-bar.

And it requires minimum space in the company environment. This project would be fruitful in both domestic & industrials backgrounds.

***Keywords**: blanking machine, cam, slider crank mechanism.*

1. INTRODUCTION

In most common blanking machine slider crank mechanism is used to put the holes in the sheet metal. Its size is larger and blank in the single stroke it takes time more and its cost is high so by this cam actuating auto feeding and blanking machine we can reduce the time and cost of the machine and by connecting more number of punches we can produce more number of blanks at a time.

Progressive dies generally include blanking and piercing operations but a complicated progressive die can do the operation of bending, forming, curling and heading also [3].

The cam and the lever give a powerful purchase and enable the punch to cut through a considerable thickness of sheet metal

In a punching machine the combination of a die and punch, a cylindrical stripper for punch having on its outside surface a spiral groove, an arm having a vertical recess through which said stripper passes and an internal projection in recess for engaging spiral groove.

The behavior of the blank material during the blanking process can be divided into five stages. During the start of the process, the sheet is pushed into the die and the blank material is deformed, first elastically. The process continues and the yield strength of the blank material is reached, first at the outer fibers and later at all the fibers in the zone between the punch and the die [1].

2. COMPONENTS REQUIRED

Table 1.

S.No	components	Material	Capacity & quantity
1	Electric motor	Mild steel	12v,5amps,0.25 hp & 1
2	Geneva wheel	Mild steel	1
3	Cam	Mild steel	1
4	Punch machine	Steel	1
5	Bearing	Steel	2
6	SMPS	Plastic	1
7	Roller	Mild steel	2
8	Spring	Steel	3
9	Sprockets	Steel	2
10	Chain	Steel	1
11	Sheet metal	Aluminium	0.27mm thickness & 1

3. COMPONENTS AND DESCRIPTION

3.1 ELECTRIC MOTOR

An electric motor which used as the source and to give the load with the help of Geneva wheel to operating the punch for blanking. Its specification is 12v, 5amps, 0.25hp.

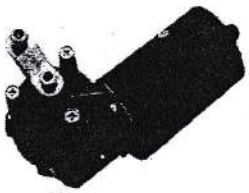

Fig 1.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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SUPERVISING AND PERFORMANCE MONITORING OF HIGH TENSION SUBSTATION SWITCHGEAR USING GSM TECHNIQUE

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A. ABSTRACT

This paper describes how new functions can be developed for automated analysis of data collected in substations of an electric power system. The new functions are first defined and architecture of the integrated substation application is proposed. Database and user interfacing needs are also presented. Once fully implemented, this solution will serve both local and remote functions allowing further benefits to be drawn from the concept of substation data integration and information exchange.

Development of substation automation systems was taking place for the last decade but the lack of enabling technologies and adequate standards were preventing such applications from becoming widespread. In the last few years the required technology (GSM) became readily available and various standardization efforts were either completed or are close to a completion.

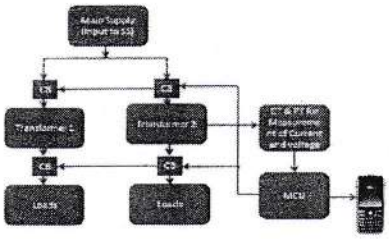
56% in hardness, 78% in tear strength and 52% in elongation at break.

KEYWORDS- GSM, SWITCH GEAR,CIRCUIT BREAKER

B. Introduction

Traditionally, fault location techniques have been developed for transmission electric lines due to the importance they have in the electric system and the impact that faults would have on these kinds of lines. More recently, distribution lines have been taken more into account due to the improvement in the quality of power supply derived from operating in a deregulated environment, and the high competition between companies. Due to the growing interest in power quality, power quality monitors that capture power quality phenomena have become an important tool, some assurements of voltages and currents before and during the fault are easily available and suitable to be used to estimate where the origin of fault is located.

The application described in this paper compact the information of the electric power line and estimates the location of a fault, starting from data registered during the fault, in a manual or automatic way.



CIRCUIT BREAKER BLOCK DIAGRAM

Renewable and Sustainable Energy Reviews 50 (2015) 17–31

Contents lists available at ScienceDirect

Renewable and Sustainable Energy Reviews

journal homepage: www.elsevier.com/locate/rser

Effects of injection timing on bio-diesel fuelled engine characteristics—An overview

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ARTICLE INFO

Article history:
Received 5 December 2013
Received in revised form
7 January 2015
Accepted 23 April 2015

Keywords:
Bio-diesel
Performance
Emission
Combustion
Low heat rejection
Injection timing

ABSTRACT

In day to day life, we are in need of alternative fuel to create an eco-friendly environment and also to meet out the increasing energy consumption rates. The specific characteristics such as renewability, sustainability and clean burning capacity put ahead the bio-diesels as one among the best choice for alternative fuels. Though there are several ideas and technologies to confront the challenges, they are often confined to a distant future, especially with regard to C.I engines. This review depicts how straight vegetable oil affects the fuel injection nozzle, ring sticking, dilution of the lubricating oil. Also, the different techniques of biodiesel production from straight vegetable oil (SVO) are included. The variables affecting the transesterification reaction, advantages, disadvantages of different types of bio-diesel productions and properties are discussed. The distinct factors of performance and emissions decide the use of fuels in engines. A brief discussion is made on the performance, emission and combustion characteristics of various bio-diesel sources like edible oil, inedible oil, and waste plastic oil. This paper goes on to talk of the advance, retardation methods to treat NO_x, HC and CO, and finally a comparative evaluation has been made on coated and uncoated engines with thermal barrier. The energy study for cost of plantation of nonedible oil seeds and cost of bio-diesel production are also discussed.

1. Introduction

As the fossil fuels are getting depleted day by day, the urge for an alternative fuel to fulfill the energy demands of the world is also increasing. Bio-diesel is one of the best available sources to fulfill the energy demands of the world. Though the petroleum fuels play a very important role in the development of industrial growth, transportation, agricultural sector and to meet many other basic human needs, these fuels are limited and depleting day by day as the consumption is increasing rapidly. Moreover, its usage is alarming and it causes a lot of environmental problems to the society (i.e.) burning of the fossil fuel which releases smog and greenhouse gases that contribute to global warming. Bio-diesel is gaining more importance as an alternative fuel to meet out the energy demands of the society [1].

The feedstocks used at present in commercial bioethanol production are sugar cane (Brazil) and maize (US). The use of first generation feedstock's for fuel production is associated with several issues that include the impact on food prices as demand for crops increases the competition between the use of crops for fuel production and for food supply as the world population is anticipated to increase from 6.5 billion to 9 billion by 2050. Tables 1.1 and 1.2 show future expected population. It clearly shows India will stand a first in terms of population [2]. Fossil fuels emissions are major contributors to greenhouse gases, which may lead to global warming. Combustion from fossil fuels is a major source of air pollutants which consist of CO, NO_x, SO_x, HC, particulates matter and carcinogenic compounds [3].

The name bio-diesel was introduced in the United States during 1992 by the National soy diesel Development Board (presently national bio-diesel board) which has pioneered the commercialization of bio-diesel in the United States. Bio-diesel can be used in any ratio with petroleum diesel as it has very similar characteristics but it has lower exhaust emissions. Bio-diesel has better fuel properties than that of petroleum diesel such as renewability, biodegradability, nontoxic, and free of sulfur and aromatics [4]. Usually, coconut, sesame, rapeseed, corn, palm and soybean are the present feedstock for bio-diesel

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http://dx.doi.org/10.1016/j.rser.2015.04.157
1364-0321/

G Model
EPSR-4021; No. of Pages 10
ARTICLE IN PRESS
Electric Power Systems Research xxx (2014) xxx–xxx
Contents lists available at ScienceDirect
Electric Power Systems Research
journal homepage: www.elsevier.com/locate/epsr

Model and design of a fuzzy-based Hopfield NN tracking controller for standalone PV applications

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ARTICLE INFO

Article history:
Received 13 November 2013
Received in revised form 3 May 2014
Accepted 13 May 2014
Available online xxx

Keywords:
Optimized fuzzy rule
Hopfield Neural Network
MPPT
Photovoltaic
Simulation
DC to DC buck-boost zeta converter

ABSTRACT

Harnessing energy from abundant, free sunlight is currently a hot topic within the research community. The availability of inexpensive solar modules has made it possible to harvest solar energy at higher efficiency. Photovoltaic (PV) modules have nonlinear characteristics, and hence, the process of impedance matching is obligatory. Proper impedance matching ensures extraction of the maximum amount of power in a PV scheme. Several algorithms that are used to operate DC to DC converters around the Maximum Power Point (MPP) are reported in the literature. Amongst those algorithms, Fuzzy Logic Control (FLC) coupled with other controllers performs well under partial shading conditions. This paper designs a new 5 × 7 optimized FLC-coupled Hopfield Neural Network (NN) maximum tracking technique. A Hopfield NN is used to routinely tune the fuzzy membership function. Entire components of a PV array, a DC–DC buck-boost zeta converter and a designed MPP tracking controller are implemented in a Matlab–Simulink tool to validate the Hopfield NN. The results validate the effectiveness and execution of the Hopfield NN using the optimized fuzzy system. The designed system was successfully tested on an experimental prototype. The experimental values demonstrate the feasibility and improved functionality of the scheme.

