Criteria 3: Research, Innovations and Extension

Key Indicator – 3.3 Research Publications and Awards

3.3.4 Number of research papers per teacher in the Journals notified on UGC website during the last five years (10)

Index

Sr. No.	A.Y	Computer Engineering	E&TC Engineering	Mechanical Engineering	Civil Engineering	Total Count
1	2017-18	07	14	04	07	32
2	2016-17	07	08	17	07	39
3	2015-16	02	27	18	06	53
4	2014-15	05	18	06	03	33
5	2013-14	04	14	02	03	23

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Criteria 3: Research, Innovations and Extension

Key Indicator – 3.3 Research Publications and Awards

3.3.4 Number of research papers per teacher in the Journals notified on UGC website during the A.Y.-2014-15

Index

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISBN/ISSN number
Grading Of Soyabean Leaf Diesease Based On Segmented Image Using K-Means Clustering	Dr. Prof. S. B. Patil	E&TC Engineering	International Journal of Advanced Research in Electronics and Communication Engineering	2014-15	ISSN:2278-909X
Cleaning in Place in Pharmaceutical Industry using PLC and SCADA software.	Prof. D. U. Dalavi	E&TC Engineering	International Journal of Advance Research in Science and Engineering (IJARSE)	2014-15	ISSN(E): 2319-8354
Natural Language Database Interface with Probabilistic Context Free Grammar	Prof. Sunil M. Jadhav	Computer Engineering	International Journal of Research in Information Technology	2014-15	ISSN:2001-5569
Present Status of Solid Waste Management in Bhor, Pune, India: Practices and Challenges	Prof. G. S. Jadhav Prof. K. R. Takale	Civil Engineering	International Journal of Innovative Research in Science, Engineering & Technology (IJIRSET)	2014-15	ISSN(Online) : 2319-8753

Existing Household Biogas Technology & Its Ground Realities in Rural India	Prof. G. S. Jadhav Prof. K. R. Takale	Civil Engineering	International Journal of Innovative Research in Science, Engineering & Technology (IJIRSET)	2014-15	ISSN(Online) : 2319-8753
CO-Extracting Opinion Targets and Opinion Words from Online Reviews Based On the Word Alignment Model	Prof. Sunil M. Jadhav	Computer Engineering	International Journal of Computer Science Trends and Technology (IJCST)	2014-15	ISSN(Online) : 2347- 8578
Identity-Based Secure Data Storage Schemes	Prof. Sunil M. Jadhav	Computer Engineering	International Journal of Computer Science Trends and Technology (IJCST)	2014-15	ISSN(Online) :2347- 8578
Web Image Re-Ranking Using Query-Specific Semantic Signatures	Prof. Sunil M. Jadhav	Computer Engineering	International Journal of Computer Science Trends and Technology (IJCST)	2014-15	ISSN(Online) :2321- 0869
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Iris And Fingerprint Recognition Using Multiple Transformation	Prof. R. S. Nipanikar	E&TC Engineering	International Journal Of Electronics Communication And Computer Engineering	2014-15	ISSN(Online) : 2249–071X
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Amba Bus With Multiple Masters Using Vlsi	Prof. S. I. Nipanikar	E&TC Engineering	International Journal Of Engineering Development And Research	2014-15	ISSN(Online) : 2321-9939
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An Energy Efficient Air Conditioner System Without Compressor: Application Of Embedded System	Prof. P. V. Shelke	E&TC Engineering	International Journal Of Innovative Science, Engineering & Technology	2014-15	ISSN(Online) : 2348 – 7968
Comparative Study On A Low Drop-Out Voltage Regulator	Prof. A. V. Nimkar	E&TC Engineering	International Journal Of Innovative Research In Electrical, Electronics, Instrumentation And Control Engineering	2014-15	ISSN (Online) 2321-2004 ISSN (Print) 2321-5526

Design Of A Programmable Low Drop-Out Regulator Using Cmos Technology	Prof. A. V. Nimkar	E&TC Engineering	International Journal Of Innovative Research In Computer And Communication Engineering	2014-15	ISSN(Online) : 2320-9801 ISSN (Print): 2320-9798
Vlsi Implementation Of A Programmable Low Drop-Out Voltage Regulator	Prof. A. V. Nimkar	E&TC Engineering	International Journal Of Research In Engineering And Technology	2014-15	eISSN: 2319-1163 | pISSN: 2321-7308
Stbc-Ofdm Down Link Baseband Receiver For Wman	Prof. Jyoti. J. Bandal	E&TC Engineering	International Journal Of Scientific Engineering & Technology Research	2014-15	ISSN:2319-8885
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Experimental study of heat transfer parameters using internal threaded pipe fitted with inserts of different materials	Prof. S. V. Jagtap	Mechanical Engineering	International journal of innovations in engineering research and technology (IJIERT)	2014-15	ISSN(Online) :2394-3696
Review of heat transfer parameters of serrated plate fin heat exchanger for different materials	Prof. S. V. Jagtap	Mechanical Engineering	International journal of innovations in engineering research and technology (IJIERT)	2014-15	ISSN(Online) :2394-3696
Single phase heat transfer and pressure drop in the micro-fin tube with coiled wire insert	Prof. R. S. Lavate	Mechanical Engineering	International Journal of Engineering Inventions (IJEI)	2014-15	ISSN(Online) :2319-6491
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Grading of Soybean Leaf Disease Based on Segmented Image Using K-means Clustering

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Abstract—

Traditional method used for disease scoring scale to grade the plant diseases is mainly based on necked eye observation by agriculture expert or plant pathologist. In this method percentage scale was exclusively used to define different disease severities in an illustrated series of disease assessment keys for field crops. The assessment of plant leaf diseases using this approach which may be subjective, time consuming and cost effective. Also accurate grading of leaf diseases is essential to the determination of pest control measures. In order to improve this process, here we propose a technique for automatically quantifying the damaged leaf area using k means clustering, which uses square Euclidian distances method for partition of leaf image. For grading of soybean leaf diseases which appear on leaves based on segmented diseased region are done automatically by estimating thae ratio of the unit pixel expressed under diseased region area and unit pixel expressed under Leaf region area. For experiment purpose samples of Bacterial Leaf Blight Septoria Brown spot, Bean Pod Mottle Virus infected soybean leaf images were taken for analysis. Finally estimated diseased severity and its grading is compared with manual scoring based on conventional illustrated key diagram was conducted. Comparative assessment results showed a good agreement between the numbers of percentage scale grading obtained by manual scoring and by image analysis The result shows that the proposed method is precise and reliable than visual evaluation performed by pathologist.

Index Terms— CIE L*a*b, Disease Region Area, Disease Severity, K-Means

I. INTRODUCTION

Soybean Leaf diseases like Bacterial Leaf Blight, Septoria Brown Spot, and Bean Leaf pod Mottlle are cause significant reduction in yield loss and lead to affect quality of soybean Products [1], thus influence economy and farmers life. An effective way to control soybean foliar diseases is by applying fungicides.To test the method for disease assessment, black and white drawings from a manual of disease assessment keys showing foliar diseases with different disease severities [2]. Although there is an industrial recognized corresponding standard to grade the leaf spot disease [4-7], the naked eye observation method is mainly adopted in the production practice. Because of the difference of personal knowledge and practical experience; the same samples are classified into different grades by different experts. Therefore, the result is usually subjective and it is impossible to measure the disease extent precisely. Although grid paper method can be used to improve the accuracy, it is seldom used in practice due to cumbersome operation process and time-consuming. Therefore looking for a fast and accurate method to measure plant disease severity is of great realistic significance. Since the late 1970s, computer image processing technology is applied in the agricultural engineering research, such as agricultural products quality inspection and classification, the crop growth state monitoring, plant disease and insect pest's identification, and other agricultural robot [8, 9]. With the recent development in the field of image processing and pattern recognition techniques, it is possible to develop an automation system for disease assessment of plant leaf based on the visual symptoms on leaf image.

The plant disease scoring is important procedure to develop diagnostic plant and investigate resistant varieties to the disease. Conventionally, plant pathologists score the disease level based on their own discretion using illustrated diagram key for particular disease. The various researchers investigated their methods for assessment key of disease severities for different plant diseases which are outlined as follows:

W. Clive James[3] developed method for series of assessment keys for plant diseases in which percentage scale was exclusively used to define different disease severities in an illustrated series of disease assessment keys for cereal, forage, and field crops. The standard area diagrams were accurately
prepared with an electronic scanner. Procedures for assessing the different diseases are outlined in order to achieve some degree of standardization in disease assessment methods.

Paul Vincelli and Donald E. Hershman [4] developed a diagram key for classifying the severity of soybean leaf disease into 10 levels. In his work he had investigated procedure for rating disease in Corn, Soybean, and Wheat.

Shen Weizheng and Wu Yachun [5] developed method for segmentation methods to analyze spot disease of soybean in which thresholding is done by Otsu method and disease spot regions were segmented by using Sobel operator to examine disease spot edges. Finally plant diseases are graded by calculating the quotient of disease spot and leaf areas.

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CLEANING IN PLACE IN PHARMACEUTICAL INDUSTRY USING PLC AND SCADA SOFTWARE

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ABSTRACT

In pharmaceutical industries proper hygiene should be maintained to ensure the proper quality. This paper focuses on the advanced method to clean the pharmaceutical equipments like tanks, filters, pipes, valves, etc. This technique will provide Cleaning of equipment In Place without disassembling the equipments known as CIP. This paper outlines the method of conversion of manual cleaning towards the fully automated cleaning and making the plant environment safer. Automation is done using PLC and SCADA Software. There are three tanks involved in this method filled with cold water, hot water and caustic water respectively having level and temperature sensors and circulated through a circuit of tanks or lines then return to central reservoir allowing reuse of chemical solutions to clean the equipments. The water flow from these tanks is controlled by number of valves. Time, temperature and mechanical forces are manipulated to achieve maximum cleaning.

***Keywords*: Automation, CIP, Pharmaceutical Industry, PLC, SCADA, Sensors.**

I. INTRODUCTION

Industries that require high level of hygiene rely on CIP and they include dairy, beverage, brewing, pharmaceuticals, processed foods and cosmetics[1]. CIP Automation is basically a difficult part of the automation process. In many conditions it is more complex to automate the cleaning process than to make the product since the final CIP automation sequence is often defined after process equipment is build and tests are performed. Using CIP is beneficial to industries because cleaning is more faster, also it requires less human power. CIP is more repeatable and focuses on less chemical risk to cleaning operator.

Cleaning in place (CIP) technique provides significant advantages to manufactures as it provides cleaning of equipments in run time at lower costs which improves product quality and plant hygiene. In order to keep less human interference in process here PLC (Programmable Logic Controller) is used. SCADA(Supervisory Control And Data Acquisition) screen is developed in order to control plant and monitor entire system from control room. This minimises errors and faults made by human. The increase of cleaning efficiency in CIP systems is playing a key role in enhanced production. Higher efficiency leads to both, improved hygienic conditions as well as shorter downtimes and therefore to lower production costs[3].

II. DRAWBACK OF CONVENTIONAL SYSTEM

In conventional systems plant equipments are cleaned by disassembling them. Which requires cleaning operator to enter into the plant and also to handle the hazardous chemicals for cleaning which is definitely not safe. Conventional method of cleaning is also time consuming which is not desirable in any industry. This is

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Natural Language Database Interface with Probabilistic Context Free Grammar

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Abstract

A Natural Language Interface to a Database (NLIDB) is a system that allows the user to access information stored in a database by typing requests expressed in some natural language. (NLIDB) are systems that translate a natural language sentence into a database query NLDBI system including its probabilistic context free grammar, which can be used to construct the parse tree, an algorithm to calculate the probabilities. We specify the model for helping the user with queries depending up on probabilistic context free grammar (PCFG) to relational database.

Keywords: NLDBI, Probabilistic Context Free Grammar, SQL Translator, Experimental Methodology

1. NLDBI

NLDBI (Natural Language Database Interface) is a system that allows users to access a database in natural language and has been a popular field of study. NLDBI allows the users to access the database even though they doesn't have the database dependent SQL Queries. User enters his query with the help of interface. As all the employees in an organization may not be aware of the SQL queries so the user cannot access the database content directly. The user who has the knowledge of the database querying language can enter the query and search in the database. The users face a huge problem as they may not be aware of the database dependent languages. As to provide a interface to the users such that they can enter the query in the English as most of the users of the system are familiar with the English language. The users enter his query in the general English language the system is responsible for understanding the query parse and translate into an SQL query.

LUNAR (1973)

This system comes in early seventies (1973).[2] The system LUNAR science Natural language information system which was used to serve queries regarding MOON ROCKS. It syntactically analyzed language queries and then ran

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Present Status of Solid Waste Management in Bhor, Pune, India: Practices and Challenges

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ABSTRACT: To prepare efficient, economical and effective solid waste management plan requires present status and its future perspectives. This paper presents an overview of current solid waste management (SWM) practices in Bhor town, sub urban area of Maharashtra, India and suggests solutions to some of the major problems. Approximately 5.96 ton/d of solid waste are generated in the Bhor Municipal Council area. Deficiencies were found in all elements of SWM. The budget allocation for 2014–2015 was Rs. 20 lakhs, which amounts to Rs. 105/cap-y on SWM. This expenditure is insufficient to provide adequate SWM services. Major deficiencies were found in all elements of SWM. The collection process is deficient in terms of manpower and vehicle availability. No collection bin are provided, people throws their waste in open spaces, thus contributing to the inefficiency of the collection system. Presently no treatment is provided to the waste and waste is dumped on open land after collection. Lack of suitable facilities (equipment and infrastructure) and underestimates of waste generation rates, inadequate management and technical skills, improper collection, and route planning are responsible for poor collection and transportation of municipal solid wastes. Waste generation rate in municipal council area is approximately 0.314 kg/capita/day. Approximately 70% of the MSW generated is compostable wastes and mean moisture content and organic matter content is large in amount. The recommended system deals with maximizing recycling and minimizing land filling of the MSW. Thus, vermin-composting or energy recovery becomes as a suitable alternative as final treatment process to the organic fraction.

KEYWORDS: Municipal solid waste, waste analysis, physical characteristics.

I. INTRODUCTION

Domestic and commercial wastes are commonly termed as MSW and both these account for bulk of the waste in developing countries [1]. More than 90% of the MSW generated in India is directly disposed on land in an unsatisfactory manner [2]. Open dumping as mode of disposal leds to unhygienic condition to surrounding areas, ground water pollution, soil pollution and ambient air pollution. Environmentally acceptable management of municipal solid waste (MSW) has become a global challenge due to limited resources, an exponentially increasing population, increasing waste generation growth rate, rapid urbanization and worldwide industrialization [3]. To design an efficient management system, that consider the appropriate final treatment of MSW based on their physical characteristics, is important to consider the following basic parameters: Density, per capita generation, Moisture content and volatile solids. Solid wastes are disposed of either in open dumps or sanitary landfills, or by incineration. As incineration and sanitary land filling are expensive, both in initial investment and throughout their operation, their use is mostly confined to developed countries, while open dumping is the method used in economically developing countries, mainly due to its simplicity and low cost [4]. The objective of this paper is to analyze some of the strengths and deficiencies in the current MSW management system in bhor and propose feasible solutions.

II MATERIALS AND METHODS

The study was conducted in close accordance with the objectives. The data was collected from the Bhor municipal council. Additional investigation tools for data collection included observations, especially of different components of

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Existing Household Biogas Technology and Its Ground Realities in Rural India

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ABSTRACT: Sustainable economic and industrial growth of nation requires safe, sustainable resources of energy. This paper reviews household biogas technology ground realities in rural India and investigates challenges facing in operation of existing household biogas plants. It further captures the current status and functions of biogas plants as well as the impact of these plants on the people who use them. The study was done by surveying fifty (50) household biogas installations from hilly rural border area of pune and satara districts of Maharashtra state, India, and conducting interviews with plant users. From the survey, it was observed that 20 % installations were Fixed-dome and 80 % were floating dome. It was revealed that subsidy was the main motivational reason for construction of biogas plant, whereas subsidy was the motivational reason for using biogas plant. Out of 50 plants, 26 (52%) were functioning satisfactorily, 5(10%) functioning but defective where as 19 (38 %) were not functioning. Reasons for non-functioning include non-availability of cow dung for feed, breakdown of structure, leakage of gas holder due to corrosion, absence of maintenance services, lack of operational knowledge.

KEYWORDS: Biogas, Biogas technology, Household biogas plant, Sustainable development, Bio-energy.

I. INTRODUCTION

"Super challenges" of 21st century is to provide clean and healthy environment as well as fulfilment of energy demand, a renewable energy supply because of depletion of Earth's fossil fuel resources. The current way to produce, convert and consume energy through out the world is not sustainable. Majority of existing practices of energy production consume non-renewable raw material for energy production such as coal, petroleum products which leads to release of pollutants in the environment.

Renewable energy sources that meet domestic energy requirements play an important role in the energy and have the potential to provide energy with zero or almost zero emission of greenhouse gases [1]. Renewable energy technologies directly help to mitigate the climate change by reducing greenhouse gases emission in the global and a long term process. Harvesting the renewable energy in decentralized manner is one of the options to meet the rural and small scale energy needs in a reliable, affordable and environmentally sustainable way [2].

Biogas is a renewable energy used for cooking and lighting as well as heating purposes. It is a mixture of gases that is composed mainly of CH_4 40- 70 %, CO_2 30-60 % and other gases 1-5 %. The calorific value of biogas is about 16-20 MJm^{-3} [3]. This is produced by bacteria that decompose organic matter under anaerobic conditions. For the biogas production different substrates can be used such as waste water, organic waste from household, animal manure, human excreta, agriculture waste etc. Energy production from biogas has dual benefits, renewable and clean energy production for household purpose in one hand and in another hand management of organic waste.