1. Introduction

Alternative sources for electrical energy generation are playing a vital role in society as environmental degradation increases globally [1]. Thus, research is being conducted around the world to find a solution to the problem of generating electrical power in an environmentally friendly manner [2]. Major renewable energy sources include wind, PV arrays, biomass and fuel cells. Hence, the reliability of maximum power tracking techniques depends on the interfacing power converters [3]. The proper power regulation from an interfacing power converter will ensure stable and reliable operation. PV systems employ various maximum power point tracking techniques including the Voltage Feedback, Power Feedback [5], Perturb and Observe (P&O) and the Incremental Conductance (Inc-Cond) methods [4,6,7]. These methods are based on load line adjustments under varying atmospheric and loading conditions [8]. However, this makes MPPT less suitable for rapidly changing environmental conditions [9]. To overcome the drawbacks of conventional MPPT techniques, intelligence-based MPPT techniques such as Neural Networks and Fuzzy Logic, are being developed [10]. The controller input and output parameters play a vital role in intelligence-based maximum power tracking systems to track the maximum power. In an intelligence-based MPPT controller, the appropriate input and output parameters must be chosen to investigate the effectiveness of the system [11]. The input and output control parameters are varied by the control action of a fuzzy-logic-based MPPT technique [13]. Under global irradiation conditions, the maximum power (which fluctuates over time) is extracted from the PV system using fuzzy logic [14]. The major drawback of existing FLC is its diminished performance during partial shading. It is impossible to change the fuzzy rule table after it is set [15]. Therefore, there is no work performed for partial shading conditions using standalone FLC. To overcome the drawback of existing FLC, Hopfield Neural Network control is introduced.

2. Optimized 5 × 7 FLC coupled Hopfield Neural Network

2.1. Fuzzy system

FLC is a complex superset of the Boolean logic system used to address partial truth standards between completely false and completely true. As its name implies, the logic employed utilizes fuzzy rather than crisp variables. The role of FLC developed from the circumstance that most manners of human reasoning and,

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http://dx.doi.org/10.1016/j.epsr.2014.05.007
0378-7796/

Please cite this article in press as: R. Arulmurugan, N. Suthanthiravanitha, Model and design of a fuzzy-based Hopfield NN tracking controller for standalone PV applications, Electr. Power Syst. Res. (2014), http://dx.doi.org/10.1016/j.epsr.2014.05.007

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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Cam actuated auto- feeding and blanking machine

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The behavior of the blank material during the blanking process can be divided into five stages. During the start of the process, the sheet is pushed into the die and the blank material is deformed, first elastically. The process continues and the yield strength of the blank material is reached, first at the outer fibers and later at all the fibers in the zone between the punch and the die [1].

2. COMPONENTS REQUIRED

Table 1.

S.No	components	Material	Capacity & quantity
1	Electric motor	Mild steel	12v,5amps,0.25 hp & 1
2	Geneva wheel	Mild steel	1
3	Cam	Mild steel	1
4	Punch machine	Steel	1
5	Bearing	Steel	2
6	SMPS	Plastic	1
7	Roller	Mild steel	2
8	Spring	Steel	3
9	Sprockets	Steel	2
10	Chain	Steel	1
11	Sheet metal	Aluminium	0.27mm thickness & 1

3. COMPONENTS AND DESCRIPTION

3.1 ELECTRIC MOTOR

An electric motor which used as the source and to give the load with the help of Geneva wheel to operating the punch for blanking. Its specification is 12v, 5amps, 0.25hp.

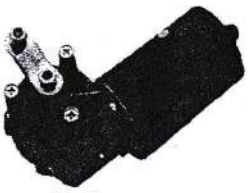

Fig 1.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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A STUDY OF BUILDING COLLAPSE ACCIDENT

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ABSTRACT:

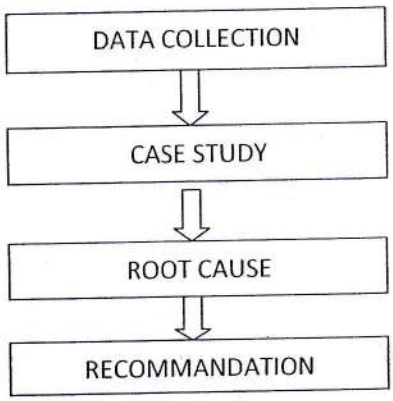
A building collapse induces a huge damage, hence proper emergence of safety aspects should be carried out. In this study, it discuss about the various building collapse occurred and the loss to the human life and the properties. Safety plays a vital role in these aspects to diminish the hazardous accidents and to shield the peoples from major injuries. The objective of this paper is to analysis the risk at building collapse and evacuate the major injuries caused due to accident. The proper safety equipments need to be installed in the building for precaution. The outcome of this study directs us to major injuries to the people and property. Based on the results of these building collapse and the suggestions and recommendations on them, the further occurrence of the accident and losses to the people and property will be greatly reduced.

***Keywords*: building collapse, collapse, evacuation in buildings, case study.**

I. INTRODUCTION:

A building collapse is the unexpected event .The most of the common speech about the building collapse is the improper building structure .There are various factors which leads to the collapse .the surrounding environment of the spot is also been affected due to the for recorded and it's been consolidated. Then the root cause is been identified by this study. Pollution caused by the building collapse. There is various safety criteria should be carried out in this situation. This type of accident cause huge fatigue and injuries to the people, and damages to the recourses. The proper safety equipment should be installed in the building in order to control the impact of the accident .The emerging response operation should be carried out in the zone. The fire safety measures need to be induced in the building, to control the fire which leads to huge accident. The rescue team with highly skilled personal should be operated to save the injured and non injured peoples sucked in the building.

II METHOLOGY



III *DATA COLLECTION*

Here in this the paper, the data has been collected by various journal and case studies. The data is been extracted that way, and it is been processed in this study

IV *CASE STUDIES*

A Case study 1:

"Building collapse in shanghai "

At around 5.30 am on June 27, a building which was under construction in the minhang district of shanghai city got collapsed. It was a 13 floor apartment building which was toppled. One worker lost his life due to this accident. there was a mud piled up to a height of 10 meters on the north side of the building and excavation of about 4-6 m deep underground car parking on the other side been the cause for the foundation to shift , leading to the accident .

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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COMPREHENSIVE EVALUATION ON OCCUPATIONAL HAZARDS DUE TO NOISE IN MANUFACTURING INDUSTRIES

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Abstract--- *Foundry is one of the hazardous operations where the probability of occurrences of an incident is moderately high; the level of risk is comparatively high. This paper aims at determining, analyzing and providing control measures for noise hazard in foundry. A noise level meter dB(A) is used for measurement of noise and the measurements are compared with National Institute for Occupational Safety and Health(NIOSH) standards. It is found that fettling, shot blasting, flywheel cutting and furnace areas are having higher noise with 111dB(A), 100.9 dB(A), 103 dB(A), 99 dB(A) respectively. The work provides recommendation for engineering control and administrative control in foundry which helps to reduce the noise exposure and provides safe working condition to the workers, thereby improving the level of safety and reducing the probability of occurrence of incidents.*

Keywords--- *Noise, Foundry, Hazard, Noise exposure, Noise Level Meter, Hearing Loss.*

INTRODUCTION

Noise that are produced in industry is unavoidable, but it is a physical hazard that causes acute and chronic disorders. Noise that are produced due to sudden impact will create acute effect of acoustic trauma, prolonged hearing of noise leads to chronic effect of noise induced hearing loss. Long-term noise exposures in foundry can be a source of occupational diseases and injury to human health. The old-fashioned way of the comprehensive evaluation on occupational dangers for foundry is a kind of arrangement valuation which is according to the measured data of noise, but it is a calculation for only one hazard. It will make interactive effects between several risks, so the grouping and estimate for only one danger cannot return the level of the comprehensive occupational dangers and it wants to effort on comprehensive evaluations on occupational dangers. It is rare to identify a study on interactive effects in comprehensive assessments on occupational dangers and has studied on the comprehensive evaluation when exists interactive effects between several occupational dangers [1].