Approximately 72.2% of the total population in India belongs to rural areas having less access to resources and awareness [4]. Biogas is an alternative and renewable source of energy, derived from organic wastes. The feed materials for production of biogas such as animal and agricultural wastes are abundantly available in rural and semi-urban areas of India. Biogas, primarily a mix of CH4 (methane) and CO2 (carbon dioxide) is generated in the process of biodegradation of organic materials under anaerobic conditions. Biogas technology is not new to India and Ministry of New and Renewable Energy (MNRE) has over the years through various programs facilitated the availability of standardized models of biogas plants which are suitable for individual households and communities. At the household

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RESEARCH ARTICLE OPEN ACCESS

CO-Extracting Opinion Targets and Opinion Words from Online Reviews Based On the Word Alignment Model

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ABSTRACT

Mining opinion targets and opinion words from online reviews are important tasks for fine grained opinion mining, the key component of which involves detecting opinion relations among words. To this end, this paper proposes a novel approach based on the partially-supervised alignment model, which regards identifying opinion relations as an alignment process. Then, a graph-based co-ranking algorithm is exploited to estimate the confidence of each candidate. Finally, candidates with higher confidence are extracted as opinion targets or opinion words. Our model captures opinion relations more precisely, especially for long-span relations. Our experimental results on three corpora with different sizes and languages show that our approach effectively outperforms state-of-the-art methods.

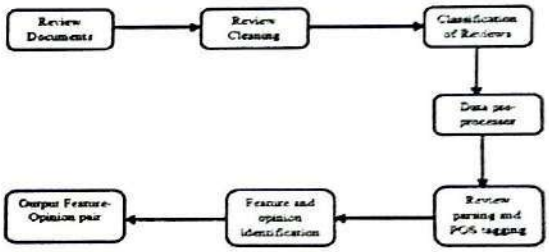
Keywords:- Data Mining, Text Mining

I. INTRODUCTION

Recently, a number of online shopping customers have dramatically increased due to the rapid growth of e-commerce, and the increase of online merchants. To enhance the customer satisfaction, merchants and product manufacturers allow customers to review or express their opinions on the products or services. The customers can now post a review of products at merchant sites, e.g., amazon.com, cnet.com, and epinions.com. These online customer reviews, thereafter, become a cognitive source of information which is very useful for both potential customers and product manufacturers. Customers have utilized this piece of this information to support their decision on whether to purchase the product. For product manufacturer perspective, understanding the preferences of customers is highly valuable for product development, marketing and consumer relationship management.

Since customer feedbacks influence other customer's decision, the review documents have become an important source of information for business organizations to take it development plans.

How does Opinion Mining System Works?



Among the 2 main types of textual information - facts and opinions, a major portion of current information processes methods such as web search and text mining work with the former. Opinion Mining refers to the broad area of natural language processing, computational linguistics and text mining involving the computational study of opinions, sentiments and emotions expressed in text. A thought, view, or attitude based on emotion instead of reason is often referred to as a sentiment. Hence, an alternate term for Opinion Mining, namely Sentiment Analysis. This field

International Journal of Computer Science Trends and Technology (IJCST) – Volume 3 Issue 2, Mar-Apr 2015

RESEARCH ARTICLE OPEN ACCESS

Identity-Based Secure Data Storage Schemes

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ABSTRACT
Secure data storage can shift the burden of maintaining a large number of files from the owner to proxy servers. Proxy servers can convert encrypted files for the owner to encrypted files for the receiver without the necessity of knowing the content of the original files. In practice, the original files will be removed by the owner for the sake data must be addressed carefully. In this paper, we propose two identity-based secure data storage (IBSDS) schemes. Our schemes can capture the following properties: (1) The file owner can decide the access permission independently without the help of the private key generator (PKG); (2) For one query, a receiver can only access one file, instead of all files of the owner; (3) Our schemes are secure against the collusion attacks, namely even if the receiver can compromise the proxy servers, he cannot obtain the owner's secret key. Although the first scheme is only secure against the chosen plaintext attacks (CPA), the second scheme is secure against the chosen cipher text attacks (CCA).
Keywords:- PKG, CCS, IBSDS

I. INTRODUCTION

CLOUD computing provides users with a convenient mechanism to manage their personal files with the notion called database-as-a-service (DAS). In DAS schemes, a user can outsource his encrypted files to untrusted proxy servers. Proxy servers can perform some functions on the outsourced ciphertexts without knowing anything about the original files. Unfortunately, this technique has not been employed extensively. The main reason lies in that users are especially concerned on the confidentiality, integrity and query of the outsourced files as cloud computing is a lot more complicated than the local data storage systems, as the cloud is managed by an untrusted third party. After outsourcing the files to proxy servers, the user will remove them from his local machine.

Therefore, how to guarantee the outsourced files are not accessed by the unauthorized users and not modified by proxy servers is an important problem that has been considered in the data storage research community. Confidentiality is proposed to prevent unauthorized users from accessing the sensitive data as it is subject to unauthorized disclose and access after being outsourced. Since the introduction of DAS, the confidentiality of outsourced data has been the primary focus among the research community. To provide confidentiality to the outsourced data, encryption schemes are deployed. Integrity can prevent outsourced data from being replaced and modified. Some schemes have been proposed to protect the integrity of the outsourced data, such as proof of irretrievability and provable data possession. In these schemes, digital signature schemes and message authentication codes (MACs) are deployed. Query in data storage is executed between a receiver and a proxy server. The proxy server can perform some functions on the outsourced ciphertexts and convert them to those for the receiver. As a result, the receiver can obtain the data outsourced by the owner without the proxy server knowing the content of the data.

II. EXISTING SYSTEM

Cloud computing provides users with a convenient mechanism to manage their personal files with the notion called database-as-a-service (DAS). In DAS schemes, a user can outsource his encrypted files to untrusted proxy servers. Proxy servers can perform some functions on the outsourced ciphertexts without knowing anything about the original files. Unfortunately, this technique has not been employed extensively. The main reason lies in that users are especially concerned on the confidentiality, integrity and query of the outsourced files as cloud computing is a lot more complicated than the local data storage systems, as the cloud is managed by an untrusted third party.

After outsourcing the files to proxy servers, the user will remove them from his local machine. Therefore, how to guarantee the outsourced files are not accessed by the unauthorized users and not modified by proxy servers is an important problem that has been considered in the data storage research community. Furthermore, how to guarantee that an authorized user can query the outsourced files from proxy

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Web Image Re-Ranking Using Query-Specific Semantic Signatures

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***Abstract*— Image re-ranking, as an effective way to improve the results of web based image search, has been adopted by current commercial search engines. Given a query keyword, a pool of images are first retrieved by the search engine based on textual information. By asking the user to select a query image from the pool, the remaining images are re-ranked based on their visual similarities with the query image. A major challenge is that the similarities of visual features do not well correlate with images' semantic meanings which interpret users' search intention. Experimental results show that 20% to 35% relative improvement has been achieved on re-ranking precisions compared with the state-of-the-art methods.**

***Index Terms*— Re-ranking, Query semantic space, Text based search , Ranking protocol.**

I. INTRODUCTION

Web-scale image search engines mostly use keywords as queries and rely on surrounding text to search images. It is well known that they suffer from the ambiguity of query keywords.For example, using "apple" as query, the retrieved images belong to different categories, such as "red apple", "apple logo", and "apple laptop". Online image reranking has been shown to be an effective way to improve the image search results. Major internet image based image re-ranking. According to our empirical study, images retrieved by 120 query keywords alone include more than 1500 concepts. Therefore, it is difficult and inefficient to design a huge concept dictionary to characterize highly diverse web images.

II. RELATED TECHNOLOGY PRINCIPLE

A. *Existing system*

This is the most common form of text search on the Web. Most search engines do their text query and retrieval using keywords. The keywords based searches they usually provide results from blogs or other discussion boards. The user cannot have a satisfaction with these results due to lack of trusts on blogs etc. low precision and high recall rate. In early search engine that offered disambiguation to search terms.

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User intention identification plays an important role in the intelligent semantic search engine.

B. *Proposed system*

We propose the semantic web based search engine which is also called as Intelligent Semantic Web Search Engines.
We use the power of xml meta-tags deployed on the web page to search the queried information. The xml page will be consisted of built-in and user defined tags. Here propose the intelligent semantic web based search engine. We use the power of xml meta-tags deployed on the web page to search the queried information. The xml page will be consisted of built-in and user defined tags. The metadata information of the pages is extracted from this xml into rdf. our practical results showing that proposed approach taking very less time to answer the queries while providing more accurate information.