According to the study of Zhao Nan et al. (2006) the aim of noise requires the synergistic outcome on human range is because noise-induced hearing loss is generally caused by tough noise[2]. The controls of tough noise can originate growing of metabolism of hair cells. In demand to recompensing the increased metabolism of hair cells of the cochlea spiral, the primary period of the exposure of the human ear to noise of 90-110 dB(A) with the range of exposure time and established strength noise exposure. The noise-induced hearing losing, as it causes the cochlear flow further reducing with the peripheral vasodilation. Rates of Noise Induced Hearing Loss (NIHL) have been related with workers exposed to noisy cocation stated that 16% of the workers generally hurt hearing loss related with coverage at work [3]. The frequency of hearing loss is related with coverage at work. The frequency of hearing injury between uniformed workers such as the policemen, military and naval personnel was stated by Toh ST (2002) [4].

In Malaysia, the hearing conservation program was introduced under the factories and machinery (Noise exposure) Regulation 1889 to reduce and control the workers from extreme exposure to noise. [5].Under this regulation, workers are secure from extreme noise exposure and sinking the risk of NIHL. According to the factories and machinery (Noise exposure) Regulation 1989,within the permissible exposure limit, the worker will not be visible to noise level beyond same continuous A weighted sound pressure level of 90 dB(A) or beyond the confines definite in the first schedule or beyond daily dose of unity. According to the U.S. National Institute of occupational safety and health [6], the recommended exposure is 85 dB(A) time weighted average (TWA). Exposures at or above this equal are careful as risky. They varied from the U.S. occupational safety and Health Act (OSHA) [7] which uses 90 dB (A) TWA. The basis is to offer more safety to noise-exposed workers, mentioning research that shows an 8% excess risk of hearing loss at the 85 dBA TWA limit as opposed to 25% at 90 dB(A).

Numerous employees are visible to noise at work place and this exposure is the second most significant cause of survey loss after aging process [8]. Manufacturing processes create

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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EXECUTION AND ANALYSIS OF SILICON MIXED KEROSENE SERVOTHERM IN EDM OF MONEL 400

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Abstract

Delivering the high Material Removal Rate (MRR), low Tool Wear Rate (TWR), attain to the great Surface Finish (SF) and Over Cut (OC) are exceptionally requesting in Electrical Discharging Machining (EDM). The execution of Silicon powder blended with lamp fuel servotherm dielectric medium in EDM of Monel 400 is dissected and the ideal scope of Silicon powder, Graphite powder 6g blends with the dielectric medium of lamp fuel servotherm (75:25) were created tentatively. It was accounted for somewhat more MRR, low TWR, better OC and great surface completion (SF) in Monel 400.

Keywords: ***Electrical Discharge Machining, Kerosene ServoTherm, Material removal rate, Tool Wear rate, Surface Roughness, Overcut.***

I. INTRODUCTION

The assembling business social orders are confronting difficulties in cutting edge materials like super composites, pottery and composites, that are hard and hard to machine, obliging high accuracy and surface quality which builds machining cost1. Materials having appealing properties, for example, high quality, high bowing firmness, great damping limit, low warm development and better weakness attributes which make them potential for cutting edge mechanical application. To conquer these difficulties, new offbeat machining methodology with cutting edge strategy of EDM is utilized for fruitful machining of conductive and protecting materials of any hardness with great dimensional exactness and surface completion since the ordinary machining of cutting edge materials is regularly troublesome because of the enhanced warm, concoction and mechanical properties of new progressed materials2. In EDM process, extraordinary fast vitality and dreary sparkle release is kept up between cathodes creating liquefying and dissipation work piece is perceived as a standard process in businesses for making pits in solidified bite the dust and procedure tool.

Most normal utilized dielectric liquid medias are hydrocarbon mixes and water. The hydrocarbon mixes are as refined oil. The examined the impact of silicon powder expansion into dielectric at first glance completion of H-13 kick the bucket steel.13 Machining with expansion of silicon powder creates fine and erosion safe surfaces having harshness of 2μm.the explored the impacts of suspended powder in dielectric liquid on surface roughness.14 It was accounted for that the surface complete on SKD-61 material is enhanced with the utilization of silicon powder. Yan et al examined the impact of suspended aluminum and silicon carbide powders on EDM of SKD11 and Ti-6Al-4V. Change in metal evacuation rate was seen at the expense of surface finish.

To enhance the machining effectiveness, the expansion of abrasives and metallic silicon and graphite powders are blended with dielectric liquid for enhancing yield responses.

2. ISSUE IDENTIFICATION

In this examination four diverse dielectric blends are gotten by blending the lamp fuel servotherm with 6g graphite powder and 2, 4, 6, and 8g silicon powder5. The 10mm breadth and 6mm length of copper apparatus terminal has been arranged and execution of the same was examined in EDM of Monel 400 with diverse mix of dielectric medium. A 3mm profundity of cut was done on workpiece for every mix. The work piece distance across of 25mm and 6mm thickness were taken to the machining.

The force supply of the machine is 75V, current 4Amps and crevice voltage is 30V for all blend of dielectric medium. Lamp oil servotherm blends with the proportion of 75:25 utilized as a dielectric medium. The examination exhibitions are seen at diverse scope of silicon powder andthe stage changes in apparatus and work piece amid the EDM additionally observed6. The TWR and MRR in apparatus and cathode were seen in different mixture of dielectric medium at distinctive scope of silicon powder. The trial set up as indicated in Figure 1 and Table 1.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)

SUPERVISING AND PERFORMANCE MONITORING OF HIGH TENSION SUBSTATION SWITCHGEAR USING GSM TECHNIQUE

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A. ABSTRACT

This paper describes how new functions can be developed for automated analysis of data collected in substations of an electric power system. The new functions are first defined and architecture of the integrated substation application is proposed. Database and user interfacing needs are also presented. Once fully implemented, this solution will serve both local and remote functions allowing further benefits to be drawn from the concept of substation data integration and information exchange.

Development of substation automation systems was taking place for the last decade but the lack of enabling technologies and adequate standards were preventing such applications from becoming widespread. In the last few years the required technology (GSM) became readily available and various standardization efforts were either completed or are close to a completion.

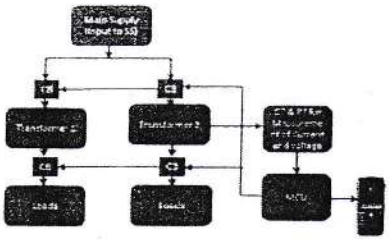
56% in hardness, 78% in tear strength and 52% in elongation at break.

KEYWORDS- GSM, SWITCH GEAR,CIRCUIT BREAKER

B. Introduction

Traditionally, fault location techniques have been developed for transmission electric lines due to the importance they have in the electric system and the impact that faults would have on these kinds of lines. More recently, distribution lines have been taken more into account due to the improvement in the quality of power supply derived from operating in a deregulated environment, and the high competition between companies. Due to the growing interest in power quality, power quality monitors that capture power quality phenomena have become an important tool, some assurements of voltages and currents before and during the fault are easily available and suitable to be used to estimate where the origin of fault is located.

The application described in this paper compact the information of the electric power line and estimates the location of a fault, starting from data registered during the fault, in a manual or automatic way.



CIRCUIT BREAKER BLOCK DIAGRAM

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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Reduction of Filling Time in Injection Moulding Machine by Using Hydraulic System

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***Abstract* - In our Project "Reduction of filling time in Injection Moulding Machine by using Hydraulic Systems", we are reducing the Filling time of the Plastic mould into the Die cavity of the Injection Moulding Machine, so that we can achieve Higher Production Rate. This can be achieved, by introducing a Hydraulic System in the Injection Moulding Machine, so that the plastic mould fills in a faster rate. In general it is achieved with the help of Hopper, Rotating Screw, Barrel, Screw lock, Heaters, Cylinders for actuation, Strong Magnets, and Die for product production. Electric Motors are employed for screw actuation. Heaters are also work with electric supply. The Hydraulic Systems used in our Project has a Piston for Expansion and Retraction of Cylinders, which determines the filling of plastic mould in the die of the Injection Moulding Machine.**

Key Words – Injection Moulding, Filling Time, Clamping, Die, Cavity.

I. INTRODUCTION

A. Moulding

Moulding is defined as the manufacturing process, where the liquid is made into a shape or the pliable raw material with the application of a rigid frame called a mould or matrix. This process is done using a pattern or previously finished final object.