C. *Re-ranking framework*

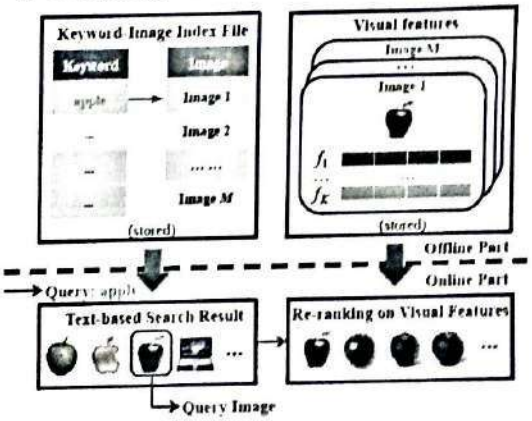

Figure 1. The conventional image re-ranking framework

Major internet image search engines have since adopted the re-ranking strategy.Its diagram is shown in Figure 1. Given a query keyword input by a user, according to a stored word-image index file, a pool of images relevant to the query keyword are retrieved by the search engine. By asking a user to select a query image, which reflects the user's search intention, from the pool, the remaining images in the pool are re-ranked based on their visual similarities with the query image. The visual features of images are pre-computed offline and stored by the search engine. The main online computational cost of image re-ranking is on comparing visual features. In order to achieve high efficiency, the visual feature vectors need to be short and their matching needs to be fast. Another major challenge is that the similarities of lowlevel visual features may not well correlate with images high-level semantic meanings which interpret users search intention. To narrow down this semantic gap, for offline image recognition and retrieval, there have been a number of

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Detection and Analysis of Twitter Trending Topics via Link-Anomaly Detection

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Abstract—

This paper involves two approaches for finding the trending topics in social networks that is key-based approach and link-based approach. In conventional key-based approach for topics detection have mainly focus on frequencies of (textual) words. We propose a link-based approach which focuses on posts reflected in the mentioning behaviour of hundreds users. The anomaly detection in the twitter data set is carried out by retrieving the trend topics from the twitter in a sequential manner by using some API and corresponding user for training, then computed anomaly score is aggregated from different users. Further the aggregated anomaly score will be feed into change-point analysis or burst detection at the pinpoint, in order to detect the emerging topics. We have used the real time twitter account, so results are vary according to the tweet trends made. The experiment shows that proposed link-based approach performs even better than the keyword-based approach.

Keywords— anomaly-detection, social network, change-point analysis, burst detection.

I. INTRODUCTION

A. Introduction to Social network and Twitter:

Nowadays Social network has become one of the most important aspects in our daily life. Social network is a network of social interactions and personal relationships. And also dedicated website or application which enables users to create and information exchanged over social networks is not only texts but also URLs, images, and videos. Some of the biggest social networks used today like Face book, Twitter, Google+, LinkedIn etc.[1] … Another type of information (i.e., intentionally or unintentionally) exchanged through social networks: mentions. Mentions means links to other users of the same social network stream in the form of message-to, reply-to, re-tweets-of.

Twitter:

Twitter is an online social networking service that enables users to create application, it sends and read 140-character messages called "tweets". Only the registered users can read tweets and post tweets, but the unregistered users can only read tweets. Users may subscribe to other users known as following and subscribers are known as followers. In twitter, Replies and Mentions are two ways for twitter user to exchange ideas [2].

B. Anomaly-detection:

Anomaly Detection is a pattern in the data that does not conform to the expected normal behaviour. And also referred to as outliers, exceptions, peculiarities, surprise etc. some applications of anomaly detection [3].

- Cyber intrusions
- Credit card fraud

Cyber intrusion is the unauthorized act of spying, snooping, and stealing information through cyber space. Credit card fraud means purpose may be to obtain goods without paying, or to obtain unauthorized funds from an account.

II. RELATED WORK AND ITS LIMITATIONS

A new (trending) topics is something people feel like discussing, commenting the information further to their friends. Conventional key-based approaches for topic detection have mainly focus on frequencies of (textual) words [4]. A key-based approach could suffer from the ambiguity caused by synonyms. It may also require complicated pre-processing (e.g., segmentation). It cannot be applied when the contents of the messages are mostly no textual information. Another way, words formed by mentions are unique, require little pre-processing to obtain.

III. PROPOSED SYSTEM AND ITS ADVANTAGES

The anomaly detection in the twitter data set is carried out by retrieving the trend topics from the twitter in a sequential manner by using some API and corresponding user for training. Then computed anomaly score is aggregated from different users. Further the anomaly score will be feed into change-point analysis or burst detection at the pinpoint, in order to detect the emerging topics [5]. System architecture for detecting emerging topics in twitter is as shown in Fig.1. In this architecture the detecting topics involves five modules.

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Electronic Waste & Its Present Scenario for Pune City

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ABSTRACT: Electronic waste or E-waste consists of discarded or unwanted electrical or electronic parts or equipment. Increase in penetration rate & rapid obsolescence will create crises in developing nations like India. In India most of E-waste is generated in metropolitan cities like Mumbai, Bangalore, Delhi, Kolkata, Pune etc. In Maharashtra Pune, the city known as Oxford of East and home of different industries especially in IT sector, figures prominently in the list of cities that generates huge E-waste in India. Most of the E-waste in Pune is dumping in landfills or it's incinerated by kabadiwalas, while on other hand formal sector facing problems due to insufficient supply of E-waste. According to study Pune city generates approximately 4500 tons of E-waste in year 2015. E-waste generation rate is highly increases day by day especially some major items due to change in technology, fashion, per capita income of citizens. There existed half hearted efforts of Pune Municipal Corporation and some organizations managing only a small percentage of the total E-waste generated. E-waste Management is very essential task as E-waste becomes a threat to human being. Government has passed a law for E-waste management and handling in 2011, but lack political wills it would not get implemented properly. While the E-waste rules were implemented in 2011, even after four years the problem of domestic E–waste disposal and recycling remains. This paper discusses the rate of generation and the status of E-waste practices by various contributors of the system in Pune city and indicating absence of broad system.

KEYWORDS: E-waste, Obsolescence Rate, WEEE.

I. INTRODUCTION

E-waste problem has become an immediate and long term concern as its increase in rate of generation and recycling can lead to serious environmental problems endangering human health. The information technologies have revolutionized the way we live, work and communicate bringing countless benefits and wealth to all its users. The creation of innovative and new technologies and the globalization of the economy have made a whole range of products available and affordable to the people changing their lifestyles significantly. New electronic products have become an integral part of our daily lives providing us with more comfort, security, easy and faster acquisition and exchange of information. But on the other hand, it has also led to unrestrained resource consumption and an alarming waste generation. Both developed countries and developing countries like India face the problem of E-waste management. The rapid growth of technology, rise in per capita income of people in developing nation, up gradation of technical innovations and a high rate of obsolescence in the electronics industry have led to one of the fastest growing waste streams in the world which consist of end of life electronic waste products. It comprises a whole range of electrical and electronic items such as refrigerators, washing machines, computers and printers, televisions, mobiles, etc. many of which contain toxic materials.

Solid waste management, which is already a creating lot of problems in Pune, has become more complicated by the invasion of E-waste. Pune city, with a population of more than 3.3 million, has got a huge growing market electronic waste. The annual E-waste generated in Pune is approximately 4500 tons in year 2015 and is showing an increasing trend [1]. Improper disposal or contact with E-waste can lead to contamination of the surrounding ecosystem and can be a major health hazard [2]. However land filling of E-wastes can lead to the penetration of heavy metals in ground water. Burning of CRT emits toxic fumes into the air [3]. All electronic equipments contain printed circuit boards

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Iris and Fingerprint Recognition using Multiple Transformation

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Abstract **– A wide variety of systems requires reliable personal recognition schemes to confirm or determine the identity of an individual requesting their services. Fingerprint and Iris Recognition using Multiple Transformation provides easiest way of security and faster processing. It ensures data security and protection of system from unauthorized users as well. This paper focuses on Iris and Fingerprint features. In the first part, Iris template is generated from Iris image. Then Iris features are generated by applying Discrete Wavelet Transformation (DWT) and Discrete Cosine Transformation (DCT) on Iris Template. Second part focus on fingerprints; the Fingerprint is preprocessed to get Region of Interest. Using DWT and Fast Fourier Transformation (FFT), features of Fingerprints are obtained. Finally, both the Iris and Fingerprint features are concatenated to obtain final set of features. The final feature is compared with stored database using Euclidean distance matching to obtain exact match. We check False Acceptance Rate (FAR) and False Rejection Rate (FRR) at different threshold level.**

Keywords **– Fingerprint, Iris, DWT, DCT, FFT, Euclidean Distance, FAR, FRR.**

I. Introduction

Recognition using single biometric trait is not sufficient. These system performs better for certain assumptions but fails when the biometric data available is noisy, also fails in case of unavailability of biometric template. Limitations of unimodal biometric systems can be overcome by using multimodal biometric systems which refers to the use of a combination of two or more biometric modalities in verification / identification system [6].

The most widely used method for recognition for person is fingerprint and iris. The reason for chosen these two biometric are (1) Iris has high degree of randomness as no two iris are alike and remains stable throughout person's life [1]. (2) Fingerprint developed at fetal stage and remain same throughout person's life. Fingerprint consist pattern of ridges and valley. Ridges are dark colored and can be used for identification [2]. Valley is the region between two adjacent ridges. Multimodal biometric systems often provide promising results than any single biometric system [8].The access to the secured area can be made by the use of ID numbers or password which amounts to knowledge based security. But such information can easily be accessed by intruders and they can breach the doors of security. This happens in case of net banking and highly secured information zone. Thus to overcome the above mentioned issue multimodal biometric traits are used.

Contribution- In this paper we generate iris template after preprocessing where image is converted to grey. Image features are information extraction from images where DCT coefficients are features from Iris. DWT and DCT are used to generate iris features. The DWT and FFT are used to generate features of fingerprint. Finally iris and fingerprint features are concatenated and generate final features for matching.

II. Existing Approaches

Arun Ross and Anil K Jain [3] introduced various scenarios that are possible in multimodal biometric systems, the levels of fusion that are plausible and the integration strategies that can be adopted to consolidate information.

Mahdi S Hosseini and Hamid Soltanian-Zadeh [4] introduced an algorithm that encodes the pattern of pigment melanin in the Visible Light (VL) image, independent of textures in the Near-Infrared (NIR) image. It also extracts invariant features from VL and NIR images, whose fusion leads to higher classification accuracy.

S.Prabhakar, A. K. Jain, and J.Wang [2] presented a unimodal fingerprint verification and classification system. The system is based on a feedback path for the feature-extraction stage, followed by a feature-refinement stage to improve the matching performance.

N. K. Ratha, R. M. Bolle, V. D. Pandit, and V. Vaish[9] proposed a unimodal distortion-tolerant fingerprint authentication technique based on graph representation. Using the fingerprint minutiae features, a weighted graph of minutiae is constructed for both the query fingerprint and the reference fingerprint. The proposed algorithm has been tested on a large private database with the use of an optical sensor.

III. Levels of Fusion

Fusion levels define how fusion is performed [10]. Levels of Fusion

1. Fusion at feature extraction level: The information extracted from different modalities is stored in vectors and these feature vectors are combined to create a joint feature

AD- HOC NETWORK WEBSOLUTION FOR DRAINING LIFE

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Abstract – WSN is mostly used in various fields like monitoring, securities, communication etc. now a days still there is risk may be in communication possibly due to advance attacks. In routing we use MAC protocol, ad hoc wireless network which is operated on low power, also data storing and prior security work has been done. This paper will help in analyzing and exploring the attacks that are trying to hamper the security and increase the consumption of energy, they are not easy to detect. If we want to provide solutions to it we have to make various algorithms. We are using protocols that probably limit the damage caused by the attacks in between the packet forwarding phase. We are going to connect 4 to 5 nodes in network and then randomly detecting the attacks in the system and providing secure packet forwarding or data transfer or communication as well as depleting battery life.

Index Terms - Ad-hoc network, secure routing, wireless network, denial of services, packet transmission.

I. INTRODUCTION

With changing time may be for developing countries or developed countries communication is most important way of communication. Today it is important to have secured and real time delivery of operation on network so that proper way of communication should established. Ad-hoc network provides continuous connectivity, instantly-deployable communication for military. Many surveys have been proposed for communication so that whatever information is transmitted should be same as the one transmitted. The communication is done in two ways wired or wireless. In today's Wi-Fi network communication message is broadcasted to the nodes but it gets affected by Vampire attack i.e nothing on beacon routing protocols, link-state, distance-vector, source routing, and geographic and as well as a logical ID-based sensor network routing protocol and will remain in loop until all networks gets crashed. To avoid such problem we need intermediate verification of packet in routing. Also we can propose this in MANET which is nothing but Mobile Ad-hoc network is a wireless ad-hoc network which is used to interchange information. Each node is ready to forward data to other nodes and does not rely on fixed infrastructure.

We are considering three prime assistances. In first case, we systematically calculate the revelations of existing protocols to routing layer battery draining attacks also to ensure a secure and authenticated data transmission process. We find orthogonality relation between security measures to prevent attacks and those used to defend routing infrastructure therefore existing secure routing protocols do not protect against this attacks. Present work on secure routing challenges to ensure that attacker cannot root path detection to return an invalid network route, but mentioned attacks do not interfere or vary revealed paths, instead using protocol-compliant message and existing valid network paths. So by means of wireless network this

An Analysis of The Mechanism for Reducing Routing Overhead in Mobile Ad Hoc Network Using Probabilistic Rebroadcast Technique

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Abstract- **Mobile ad hoc network (MANETs) consist of nodes which are continuously moving, this causes continuous link breakage due to which there is frequent path failure occurs and route discoveries is required. The fundamental technique for route discoveries is broadcasting in which the receiver node blindly rebroadcast the first received route request (RREQ) packet unless it has route to the destination. This mechanism incur retransmission which causes overhead and decrease the packet deliverance ratio and increase the end delay, which cannot be avoided. In this paper we proposed reducing routing overhead in mobile ad hoc network using probabilistic rebroadcast mechanism. In this we have introduced rebroadcast delay to determine the neighbour coverage knowledge which will be useful in finding accurate additional coverage ratio and rebroadcast order. To provide node density adaptation we have also defined connectivity factor. By addition of the additional coverage ratio and connectivity factor, rebroadcast probability is determined. The approach can signify decrease in the routing overhead by decreasing the number of retransmission and improvement in routing performance.**

Keywords- **AODV, DSR, RREQ, broadcast Routing overhead, MANET, probabilistic rebroadcast.**

I. INTRODUCTION

MANET is nothing but Mobile Ad-Hoc Network which is a special type of wireless mobile network in which mobile host can communicate without any aid of established infrastructure and can be deployed for many applications. MANETs consist of a collection of mobile nodes which can move freely as shown in Fig 1. These freely moving nodes without any fix infrastructure can dynamically self-organized into arbitrary topology network. One of the fundamental challenges of MANETs is the design of dynamic routing protocols with good performance and less overhead. There are many routing protocols, such as Ad hoc On-demand Distance Vector Routing (AODV) [1] and Dynamic Source Routing (DSR) [2], have been proposed for MANETs. AODV is nothing but an on demand algorithm, means it builds routes between nodes only as desired by source nodes. It maintains these routes as long as they are needed by the sources. The Dynamic Source Routing protocol (DSR) is very simple and efficient routing protocol designed specifically for use in multi-hop wireless ad hoc networks of mobile nodes. In DSR the network is completely self-organizing and self-configuring, without the need for any existing network infrastructure or administration.

These two protocols are on-demand routing protocols, and they could improve the scalability of MANETs by limiting the routing overhead when a new route is requested [3]. However, because of high node mobility in MANETs, frequent link breakages may lead to frequent path failures and route discoveries, which increases the overhead of routing protocols and reduce the packet delivery ratio and increasing the end-to-end delay [4]. Thus, reducing the routing overhead in route discovery is an essential problem.

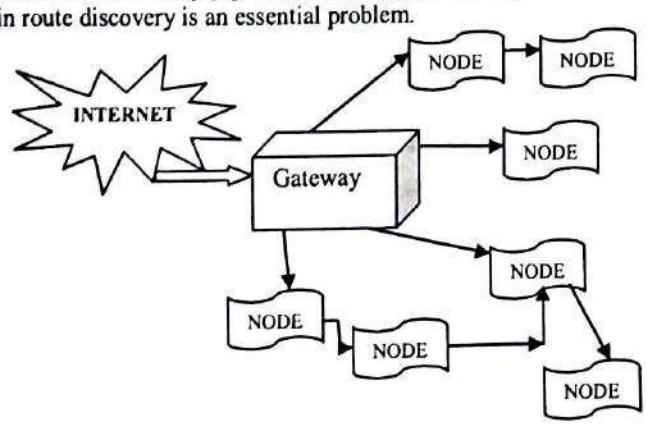

Fig 1: Simple structure of MANET

II. RELATED WORK

In route discovery broadcasting is an effective mechanism, but the routing overhead associated with the broadcasting can be quite large, especially in high dynamic networks [7]. Ni et al. [5] studied the broadcasting protocol and showed that the rebroadcast is very costly and consumes too much network resource. In broadcasting there are large routing overhead and causes many problems such as redundant retransmissions, contentions, and collisions [5]. Therefore, optimizing the broadcasting in route discovery is an effective solution to improve the packet delivery and routing performance.

A gossip based approach proposed by Haas et al.[9], where each node forwards a packet with a probability. They showed that gossip-based approach can save overhead compared to the flooding. However, when the network density is high or the traffic load is heavy, the improvement of the gossip-based approach is limited [8]. Kim et al. [7] proposed a probabilistic broadcasting scheme based on coverage area and neighbour confirmation. This Proposed scheme uses the coverage area to set the rebroadcast probability, and uses the neighbour confirmation to guarantee reach ability. Peng and Lu [10] proposed a neighbour knowledge scheme named Scalable Broadcast Algorithm

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Review of Power Line Communication Based Automation System

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ABSTRACT

This system is used for controlling and monitoring electrical appliances through power line communication. Every electrical appliances works on power which is of 230V/50Hz.This power line can be used as a communication media for controlling remote location devices. Data is communicated from source to destination via a power line power line communication modem and Differential Code Shift Keying modulation. We can control various parameters as temperature, humidity, switching ON-OFF remote device

Keywords— Power line communication, Frequency shift keying.

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I. INTRODUCTION

Modern society can't leave without automation. Automation is used for achieving safety, comfort and ease of operation. The purpose of the system is to provide convenience to the user and also to reduce power consumption and save energy. This system requires no modification to the appliances, and it works for all appliances using electricity, since electricity to the socket is controlled and not the appliance directly. This paper is taken into consideration because of a need for users to efficiently manage the consumption of power in their homes. Costs will be kept to a minimum by the use of existing home wiring.

II. LITRATURE SURVEY

A Extensively search has been carried out for past and related work in the field of home automation. Internet tool is used as source of information for carrying out this literature survey.