A mould or mold is a hollow block that is filled with a semi solid or liquid, such as a likely material like plastic, glass, metal, or any other materials into the mould cavity. The molten liquid hardens or sets inside the mould, taking its shape. A mould is the matching part to a cast. The Bi-valve moulding process generally utilises two moulds, one for each half of the object.

Piece-moulding is defined as the method, which uses a different number of moulds, each making a section of a complex object. This is generally only used for larger and valuable objects.

The manufacturer who creates the mould is called the mould maker. A release agent is usually used to remove the toughened/set substance from the mould easier. Representative uses for moulded plastics contain moulded furniture, moulded household supplies, moulded cases, and structural materials.

The fundamental types of moulding are characterized below:

- Blow moulding
- Powder metallurgy and sintering
- Compression moulding
- Extrusion moulding
- Injection moulding
- Laminating
  - Reaction injection moulding
- Matrix moulding
- Rotational moulding (Roto moulding)
- Spin casting
- Transfer moulding
- Thermoforming

Vacuum forming (Similar to Thermo Forming)

II. INJECTION MOULDING

A. Introduction to Injection Moulding

Injection moulding is a type of Mould Manufacturing operation, which is used for manufacturing parts by injecting the molten material into a mould. Injection moulding can be performed with a mass of materials, which include metals, glasses, elastomers, confections, thermoplastic and thermosetting polymers.

An Injection moulding machine, is also called as Injection Press machine, which is used for manufacturing plastic products by the injection moulding process. It consists of two units, an *injection unit* and a *clamping unit*.

Injection moulding process is extensively used for manufacturing a diversity of parts, from the smallest components to entire body panels of automobiles. In the Advanced 3D printing technology, photopolymers are utilized, which get don't melt during the injection moulding process of

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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FABRICATION OF AUTOMATIC FIRE FIGHTING SYSTEM BY USING ROBOTIC ARM

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1. ABSTRACT

Fire fighting is a high risk activity since the fire fighters are in need of facing the risk of fire when they approach the fire. This gives rise to occupational health related problems and sometimes fatalities. To trim down the risk, a model called fire fighting mobile robot is developed as an attempt to replace human work in fire fighting. Fire fighting mobile robot is a remote controlled machine which consists of a small robotic arm and it rotates 360° to control the fire efficiently.This project covers the development of fire fighting robot arm for the purpose of suppressing the fire in tallest building. It will help to reduce the exposure of fire fighter to fire hazards. The main objective of this work is to reduce the occupational health related problems & fatalities due to fire.

Keywords— ***Robotic Arm, Automatic fire fighting system, fire hazard, 360degree rotation arm, health risk, rack and pinion….***

2. INTRODUCTION

This project attempts to replace human for the fire fighting operations. The firefighting robot is one that acts as a fire protection system by attaching a small nozzle to the robot arm and controlled semi automatic process that replace the fire fighter to perform the firefighting activities. In our fire fighting system is able to reduce the direct contact of the fire fighter to the fire hazards and also reduce wastage water at operating time. It will help to control the fire hazards exposed by the fire fighters. Robotics is one of the best ever growing technological fields of today. Robots are designed to replace the human factor from dangerous work and also to act in accessible environmental condition. [4]. the use of robots is applied various industries. The need Fire extinguisher Robot that can extinguish a fire on its own is long past due. With the implementation such a device, people and other property can be saved. Fire fighters looks dangerous situations when extinguishing fires and rescuing victims, a robotic arm can function by itself or be controlled from a distance & do fire fighting and rescue activities could be executed without involvement human at risk by using robot technology instead.[5]. In other words, robots reduce the need for fire fighters to get into unsafe situations.

Even though many Industrial have fire fighting systems installed in them; many people are still losing their lives and property due to fire accidents. [5].The cost of installation of these systems is usually high and most of them are operated manually. In this project, an automatic cost effective prototype of a fire fighting system for the control of fire has been designed and fabricated.

3. PROCESS

This project responsible for the safety aspects of the robot. It consists of following process.

1) Design of the extinguishing robot circuit.

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ASSESSMENT OF STATIC ELECTRICITY IN PETROLEUM INDUSTRY

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Keywords— **static electricity, petroleum industry, oil and gas**

Abstract:

During Loading and unloading of petroleum products, major accidents were occurred due to static electricity. Here 76 accidents due to static electricity were assed, based on information collected from published literature. Accidents happened during the storage and transportation of petroleum protects. Carry out the Statistical study for the all accidents. These accidents were performed based on the conditions, Place of accidents occurred, type of product, Type of tank and type of accidents. It is shown that about 85% of the accidents occurred in tanks, refineries, and 96% of the accidents included fire or explosion. The fishbone diagram used to find the effects and the causes of the effects. The results show that three major reasons were responsible for accidents, including improper operation during loading and unloading petroleum products, poor grounding and static electricity on human bodies, which accounted for 32%, 28% and 14% of the accidents, respectively. Safety actions are suggested to avoid similar situations in the future.

Introduction

Petroleum products are flammable and explosive. An accident occurred in the process of petroleum products storage and transportation may lead to major property loss and a few days of production interruption, and claims, stock reduction, or company closing. There are many causes for the accident, an important one of which is static electricity. In order to prevent electrostatic accidents and to moderate their consequences, many strict engineering guidelines and standards for the control of static electricity in industry have been published by government. Though most companies have followed those standards and guidelines, electrostatic accidents still occurred in petroleum industry. Therefore, it is of great significance to learn from the history for the future safe operation of petroleum products storage and transportation. The purpose of this paper is to sort the causes that lead to 76 electrostatic accidents occurred in the process of Petroleum protects storage and transportation in last 20 years, and to decrease potential hazards related with static electricity.

Overall statistics

The 76 electrostatic accidents were studied on the evidence collected from published paper-based literature [3-11] and web reports in this paper, which occurred in the process of petroleum products storage and transportation over last 20 years. As indicated in table 1, accidents occurred more frequently at gas stations with 47 cases (61.4%).The second most frequently involved place was tank farms (12 cases, 15.7%). About 7.3% of accidents happened in petroleum refineries (11.1%), petrochemical plants (6.1%), oil fields (1.0%), and other types of industrial facilities (8.1%) such as gas plants, pipelines. The atmospheric external floating roof tank was the most frequent type and the inner floating roof storage tank was the second most frequent type as could be seen in table 2. Both types were used extensively for the storage of crude oil and oil products such as gasoline, diesel, fuel oil, etc. Table 3 showed that fire was the most frequent type of loss with 39cases, and explosion was the second most frequent type of loss with 37 cases. In other words, fire and explosion together accounted for 96% of total cases.

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INVESTIGATION OF PROCESS PARAMETERS AND EXPERIMENTAL ANALYSIS TO MINIMIZE THE CASTING COLD SHUT DEFECT USING TAQUCHI METHOD

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ABSTRACT

This proposed work is to minimize the Cold Shut casting defect in foundry an optimization technique for process parameters of green sand casting process. Taguchi is a powerful problem solving tool for improving quality of the casting product.it is used to imprisonment the effect of signal to noise ratio of the experiments analysis based on the L_{27} orthogonal array used due to optimum conditions are found. The parameters considered are moisture content (%), green strength (g/cm^2), Permeability (nu), sand practical size(AFS).The conclusion of this paper that the selected process parameters continuously affect the casting defects in foundry. The consequence of this paper that the selected process parameters always affect the cold shut casting defect in foundry. The improvement expected in reduction of cold Shut casting defect is found to be 45.43 percent.

KEYWORDS: *Casting defect, Control factors, Iron foundry, Sand casting and Taguchi method.*

1.0 INTRODUCTION

The excellence is must importance of the products. This is used to all the iron casting foundry. Casting defect continuously occurring on the casting components' It's due to some improper sand properties and improper gating system and labor fault. But mostly occurring related to only insufficient of sand reinforcement. The Taguchi is powerful problem solving technique for improving process performance yield and productivity [2,4].some of the application Taquchi's method in the foundry firm have shown that the variation in casting quality caused by uncontrollable process variables can be minimized [5,6 .]Seeks to make both the process and product insensitive to disturbing factors that occasionally or systematically affect the variability of the process that lead to imperfections in the products.

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1. ABSTRACT

Fire fighting is a high risk activity since the fire fighters are in need of facing the risk of fire when they approach the fire. This gives rise to occupational health related problems and sometimes fatalities. To trim down the risk, a model called fire fighting mobile robot is developed as an attempt to replace human work in fire fighting. Fire fighting mobile robot is a remote controlled machine which consists of a small robotic arm and it rotates 360° to control the fire efficiently.This project covers the development of fire fighting robot arm for the purpose of suppressing the fire in tallest building. It will help to reduce the exposure of fire fighter to fire hazards. The main objective of this work is to reduce the occupational health related problems & fatalities due to fire.