1) "Embedded Web Server for Home Automation, International Journal of Engineering and Applications", by Mr. Abhishedk Vichare, Ms. Shilpa Verma.Main aim of this paper is to describe how to connect a micro- controller to LAN or Internet and use it as a web server. This paper offers a new approach to control home appliances from a remote terminal, with an option from a local server, using the Internet. This system is accomplished by personal computers, interface cards, microcontroller, along with window-type software and microcontroller control software. The system is designed to control home appliances' on/off, to regulate their output power, and to set their usage timing. The microcontroller which is used in this project is the Philips P89C51RD2BN

2) "Implementation of a home automation system through a central FPGA controller", by. Debono, C.J, Abela. Technology advancements have made possible the implementation of embedded systems within home appliances. This has added new capabilities and features, however, most of the time, the implementations are proprietary and networking is not always possible. Yet there is an increasing demand for smart homes, where appliances react automatically to changing environmental conditions and can be easily controlled through one common device.

AMBA Bus with Multiple Masters Using VLSI

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Abstract **- Implementation of DMA controller of AMBA Bus with two masters is described in this paper. DMA controller is connected to the AMBA AHB Bus. The Direct Memory Access (DMA) Controller is a hardware feature. It enables movement of blocks of data from peripheral to memory, memory to peripheral, memory to memory and peripheral to peripheral. This movement of data reduces the load on the processor. A DMA controller save power in a system by putting the CPU in a low power state. DMA controller is used to move the data. Architecture of DMA controller for AMBA bus consists of DMA system, Host and Arbiter. Arbiter gives response to DMA system and Host. Three buses are defined within AMBA specification i.e. The Advanced High-Performance Bus (AHB), The Advanced System Bus (ASB), The Advanced peripheral Bus (APB). The proposed architecture provides bus access to any one master at a time for improved speed and performance.**

Keywords **- DMA, AMBA, SOC, power state.**

I. INTRODUCTION

Microprocessor is the most important part of system. Microprocessor is able to access peripherals via special bus called Advanced Microprocessor Bus architecture (AMBA). AMBA bus is simpler in architecture than any other buses. The AMBA bus is applied easily to small scale SOCs. Three buses are defined within the AMBA specification. Advanced High-Performance Bus (AHB), Advanced System Bus (ASB), Advanced Peripheral Bus (APB).

AMBA BUS

In Advanced Microcontroller Bus Architecture (AMBA) specification three buses are defined. Advanced High- Performance Bus (AHB), Advanced System Bus (ASB), Advanced Peripheral Bus (APB). The ASB is the older form of system bus, with AHB being introduced later to improve support for higher performance. The APB is generally used as a local secondary bus which appears as a single slave module on the AHB or ASB. Typically AMBA bus structure is shown in Fig.1.

1. Advanced High- Performance Bus (AHB)

The high-performance bus which is the main system 'backbone'. This bus is also able to sustain the data rates required by the external bus interface. The CPU and other bus masters (such as a DMA controller), and high-speed local memory are normally connected to this bus. AHB is also specified to ensure ease of use in an efficient design flow using synthesis and automated test techniques. AHB multiple bus masters and provides high bandwidth operation, and AMBA AHB implements the features required for high-performance, high clock frequency systems including burst transfers, split transactions, single-cycle bus master handover, single-clock edge operation, non-tristate implementation, and wider data bus con- figurations (64/128 bits).

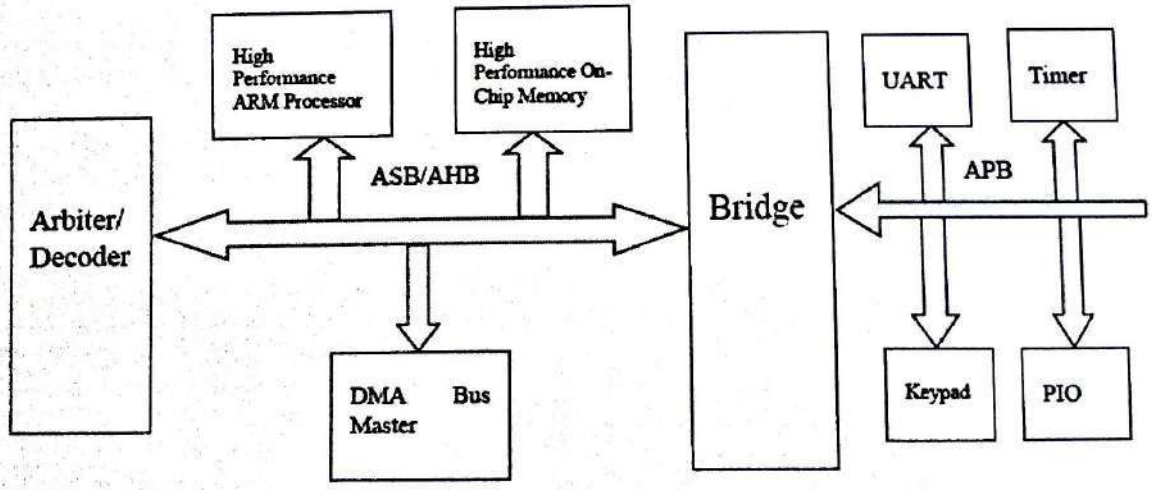

Fig.1: A typical AMBA BUS architecture

Analysis of Various Exploiting Modification Direction Techniques of Image Steganography: A Review Paper

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Abstract— Exploiting Modification Direction (EMD) is a spatial domain image steganography technique to conceal secret data into digital images. In this paper, different types of EMD methods are explained. The important idea behind EMD is to embed the secret data with minimum loss of carrier image. This method provides high embedding efficiency when compared to other techniques. This paper gives the brief idea of different EMD techniques and their comparison.

Keywords - *Steganography, Exploiting Modification Direction (EMD), Stego image.*

I. INTRODUCTION

Now a day, internet is the key part of human's day to day life. Since for various kinds of transactions internet is a key element day by day its usage is increasing. Generally, with the help of internet, we can send various kinds of digital messages or information. Although internet provides ease of communication and low cost way there are many kinds of dangers hidden behind its advantages. For ex. secret information can be leaked, changed or being used on any unauthorized cases by hackers during data communication from transmitter to receiver. Thus, there is a necessity to avoid all the kind of unknown third party interference with the system. For this reason, a method is developed known as data hiding. Basically, it deals with hiding of secret message inside the cover image so that no one has any idea about hidden secret message. Such image is called as stego image. Later this stego image is successfully transmitted to its desired recipients where secret data is taken out from the stego image. This method is known as steganography.

Up till now, different data hiding methods were proposed and generally maximum data hiding methods are using LSB (least significant bites) position to conceal the confidential data. Means first confidential information is converted into binary format then it is replaced by least bit. [1, 2, 3].

EMD is a steganographic embedding method [4] used for digital images in which n cover pixels carries each secret digit in (2n+1) ary notational system. Here, only one cover pixel is either increased or decreased by 1 or remain same. In general, there are 2n possible ways of alteration for each group of n cover pixel. These 2n ways of modification and one case in which no pixel is changed form (2n + 1) different values of a secret digit. Since the direction of modification of cover pixel is fully exploited here thus this method is called EMD which achieves high embedding efficiency as compared to other techniques.

Various types of EMD methods are also developed which are given in this paper. This paper is arranged as follows: In section II, concepts behind EMD technique has been discussed. Various types of EMD schemes have been explained and compared in section III. In section IV, the overall paper is concluded.

II. CONCEPT BEHIND EMD

The basic EMD method was proposed by Zhang and Wang [4] which is having highest embedding efficiency and embedding rate than matrix encoding and run length encoding. In this method, binary confidential data is converted into secret digit (d) in (2n+1) ary notational system in such a way that one secret digit is carried by n pixels. Thus, secret message is first converted into secret digits in (2n+1)-ary notational system and then each secret digit are embedded into pixel group ($g_1, g_2 \ldots g_n$). To embed secret digit (d) into pixel group, value of extraction function f_e is calculated by using:

$$f_e(g_1, g_2, \ldots, g_n) = (g_1*1 + g_2*2 + \ldots + g_n*n) \bmod (2n+1)$$

If $f_e \neq d$, then only one of the pixels from the pixel group has to be incremented or decremented by one. If $f_e = d$, then there is no need to change any pixel and the process continues until no secret digit is remaining.

For extraction of the secret data, same equation is used for each pixel group ($g_1, g_2, \ldots\ldots, g_n$) to track the secret digits. Then all the secret digits are converted back into binary format from (2n+1)-ary notation to find out the secret message.

But the disadvantage of this method is that it is having less embedding capacity and more processing time. Since message needs to be converted into another format.

III. VARIOUS TYPES OF EMD TECHNIQUES

EMD scheme proposed by Zhang and Wang [4] give high embedding efficiency and also its PSNR value is above 50, but its disadvantage is that it hides only one secret digit in each n pixel group. Thus for improving embedding capacity various improved EMD techniques were proposed. Few of them are described below:

A. Data Hiding By EMD Technique Using Optimal Pixel Grouping

The optimized EMD method was proposed by analyzing the relationship between n and payload by Lin et al [6] in 2010 having high PSNR value than OPAP and LSB method

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An Energy Efficient Air Conditioner System without Compressor: Application of Embedded System

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Abstract

This paper represents the adsorption air conditioner system. An activated carbon and methanol is used as working pair. To get 24 hours cooling effect two adsorbent beds and halogen tube are used. One bed maintains high pressure and high pressure. Another maintains low pressure and low temperature. The halogen tube is used as energy source for experimentation purpose. The system is based on adsorption-desorption cycle. The natural working fluid prevents ozone layer. There are no moving parts therefore little maintenance. The system can operate on solar energy also and this is environmental friendly.