Keywords— ***Robotic Arm, Automatic fire fighting system, fire hazard, 360degree rotation arm, health risk, rack and pinion….***

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Even though many Industrial have fire fighting systems installed in them; many people are still losing their lives and property due to fire accidents. [5].The cost of installation of these systems is usually high and most of them are operated manually. In this project, an automatic cost effective prototype of a fire fighting system for the control of fire has been designed and fabricated.

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Abstract

Delivering the high Material Removal Rate (MRR), low Tool Wear Rate (TWR), attain to the great Surface Finish (SF) and Over Cut (OC) are exceptionally requesting in Electrical Discharging Machining (EDM). The execution of Silicon powder blended with lamp fuel servotherm dielectric medium in EDM of Monel 400 is dissected and the ideal scope of Silicon powder, Graphite powder 6g blends with the dielectric medium of lamp fuel servotherm (75:25) were created tentatively. It was accounted for somewhat more MRR, low TWR, better OC and great surface completion (SF) in Monel 400.

Keywords: ***Electrical Discharge Machining, Kerosene ServoTherm, Material removal rate, Tool Wear rate, Surface Roughness, Overcut.***

I. INTRODUCTION

The assembling business social orders are confronting difficulties in cutting edge materials like super composites, pottery and composites, that are hard and hard to machine, obliging high accuracy and surface quality which builds machining cost1. Materials having appealing properties, for example, high quality, high bowing firmness, great damping limit, low warm development and better weakness attributes which make them potential for cutting edge mechanical application. To conquer these difficulties, new offbeat machining methodology with cutting edge strategy of EDM is utilized for fruitful machining of conductive and protecting materials of any hardness with great dimensional exactness and surface completion since the ordinary machining of cutting edge materials is regularly troublesome because of the enhanced warm, concoction and mechanical properties of new progressed materials2. In EDM process, extraordinary fast vitality and dreary sparkle release is kept up between cathodes creating liquefying and dissipation work piece is perceived as a standard process in businesses for making pits in solidified bite the dust and procedure tool.

Most normal utilized dielectric liquid medias are hydrocarbon mixes and water. The hydrocarbon mixes are as refined oil. The examined the impact of silicon powder expansion into dielectric at first glance completion of H-13 kick the bucket steel.13 Machining with expansion of silicon powder creates fine and erosion safe surfaces having harshness of 2µm.the explored the impacts of suspended powder in dielectric liquid on surface roughness.14 It was accounted for that the surface complete on SKD-61 material is enhanced with the utilization of silicon powder. Yan et al examined the impact of suspended aluminum and silicon carbide powders on EDM of SKD11 and Ti-6Al-4V. Change in metal evacuation rate was seen at the expense of surface finish.

To enhance the machining effectiveness, the expansion of abrasives and metallic silicon and graphite powders are blended with dielectric liquid for enhancing yield responses.

2. ISSUE IDENTIFICATION

In this examination four diverse dielectric blends are gotten by blending the lamp fuel servotherm with 6g graphite powder and 2, 4, 6, and 8g silicon powder5. The 10mm breadth and 6mm length of copper apparatus terminal has been arranged and execution of the same was examined in EDM of Monel 400 with diverse mix of dielectric medium. A 3mm profundity of cut was done on workpiece for every mix. The work piece distance across of 25mm and 6mm thickness were taken to the machining.

The force supply of the machine is 75V, current 4Amps and crevice voltage is 30V for all blend of dielectric medium. Lamp oil servotherm blends with the proportion of 75:25 utilized as a dielectric medium. The examination exhibitions are seen at diverse scope of silicon powder andthe stage changes in apparatus and work piece amid the EDM additionally observed6. The TWR and MRR in apparatus and cathode were seen in different mixture of dielectric medium at distinctive scope of silicon powder. The trial set up as indicated in Figure 1 and Table 1.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)

Fabrication Of Turmeric Planting Machine

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ABSTRACT

Rhizome (Turmeric) irrigation plays a vital role in Indian agriculture and also in Indian economy. India produces around 6,60,000 tonnes of turmeric from an area of about 1,42,000 hectares. Amazingly, this quantity measures about 90% of the global production, which need more number of workers to maintain this production level. Due to lack in human resource in villages especially for plantation activities, Farm owners are struggling hard to get workers for their fields. One of the alternative solution to overcome the problem above is by establishing automatic planting and harvesting machines in agriculture fields. The aim of our project is to reduce the human work, time and also to improve the agriculture technology with engineering concepts. In this project we fabricated the working model of automatic rhizome planting machine and also it is convertible for the other kind of planting processes. Our fabrication work consists of creative engineering design and construction work followed by the testing to obtain a good prototype. The machine is designed with 2 rows direct planting technique. Structural design consists of hopper and planting devices for rhizomes. The weight of the prototype is around 200 kg. Hence the machine can be operated safely. The planting machine has 3 stages ploughing, planting tube and arm. If required the planting rows can be increased accordingly.

***Keywords*- HOPPER, Rhizome, AGRICULTURE**

I INTRODUCTION

In Tamilnadu 90% farmers are having holdings in the range of 0-2 ha (57% cultivated area) cultivating variety of crops like wheat, maize, gram, groundnut, turmeric etc. A noticeable increase in the number of farm equipment's and many fold increase in tractor population in the last decade indicate the preferential use of improved agriculture equipment for different farm operations. However, there is further need to improve the quality of operation and reduce the cost. For which introduction of rotator, multi core seed drill cum planter, turmeric thresher and many more efficient machines for different farm operations will certainly find suitable place in future scenario of farm mechanization.

Rhizome planting machines are designed to fit the robust needs of the nursery industry and to save costs by efficient use of materials and reducing labor costs.(Includes drum seeders / seeding machines / seeding line machines). The main motive of this project is to reduce the human works since we need to automate the seeding machine. Designed to fill and seed trays and pots seeding machines are an important part of plant nursery automation. Machines range from seeders that will fill and seed pots and trays through to machines that fully automate the process by filling, seeding, covering and watering. Increases in ground speed or when operating on slopes slightly decreased the accuracy of this metering system.

The primary reasons crop producers adopt conservation tillage practices are: 1) labor and fuel savings by reducing the number of passes across a field, 2) equipment cost savings and 3) yield increases. A number of studies have been conducted in North Dakota comparing conventional tillage systems to reduced and no-tillage systems.

Research at Dickinson demonstrated that spring wheat yieldsincreased an average of 45 percent with no-till Similarly, soybean yields at Carrington are higher with no-till than with conventional tillage

Turmeric grows wild in the forests of South and Southeast Asia. It is one of the key ingredients for many Indian, Persian and Thai dishes such as in curry and many more. Ancient Indian medicine, Ayurveda has recommended its use in food for its medicinal value, much of which is now being researched in the modern day. Its use as a coloring agent is not of primary value in South Asian cuisine.

Although most usage of turmeric is in the form of powder, In some regions (especially in Maharashtra, Goa, Konkan and Kanara), leaves of turmeric are used to wrap and cooking food. This usually takes place in areas where turmeric is grown locally, since the leaves used are freshly picked. This imparts a distinct flavor.

II METHODOLOGY

A Working Principle

The machine we fabricate here works with simple mechanism. Its application where more power is required to pull the plough so the plough attachment attached with the tractor. The plough is used to close the sand. It consist of hopper the hopper is used to carry the turmeric seeds.Then the turmeric sent it in to a tube and it get drop in hole .the plough used to close the hole. These setups are fixed in the frame. The frame is get attached by the tractor .the tractor is used to feed the seeds.

B Process of flow chart

Seed processing plant building comprises of components like (i) Receiving-cum drying platform, (ii) processing area and (iii) auxiliary building. An open platform of varied size is provided for utilizing to receive the raw seed and to sun dry small lots of crop seeds. This area is also be utilized for storage of seeds on wooden pallets. The processing area is situated between the shed and ventilated storage building. The hall is connected to ventilated flat stores through a covered gallery for easy movement of processed and packaged seed to seed stores. The hall requires a big rolling shutter in the

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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PNEUMATIC GEAR CHANGING SYSTEM FOR FOUR WHEELERS

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ABSTRACT:

The main purpose of this project is automating the gear changing mechanism in vehicles. This is the new innovative model mainly used to control the heavy vehicle. In this project we design the pneumatic gear changing mechanism in heavy vehicles by using the pneumatic cylinder. By using this we can easily control the vehicle and improve the performance of the vehicle also we can avoid the wear and tear of the gear.

In this study a gear shifting mechanism was designed and applied to make the shifting process faster and less destructible for the driver. The new device must be able, has a small dimensions, low construction and maintenance cost. This paper aims to improve gear shifting process using devices as: a manual four speed gear box, four pneumatic double acting cylinders, four pneumatic two position five ways directional control valves, and power supply. According to suggested gear shifting method the driver can select the transmission gear ratio without moving this hands from the steering wheel by putting the gear shifting push buttons on the steering wheel.

Keywords : pneumatic cylinder, gear mechanism, air compressor

I. Introduction:

Vehicles, derived from the Latin word, vehiculum, are non-living means of transport. Most often they are manufactured (e.g. bicycles, cars, motorcycles, trains, ships, boats, and aircraft), although some other means of transport which are not made by humans also may be called vehicles; examples include icebergs and floating tree trunks. A vehicle maybe propelled or pulled by animals, for instance, chariot, a stage coach, a mule-drawn barge, or an ox-cart. However, animals on their own, though used as a means of transport, are not called vehicles, but rather beasts of burden or draft animals. This distinction includes humans carrying another human, for example a child or a disabled person. The main advantages of all pneumatic systems are economy and simplicity. Automation plays an important role in mass production.

II. Problem identification:

When we driving a heavy vehicle it's difficult to change a gear at driver comfortable. The wear gets increased due to manual gear changing and it required lubrication to shift the gear.In this study, a gear shifting mechanism was designed and applied to make the shifting process faster and less destructible for the driver. The new device must be reliable, has a small dimensions. This paper aims to improve gear shifting process using devices a manual four speed gear box, four pneumatic double

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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Reduction of Filling Time in Injection Moulding Machine by Using Hydraulic System

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Abstract **- In our Project "Reduction of filling time in Injection Moulding Machine by using Hydraulic Systems", we are reducing the Filling time of the Plastic mould into the Die cavity of the Injection Moulding Machine, so that we can achieve Higher Production Rate. This can be achieved, by introducing a Hydraulic System in the Injection Moulding Machine, so that the plastic mould fills in a faster rate. In general it is achieved with the help of Hopper, Rotating Screw, Barrel, Screw lock, Heaters, Cylinders for actuation, Strong Magnets, and Die for product production. Electric Motors are employed for screw actuation. Heaters are also work with electric supply. The Hydraulic Systems used in our Project has a Piston for Expansion and Retraction of Cylinders, which determines the filling of plastic mould in the die of the Injection Moulding Machine.**

Key Words – Injection Moulding, Filling Time, Clamping, Die, Cavity.

I. INTRODUCTION

A. Moulding

Moulding is defined as the manufacturing process, where the liquid is made into a shape or the pliable raw material with the application of a rigid frame called a mould or matrix. This process is done using a pattern or previously finished final object.

A mould or mold is a hollow block that is filled with a semi solid or liquid, such as a likely material like plastic, glass, metal, or any other materials into the mould cavity. The molten liquid hardens or sets inside the mould, taking its shape. A mould is the matching part to a cast. The Bi-valve moulding process generally utilises two moulds, one for each half of the object.

Piece-moulding is defined as the method, which uses a different number of moulds, each making a section of a complex object. This is generally only used for larger and valuable objects.

The manufacturer who creates the mould is called the mould maker. A release agent is usually used to remove the toughened/set substance from the mould easier. Representative uses for moulded plastics contain moulded furniture, moulded household supplies, moulded cases, and structural materials.

The fundamental types of moulding are characterized below:

- Blow moulding
- Powder metallurgy and sintering
- Compression moulding
- Extrusion moulding
- Injection moulding
- Laminating
  - Reaction injection moulding
- Matrix moulding
- Rotational moulding (Roto moulding)
- Spin casting
- Transfer moulding
- Thermoforming

Vacuum forming (Similar to Thermo Forming)

II. INJECTION MOULDING

A. Introduction to Injection Moulding

Injection moulding is a type of Mould Manufacturing operation, which is used for manufacturing parts by injecting the molten material into a mould. Injection moulding can be performed with a mass of materials, which include metals, glasses, elastomers, confections, thermoplastic and thermosetting polymers.

An Injection moulding machine, is also called as Injection Press machine, which is used for manufacturing plastic products by the injection moulding process. It consists of two units, an *injection unit* and a *clamping unit*.

Injection moulding process is extensively used for manufacturing a diversity of parts, from the smallest components to entire body panels of automobiles. In the Advanced 3D printing technology, photopolymers are utilized, which get don't melt during the injection moulding process of

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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Development of mini fire fighting vehicle system

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Abstract:

The firefighting is a risky work where the fire fighters need to face the fire hazards to save life and properties. In case of little large fire in educational institutions the vehicle is used. Fire fighting vehicle is being used to transport fire fighters to the scene as well as transport the firefighting equipment's. The fire fighting vehicle is designed to extinguish the fire with the tank capacity of 30liters. To reduce the risk during fire incident, a fire fighting vehicle is designed. Fire fighting vehicle is a controlled machine that replace fire fighter to perform firefighting task. The application of fire fighting vehicle is smaller in size so that it can access where the fire tendon cannot perform, and also it can quickly reach the fire location. The amounts of water used or required for effective fire-fighting in relation to the occupancy type, the density of the fire load, the estimated heat release from fires.

Introduction:

Firefighting is risky profession. They are not only extinguishing fires in tall buildings but also must drag heavy hoses, climb high ladders and carry people from buildings and other situations. There are many fire fighters lost their lives in the line of duty each year throughout the world. The statistics of the fire fighter fatalities are still maintain a high level every year and it may continue to increase if there is no improvement in firefighting techniques and technology. In addition to working in long and irregular hours and unfriendly working environment such as high temperature, dusty and low humidity, firefighters are also facing with potentially life threatening situation such as explosion, collapsed building and radioactive. The common equipment used by firefighters such as flat head axe, halligan bar, turnout jacket, fire retardant or bunker pants, boots, flashlight, helmet, face mask, and gloves do not significantly reduce risk on their lives when facing those life threatening situations.

Design and Functioning of Fire Pump:

Trailer fire pump designed as per IS:944 and is meant for pumping water from tank for extinguishing fire. The pump has been subjected to the tests and checked for conformity of the pump performance.

Important:

Check diesel level in diesel tank before and while operating. Engine water cooling valve must be opened according to the temperature gauge reading on control panel while running the pump. The temperature can be maintained at 60 deg C maximum.

General:

Fire pump is a composite firefighting unit and can be operated by a crew of 2 men's since the unit is perfectly balanced. It is of course preferable that the unit is towed by a fire fighting accessories and further to carry the crew. The vehicle frame, wheel equipment's has been designed to afford maximum safety.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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SAND-WATER MIXTURE HYDRANT FOR NUCLEAR RADIATION SHIELD

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A. ABSTRACT

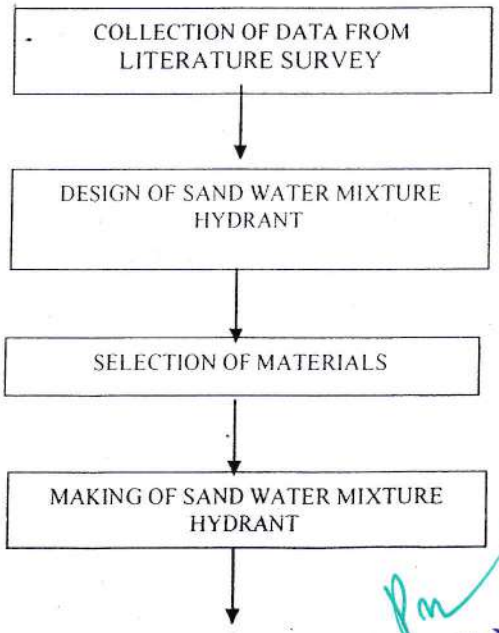
In the Present scenario, nuclear power plant accidents cause major environmental pollution. Even though more control measures are taken during accident, but high explosion radiation spread all over the area and affect the environment. This project mainly focused on control of radiation from the nuclear reactor by using sand-water mixtures. There are sand hydrants that have a high power displacement pump. The pump sucks water and sand mixture from the river or sea and pumped it to the reactor when the accident occurs. In case of any fire or increasing of reactor temperature coolant are used for cool reactor but it evaporate in high temperature and radiation spread. At the time sand water mixture hydrant absorb radiation particles. There is more amount of sand act like shield around the nuclear fuel. Then its radiation not spread over that area

KEYWORDS- SAND WATER MIXTURE, MOTOR PUMP

B. INTRODUCTION

Nuclear radiation shielding is more effectively performed by materials with high atomic mass number and high density. One of the materials is lead which has a drawback of its low melting point. Iron is mainly used for higher and lower energies. Iron is only selected based on physical, temperature, and economic considerations. Water can be used but it is a poor absorber of nuclear radiation, thus large amounts are required. Sand water mixture is a good nuclear attenuator as a general shield material. Sand water mixture is strong, inexpensive, and easily use to different types of construction. The major objective of this work is to shield the nuclear radiation during accident situation. The sand water mixture is much better in all characteristics than the concrete and iron. An extensive study has documented that the sand water mixture harder than others. It is one of our major issues to look into the possible Improvement in radiation absorption by sand water mixture.