Keywords: *Adsorption, Desorption, Natural working fluid, Activated Carbon-Methanol .*

1. Introduction

Due to increasing concentration of green house gases environment changes and global warming effect the need of renewable energy source is greater than ever. Since fossil fuels are nonrenewable energy so we cannot depend on forever. As per the Dr. A.P.J. Abdul Kalam though nuclear energy is clean and green there are some problem associated with it. Therefore only one option is solar energy. Because solar energy is outstanding energy source and it is renewable energy. It consists of radiant light and it comes free on earth. It is non-polluting and thre is less maintenance. Solar energy system are now designed for particular needs like solar water heating, cooking, food drying, preserving, refrigeration, etc. Solar panels are used for electricity generation. Now a day's solar panel improves value of property.

The temperature of earth increases due to global warming. So the need of air conditioner system and refrigerator increases. Somewhere in the world there is no reliable electricity supply but there are high potentials of solar energy. The refrigerator and air conditioner mainly works on compression system which consumes maximum amount of electricity due to compressor. This increases 25-40% annual energy cost. Many people cannot afford this and cannot live without air conditioner in summer days. Due to overheat senior citizens and children faces heat related deaths. The fans are useless above 90F, it increases body stress, body hearting increases and increases body temperature. The compressor is heart of vapour compression system. The chlorofluorocarbon (CFC) and hydro-chlorofluorocarbon (HCFC) used in this system. The emission of CFC and HCFC depletes ozone layer. Emission of carbon dioxide increases pollution. In the vapour absorption system compressor is replaced by generator and absorber. But use of CFC and HCFC causes ozone depletion.

Due to these problems it is becoming urgent to find out energy resource in which efficiency also improves. The adsorption machines which can recover waste heat at low temperature levels. Also it can be interesting alternative for wiser heat management.

The use of solar powered adsorption refrigerator and air conditioning system is best solution. It works on solar energy therefore it reduces electricity bills. The CFC and HCFC are not used in it therefore it prevents ozone layer. It is environmental friendly system.

In recent years, many solid adsorption air conditioners and refrigerator are developed. These researches includes new solar flat plate hybrid heating and cooling system[1], no valve solar ice maker[2], solid adsorption ice maker [3],a novel solar powered adsorption refrigeration module[4]. In order to utilize solar energy, more efficiently selection of working pair is necessary. The performance of system depends on working pairs at different temperature. The choice of adsorbent depends on high desorption and adsorption capacity, good thermal conductivity, compatible to chosen refrigerant, easily available and low cost. The choice of refrigerant depends on high thermal conductivity, low viscosity, low specific heat, nontoxic,

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Comparative study on a low drop-out voltage regulator

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Abstract: Today's LDO (low drop-out voltage regulator) must meet the requirements of various future demands of the portable electronics. To get a new approach towards a design of low drop-out voltage regulator that provides a modern system on chip (SoC) solution and fulfils the present commercial requirements as well as the projected demands of the future, it becomes necessary to study the literature work. The various performance matrices such as minimization of drop-out voltage, low power, low operating voltages, low quiescent currents, fast transient response, high PSR and high packing density have a vital importance in designing of LDO regulator. Furthermore, capacitor less LDO architecture, overcomes the typical load transient and ac stability issues. The designing can be possible with Digital implementation and programmability can be added to become suitable for more applications. Considering the advancement of future technology, regulator can be proposed with the selection of lower order of nm technology. This paper presents the comparative study of literature work that contributes to the research of LDO using CMOS technology and provides different architectures and techniques to make LDO better.

Keywords: Low Drop-Out Voltage Regulator, Low Power, Low quiescent current, PSR.

I. INTRODUCTION

The demand for low-voltage, low drop-out (LDO) regulators are increasing because of the increasing demand for portable electronics. The low drop-out nature of the regulator makes it appropriate for use in many applications as automotive, portable, industrial, and medical applications. The automotive industry requires low drop-out (LDO) regulators to power up digital circuits, especially during cold-crank conditions where the battery voltage can be below 6 V. The increasing demand, however, is especially essential in mobile battery operated devices, such as cellular phones, pagers, camera recorders, and laptops. Low quiescent current flow is important in portable products where the total current drain determines battery life.(1) Each performance metric such as drop-out voltage, power, operating voltages, quiescent currents, transient response, PSR(power supply rejection),packing density and regulation issues has its own consequence to make regulator better. Also it is very much essential to reduce the number of battery cells, so that minimization of cost and size is possible.

For efficient power management in power management systems, an important building block is the low drop-out (LDO) linear regulator which often follows a DC-DC switching converter. It is used to regulate the supplies ripples to provide a clean voltage source for the noise-sensitive analog/RF blocks. Designing a stable LDO for a wide range of load conditions, while achieving high power-supply rejection (PSR), low drop-out voltage, and low quiescent current, is the main target using CMOS technologies. Recently, there has been an increasing demand to integrate the whole power management system into a single system-on-chip (SoC) solution.

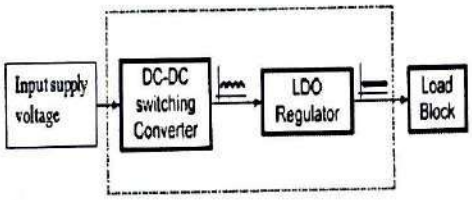

Fig. 1: Block diagram of typical power management system

Hence the proposed paper focuses the review of certain published literature that contributes to research of low drop-out (LDO) voltage regulator by identifying patterns and trends in the literature. This study will help us to find new approaches towards power management and fulfil the need of LDO regulators in various sectors. It is observed that many researchers have designed different models of low drop-out regulator by applying different methodologies and each of these models contribute to further research

.

II. SYSTEM ARCHITECTURE OF CONVENTIONAL LDO REGULATOR

Low-drop out regulators is one of the most conventional applications of operational amplifiers. Figure 2 shows the basic topology. A voltage reference is used with the op-amp to generate a regulated voltage, Vreg (Vout). If the voltage reference is stable with temperature, the fact that the Vreg is a function of a ratio of resistors (so process or temperature changes in the resistance value don't affect the ratio) and the variation in the op-amp's open loop gain is desensitized using feedback makes the regulated voltage stable with process and temperature changes.

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Design of a Programmable Low Drop-Out Regulator using CMOS Technology

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ABSTRACT: Low drop-out regulators (LDO) are circuits which are designed to provide a stable and specified DC voltage, with a low input-to-output voltage difference. To get a new approach of power management towards a design of a low drop-out voltage regulator that provides a modern system on chip (SoC) solution and fulfils the present commercial requirements as well as the upcoming demands of the future, it becomes necessary to design the LDO regulator which gives all-rounder performance. This LDO should beware of various performance matrices. Also future nm technology offers more advantages in achieving most of the performance specifications. This paper presents a low-voltage low-dropout regulator that is capable of providing regulated output with small drop-out voltage and offers a range of different voltages, by using two binary-input control signals. The entire circuit has been designed in a 32 nm technology and simulated using Microwind tool. This design utilizes a cascode current amplifier used with a high threshold PMOS operated in the sub-threshold region, which is responsible to boost the gain and yield the desired output voltage.

KEYWORDS: Low Drop-Out, Low Power, 32nm, CMOS technology.

I. INTRODUCTION

CMOS linear regulators are widely used in battery-powered portable electronics devices as their low drop-out and low supply current characteristics found more advantageous in the world of electronics. The dropout voltage of a regulator is defined as that value of differential voltage at which regulation provided by the control loop stops. The regulator is a device that adjusts a voltage divider network to maintain a constant output voltage, and continually dissipates the difference between the input and regulated voltages as waste heat. The low drop-out nature of the regulator makes it appropriate for use in many applications namely automotive, portable, industrial, and medical applications. LDO regulators enable battery to be used up to the certain limit, and therefore the regulators are now essential power management ICs for the devices like mobile phones, digital cameras, and laptop PCs to have long battery life. Also Low quiescent current flow is important in portable products where the total current drain determines battery life.

Power management seeks to improve the device's power efficiency resulting in prolonged battery life and operating time for the device. A power management system contains several subsystems including linear regulators, switching regulators, and control logic [8]. LDO regulators are an essential part of the power management system that provides constant voltage supply rails [4].With the advent of low power battery-operated circuits, demanding special emphasis is on compactness and portability. The use of smaller transistor size enables faster transient response since slew-rate limit at the gate of the power transistor is relatively not serious [4].So it has become imperative to optimize existing low drop-out regulator structures for greater all-round performance.