D. METHODOLOGY



International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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A STUDY OF BUILDING COLLAPSE ACCIDENT

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ABSTRACT:

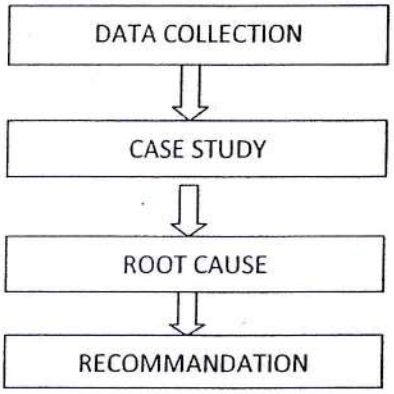
A building collapse induces a huge damage, hence proper emergence of safety aspects should be carried out. In this study, it discuss about the various building collapse occurred and the loss to the human life and the properties. Safety plays a vital role in these aspects to diminish the hazardous accidents and to shield the peoples from major injuries. The objective of this paper is to analysis the risk at building collapse and evacuate the major injuries caused due to accident. The proper safety equipments need to be installed in the building for precaution. The outcome of this study directs us to major injuries to the people and property. Based on the results of these building collapse and the suggestions and recommendations on them, the further occurrence of the accident and losses to the people and property will be greatly reduced.

***Keywords*: building collapse, collapse, evacuation in buildings, case study.**

I. INTRODUCTION:

A building collapse is the unexpected event .The most of the common speech about the building collapse is the improper building structure .There are various factors which leads to the collapse .the surrounding environment of the spot is also been affected due to the for recorded and it's been consolidated. Then the root cause is been identified by this study. Pollution caused by the building collapse. There is various safety criteria should be carried out in this situation. This type of accident cause huge fatigue and injuries to the people, and damages to the recourses. The proper safety equipment should be installed in the building in order to control the impact of the accident .The emerging response operation should be carried out in the zone. The fire safety measures need to be induced in the building, to control the fire which leads to huge accident. The rescue team with highly skilled personal should be operated to save the injured and non injured peoples sucked in the building.

II METHOLOGY



III *DATA COLLECTION*

Here in this the paper, the data has been collected by various journal and case studies. The data is been extracted that way, and it is been processed in this study

IV *CASE STUDIES*

A Case study 1:

"Building collapse in shanghai "

At around 5.30 am on June 27, a building which was under construction in the minhang district of shanghai city got collapsed. It was a 13 floor apartment building which was toppled. One worker lost his life due to this accident. there was a mud piled up to a height of 10 meters on the north side of the building and excavation of about 4-6 m deep underground car parking on the other side been the cause for the foundation to shift , leading to the accident .

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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Qualitative Risk Analysis of LPG Storage in Industries

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Abstract:

The rapid growth in use of hazardous chemicals in the industry has brought significant increase of risk to people both public and employees, whose life could be endangered at any time by the accident due to those chemicals. One of these main chemicals is LPG liquefied petroleum gas which is stored and used in the liquefied form under pressure. LPG accidents are extremely danger from the point of view of their impact and hazard to the people and surroundings. Qualitative methods of risk assessment are developed in order to identify the hazards and to determine the risk of that hazard results into an accident. This study intends to analyses the possibility of failures and hazards involved in the LPG storage and handling process by any one of the qualitative risk assessment method. Therefore in this study Hazard Operability study (HAZOP) is taken as a qualitative analysis tool to examine the LPG storage system. Hazop study is the leader which systematically examines all parts of a system or design. It also identifies the deviations from system design by using set of guide words.

Keywords: LPG storage, hazardous chemicals, Qualitative analysis, Hazop study, LPG accidents.

1. INTRODUCTION

LPG is highly flammable and is commonly stored in horizontal or cylindrical bullets. Every tank is equipped with the liquefied gas inlet line and the vapour outlet line at the top of the bullet. The vapour line is for direct use of gas into the plant. The liquid discharge line to vaporizers and drain line with two isolation valves are connected at the bottom of the tank. Each tank is fitted with multiple pressure relief valves with the maximum discharge capacities to avoid undue pressure rise under fire in vicinity of the tank [2]. The bullets are also equipped with multiple gages to check their levels. Some of the gauges are,

- Pressure gauge
- Liquid level gauge
- Temperature gauge

Consequences analysis:

The consequences analysis of a pressurized flammable liquid involves modeling of dispersion could that would be generated by its loss of contaminant and accompanying fire and explosion.

Various scenarios have been imagined depending on the parameters like,

- Phase, pressure
- Refrigeration
- Quantity
- presence of dykes
- Atmospheric parameters like (atmospheric stability, wind velocity, temperature, time of day and humidity etc.,).

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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FABRICATION OF AUTOMATIC FIRE FIGHTING SYSTEM BY USING ROBOTIC ARM

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1. ABSTRACT

Fire fighting is a high risk activity since the fire fighters are in need of facing the risk of fire when they approach the fire. This gives rise to occupational health related problems and sometimes fatalities. To trim down the risk, a model called fire fighting mobile robot is developed as an attempt to replace human work in fire fighting. Fire fighting mobile robot is a remote controlled machine which consists of a small robotic arm and it rotates 360° to control the fire efficiently.This project covers the development of fire fighting robot arm for the purpose of suppressing the fire in tallest building. It will help to reduce the exposure of fire fighter to fire hazards. The main objective of this work is to reduce the occupational health related problems & fatalities due to fire.

Keywords— ***Robotic Arm, Automatic fire fighting system, fire hazard, 360degree rotation arm, health risk, rack and pinion….***

2. INTRODUCTION

This project attempts to replace human for the fire fighting operations. The firefighting robot is one that acts as a fire protection system by attaching a small nozzle to the robot arm and controlled semi automatic process that replace the fire fighter to perform the firefighting activities. In our fire fighting system is able to reduce the direct contact of the fire fighter to the fire hazards and also reduce wastage water at operating time. It will help to control the fire hazards exposed by the fire fighters. Robotics is one of the best ever growing technological fields of today. Robots are designed to replace the human factor from dangerous work and also to act in accessible environmental condition. [4]. the use of robots is applied various industries. The need Fire extinguisher Robot that can extinguish a fire on its own is long past due. With the implementation such a device, people and other property can be saved. Fire fighters looks dangerous situations when extinguishing fires and rescuing victims, a robotic arm can function by itself or be controlled from a distance & do fire fighting and rescue activities could be executed without involvement human at risk by using robot technology instead.[5]. In other words, robots reduce the need for fire fighters to get into unsafe situations.

Even though many Industrial have fire fighting systems installed in them; many people are still losing their lives and property due to fire accidents. [5].The cost of installation of these systems is usually high and most of them are operated manually. In this project, an automatic cost effective prototype of a fire fighting system for the control of fire has been designed and fabricated.

3. PROCESS

This project responsible for the safety aspects of the robot. It consists of following process.

1) Design of the extinguishing robot circuit.

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MULTI CRITERIA FIRE DETECTING SYSTEM IN CASE OF FIRE IN BULIDING TO GUIDE THE FIRE RESCUER

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Index terms---*human detector, fire ball guiding system, motion sensor*

Abstract: -In this paper, a concept of detecting alive humans in fire.In fire hazard human detection can be detected by means ofmotion sensor and by themonitoring system. It is a new way at the same time not a new method but itisparamountto avoid the fatal caused to fire rescuer even thoughthe fire fighters are well trained and composed by a team to put-off the fire and to rescue the human from the criticalcase.In some of casesunfortunately they struck in the fire due to unaware and misjudging of firetemperature, density and oxygen level in the fire room when they involved in rescue event and also at the time of rescuing humanwho were not really in the hazardous area. In this paper, designing a ball shaped gadget, in that temperature sensor is to detect the rate of temperature;gas detector is to indicate the level or presence of smoke and the presence of human inside the fire area. Meanwhile, these sensors are connected together and used to gather information by connecting to the transmitter GSM. And it is received by means of mobile phones via message. The ball is covering with a fire resistant material or with ceramic coating to resist or withstand the fire.

I. INTRODUCTION

(Concept and development of device)

The human detection is already done by Rajeev Joshi using robotic with embedded system. He made a detection of alive human in case of natural and manmade disaster that they include the earth quake, storms, floods etc. and also the industrial accident accidents in mining, warfare etc. [1].In 2012 Amaj Chamankar made fire detection by using an image processing and PIR sensor with microcontroller [2]. This paper aimed to help the rescuer in order to gather information by ball guiding system. Human body sensor a type of PIR sensor, temperature, and gas detector are connected to PCB and to the GSM transmitter. These are inserted inside metallic ball and are tightly insulated in order to withstand the shock, vibration. The ball is covered with the fire resistant material to resist fire. For power supply 12v battery is used.The PIR sensor having wide detection range from up & down and left & right this can be adjusted as to the required range max up to 12m.

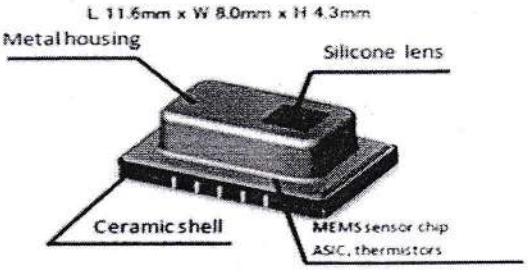

Figure1. Motion Sensor

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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FABRICATION OF ALERT SYSTEM IN CONFINED SPACE

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ABSTRACT:

From the case studies it is observed that many people died in confined space due to absence of immediate response. Protection plays a major role in today's world and it is necessary that good security systems are to be implemented in places of education and work. This paper modifies the existing safety model installed in industries and this system also be used in homes and offices. The main objective of this work is designing microcontroller based toxic gas detecting and alerting system. The dangerous gas like LPG is sensed and displayed each and every second in the LCD display. If this gas exceeds the typical level then an automated call is generated immediately to the approved person through the GSM.

The improvement of this automated detection and alerting system over the manual method is that it offers quick response time and accurate detection of an urgent situation and in turn most important faster diffusion of the critical circumstances. This system helps you to promote your safety principles, act in accordance with constitutional requirements on ecological commitments and most significant and basic function is to prevent accidents and protect life and property.

Keywords: ***confined space, poisonous gas leakage, immediate response team, multi calling.***

I. INTRODUCTION:

The restricted space is a large satisfactory and configured such that an employee can bodily enter and execute work. Has some degree of openings for entry and exit; Is not designed for continuous employee occupancy. Has the potential for a dangerous impression that may include the lack of or too much oxygen, and/or the occurrence of toxic or short-tempered vapors or gases such as hydrogen sulfide and methane; and substantial protection hazards such as technology, sources of electrical shocks, liquids (drowning or fires), steam (burn hazard), or loose, unstable materials that can cause employees to be trapped, crushed, or buried. This hazard alert can help employers and employees prevent deaths in confined spaces due to immediate response from the rescue workers and rescue team. Since Confined spaces may be encountered in

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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Development of mini fire fighting vehicle system

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Abstract:

The firefighting is a risky work where the fire fighters need to face the fire hazards to save life and properties. In case of little large fire in educational institutions the vehicle is used. Fire fighting vehicle is being used to transport fire fighters to the scene as well as transport the firefighting equipment's. The fire fighting vehicle is designed to extinguish the fire with the tank capacity of 30liters. To reduce the risk during fire incident, a fire fighting vehicle is designed. Fire fighting vehicle is a controlled machine that replace fire fighter to perform firefighting task. The application of fire fighting vehicle is smaller in size so that it can access where the fire tendon cannot perform, and also it can quickly reach the fire location. The amounts of water used or required for effective fire-fighting in relation to the occupancy type, the density of the fire load, the estimated heat release from fires.

Introduction:

Firefighting is risky profession. They are not only extinguishing fires in tall buildings but also must drag heavy hoses, climb high ladders and carry people from buildings and other situations. There are many fire fighters lost their lives in the line of duty each year throughout the world. The statistics of the fire fighter fatalities are still maintain a high level every year and it may continue to increase if there is no improvement in firefighting techniques and technology. In addition to working in long and irregular hours and unfriendly working environment such as high temperature, dusty and low humidity, firefighters are also facing with potentially life threatening situation such as explosion, collapsed building and radioactive. The common equipment used by firefighters such as flat head axe, halligan bar, turnout jacket, fire retardant or bunker pants, boots, flashlight, helmet, face mask, and gloves do not significantly reduce risk on their lives when facing those life threatening situations.

Design and Functioning of Fire Pump:

Trailer fire pump designed as per IS:944 and is meant for pumping water from tank for extinguishing fire. The pump has been subjected to the tests and checked for conformity of the pump performance.

Important:

Check diesel level in diesel tank before and while operating. Engine water cooling valve must be opened according to the temperature gauge reading on control panel while running the pump. The temperature can be maintained at 60 deg C maximum.

General:

Fire pump is a composite firefighting unit and can be operated by a crew of 2 men's since the unit is perfectly balanced. It is of course preferable that the unit is towed by a fire fighting accessories and further to carry the crew. The vehicle frame, wheel equipment's has been designed to afford maximum safety.

International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.50 (2015)
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AN INTROSPECTION ON FURNACE OIL AND A STUDY ON ITS IMPACT ON COAL TAR MIXTURE

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ABSTRACT:

Nowadays, the quantities of non-renewable energy sources are decreasing due to rapid increase in usage and also it increases the cost of the non-renewable energy sources. We had undergone a project to decrease the usage of non-renewable resources like Petrol, Diesel, Furnace oil, Kerosene, etc. and minimise the cost of production.

Our project is concerned with producer gas plant and Boiler. The project deals, with reduction of furnace oil usage by introducing coal tar in some percentage along with furnace oil as a fuel in the boiler operation. The special note is that, coal tar is one of the major waste from producer gas plant inside the company concerned. The coal tar can be recovered by settling process from the gravity settling tank at Soda Recovery Plant of the company. The calorific value of the coal tar recoveredfrom the plant was to be 8000kJ/kg and that of furnace oil was found to be 10500 kJ/kg.

We calculate the amount ofSteam produced for the different composition of furnace oil and coal tar and we recommend that the % of 60-40 composition of furnace oil and coal tar mixture can produce the higher amount of steam from the boiler. The amount of steam produced in oil fired boiler is calculated by making the heat balance and energy balance calculations with respect to the different compositions of Furnace oil and Coal tar. Our literature reviews about the operation inside the boiler, gasifier and gravity settling tank gives an idea to make these calculations. From our calculations we find that utilization of coal tar as a co-fuel to a boiler decreases the cost of production as well as minimizing the waste of coal tar.

Keywords : Alternate Fuels ,Renewable Energy,Boiler.

I. Introduction:

Producer gas plant is one of the main unit operations for the paper manufacturing process. The carbonization of coal is a process of decomposition by heat in the absence of air or oxygen. The major product of this process gives a solid residue, coke which is the main feed stock for the production of producer gas. It is mainly pyrolysis.

Gasifier fuel (char coal) is feed through the top of the reactor and travels down wards. The gasifying agent that is mixture of air and steam enters the reactor at the bottom of the charcoal bed and travel upward. Fuel reacts with this gasifying agent in various stages that are Oxidation, Reduction, Pyrolysis and Drying then gets converted into producer gas. The producer gas thus produced is drawn out of the gasifier normally through a pipeline from the upper part of the gasifier. Ash is discharged through the bottom of the gasifier. The gasification process in suitable condition converts the whole of the solid fuel, except ash, into combustible gases, which can be transferred through pipeline to the required places (furnaces).The producer gas mainly consists of carbon monoxide, hydrogen, nitrogen, carbon di-oxide, and smaller quantity of methane.

Boilers are pressure vessels designed to heat water or produce steam, which can be used to provide space heating and/or service water heating to a building. In most commercial building heating applications, the heating source in the boiler is a natural gas fired burner, Oil fired burners and electric resistance heaters can be used as well. Steam is preferred over hot water in some industrial applications, including absorption cooling, sterilizers, and steam driven equipment.

II. Methodology:

Our aim is to study and reducing the usage of non-renewable energy sources. Our project is concerned with producer gas plant and Boiler. The project deals,with reduction of furnace oil usage by introduction of coal tar in some percentage along