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VLSI IMPLEMENTATION OF A PROGRAMMABLE LOW DROP-OUT VOLTAGE REGULATOR

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Abstract

LDO voltage regulators compose a small subset of the power supply arena. Low-drop-out (LDO) voltage regulators are used in analog applications that generally require low noise and high accuracy power rails. Voltage regulators provide a constant voltage supply rail under certain loading conditions. Circuits that are not performing tasks are temporarily turned off lowering the overall power consumption. The LDO voltage regulator, therefore, must respond quickly to system demands and power up connected circuits. To motivate new aspect of power management towards a design of a low drop-out voltage regulator that fulfils the present industry requirements as well as the upcoming demands of the future, it becomes necessary to design the LDO regulator which gives overall performance. A low-voltage low-dropout regulator that uses an Vdd of 1 V to an output of 0.8–0.74 V, with 32-nm CMOS technology is proposed. By scaling down the technology, we can get lower power consumption. More emphasis is given on the compactness and low drop-out voltage. The latest power management unit concept inside the system on chip (Soc) scheme inspires the digital control potential for the design of a novel LDO regulator. A simple operational transconductance amplifier is used as the error amplifier (EA), with a current splitting technique which is able to boost the gain. In the rail-to-rail output stage of the EA, a power noise cancellation mechanism is adopted. Programmability is added by applying two external control signals. These advantages allow the proposed LDO regulator to achieve a 60-mV output variation for low load transient, area efficient architecture with low power consumption.

Keywords: *low drop-out,32nm,low power consumption, programmability*

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1. INTRODUCTION

The usage of the battery power devices in today's global village has become pervasive and indispensable in almost every walk of life. By reducing the number of battery cells, cost and size of design get reduced. This may minimize quiescent current flow and in turn battery life increases. An increasing number of low voltage applications require the use of LDOs, which include the growing family of portable battery products. Voltage regulators provide a constant voltage supply rail under all loading conditions. Most hand-held, battery-powered electronics equipment feature power-saving techniques to reduce power consumption. Low drop-out and low supply current characteristics of CMOS linear regulators found more advantageous in the world of electronics .LDO regulators enable battery to be used up to the certain limit, and therefore the regulators are now essential power management ICs for the devices like mobile phones, digital cameras, and laptop PCs to have long battery life. There has been an increasing demand to design a stable LDO for a wide range of load conditions with high PSR(power supply rejection),low drop-out voltage and low quiescent current. But it is found to be difficult to improve all of them simultaneously. With the advent of low power battery-operated circuits, demanding special emphasis is on compactness and portability. The use of smaller transistor size enables faster transient response since slew-rate limit at the gate of the power transistor is relatively not serious [4].So it has become imperative to optimize existing low drop-out regulator structures for greater all-round performance. The power management unit (PMU) concept inspires researchers to focus on minimum supply voltage, faster dynamic response, higher stability, small area and less power consumption. Previously proposed architectures provides different techniques to isolate input and output along the high current signal path. It is seen that nm technology proves better in achieving required performance specifications. We can make use of digital control to fulfill demands for multifunction among consumer electronics, functional circuits which are integrated as system on chip(Soc). In [5]–[7], external control signals open or short the switch transistors to change the feedback resistor divider ratio to achieve a programmable output voltage required by different applications.

A basic LDO regulator is composed of three main components-biasing circuit, an error amplifier, a power MOS device. The design of the output stage of the error amplifier has impact on the required size of power transistor that improves load regulation especially when the supply

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STBC-OFDM Downlink Base Band Receiver for WMAN

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Abstract: The demand of radio-frequency spectrum is in STBC easing to support the user needs in wireless communication. FCC report suggests that many portion of radio spectrum are not in use for significant period of time and use of these "spectrum holes" can be in STBC eased significantly. STBC-OFDM (STBC), inclusive of software-defined radio, has been proposed as a means to promote the efficient use of the spectrum by exploiting the existence of spectrum holes. The intelligence of STBC-OFDM lies on three basic functions: the ability to sense the outside environment; the capacity to learn, ideally in both supervised and unsupervised modes; and finally, the capability to adapt within any layer of the radio communication system. STBC-OFDM transmits on a piece of spectrum found not utilized by the primary user (PU). Subsequent transmission from STBC should not cause interference to primary user when PU starts using previously unused spectrum. To achieve this goal of STBC, it is a fundamental requirement that the STBC-OFDM performs spectrum sensing from time to time to detect the presence of the PU signal. The sensing of radio environment to determine the presence of primary user is a challenging problem as the signal is attenuated by fading wireless channel. This results in low signal-to-noise ratio (SNR) condition at the STBC input, and makes STBC susceptible to hidden node problem, wherein STBC fails to detect primary user and begins transmission, thereby causing potential interference to the primary user. To minimize the occurrence of this problem, detection technique has to achieve probability of detection close to unity for a specified probability of false alarm and a given SNR. A novel match filter is proposed to precisely detect symbol boundary. Moreover, a ping-pong algorithm is presented to improve the performance of carrier frequency synchronization. Then, we propose a two-stage channel estimator to accurately estimate CSI over fast fading channels. The initialization stage uses discrete Fourier transform (DFT)-based channel estimation with the multipath interference cancellation (MPIC)-based de-correlation to identify significant channel paths. The tracking stage uses decision-feedback (DF) DFT-based channel estimation with Newton's method to track the gain variations of these paths implemented in xilinx 12.3i using verilog language.

Keywords: Baseband Receiver, Channel Estimator, Space Time Block Code-Orthogonal Frequency Division Multiplexing (STBC-OFDM) System, Synchronizer, Wireless Metropolitan Area Network (WMAN).

I. INTRODUCTION

Multiple Input Multiple Output Orthogonal Frequency Division Multiplexing (MIMO-OFDM) techniques have been recently considered in the panorama of ongoing and future multimedia mobile communications due to their robustness to frequency-selective fading and their flexibility in handling multiple data rates. Nowadays, MIMO-OFDM techniques present some well-promising applications in wireless standards like IEEE 802.11n, E-UTRAN Long Term Evolution (LTE), and IEEE 802.16x (Wi-Max) [2]. Different Space-Time (ST) processing techniques have been proposed in the literature in order to fully exploit the potentialities of MIMO systems. The most popular one is Space-Time Coding in which the time dimension is complemented with the spatial dimension inherent to the use of multiple spatially-distributed antennas. Commonly used ST coding schemes are ST-trellis codes and ST block codes (STBC). A well-known example of conceptually simple, computationally efficient and mathematically elegant STBC scheme has been proposed by Alamouti. Substantially, Alamouti's coding is an orthogonal ST block code where two successive symbols are encoded in an orthogonal 2x2 matrix. The columns of the matrix are transmitted in successive symbol periods, but the upper and the lower symbols in a given column are sent simultaneously through the first and the second transmit antennas, respectively.

The alternative solution to ST coding is represented by Spatial Multiplexing (SM). Spatial multiplexing is a space-time modulation technique whose core idea is to send independent data streams from each transmit antenna. This is motivated by the spatially white property of the distribution which achieves capacity in MIMO i.i.d. Rayleigh matrix channels. SM is addressed to push up link capacity rather than to exploit spatial diversity. The tradeoff is between spatial diversity exploitation (STBC) and capacity boosting (SM). Such tradeoff has been theoretically studied by Heath and Paulraj and some simulation results have been shown for a switch criterion

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Measurement of Sugarcane Leaf Chlorophyll

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ABSTRACT

An image analysis is used for determination of chlorophyll content of leaves of sugarcane plant using the HSV color space. A Liner mathematical HSV model is proposed to co-relate with the chlorophyll content, apart from the simple correlation analysis. Among the mean HSV (Hue, Saturation, and Value), the significant co-relation is observed between Saturation and Value parameter with chlorophyll content, while no co-relation is observed with Hue parameter. A good agreement between the predicted and actual chlorophyll content is demonstrated. The root mean square error (RMSE) between predicted chlorophyll and chlorophyll measured by CM1000 meter is found to be 1.9334.

Keywords: Anlysis, Chlorophyll, Colour, Dilation, Distruction, Image, Filter

1. INTRODUCTION

The duration of sugarcane crop ranges from 10-18 months, a 12 month's crop is most common. Experimentally and by research it has been proved that for high yield of the sugarcane, careful crop status management is essential during the germination and tillring stages of the growth [1].

Soil quality, fertilizer and micronutrients, irrigation water and other environmental factors such as temperature and humidity play an important role in the growth of the sugarcane. Compared to other crops, the cultivation of sugarcane demands more water (150-200 times more than other crop like rice). The application of fertilizers and pesticides is also quite more [2]. Considering all these factors the productivity of sugarcane crop draws attention of farmers.

The plant leaf colour is commonly used tool to specify health status of the plant. Chlorophyll is a green pigment found in almost all plants, which allows the plants to obtain energy from light [3]. The loss of chlorophyll content in leaves occurs due to nutrient imbalance, excessive use of pesticide, environmental changes and ageing. Various kinds of colour plates are available for estimation of chlorophyll content of plants [4]. Chlorophyll meter (SPAD), has been developed to estimate leaf chlorophyll content [5]. These tools are a good option to chemical analysis method and remote sensing method used to find the chlorophyll content of the plants [6].

Most of these techniques are quite accurate but they are rarely used in practice because of the high cost of SPAD meter, unavailability of a remote sensing system and other constraints.

Chlorophyll is a green pigment which is the basic ingredient of the leaf of a plant [7]. It is due to the presence of chlorophyll, that the leaves are green colours in nature. Chlorophyll absorbs certain wavelengths of light within the spectrum of visible light as shown in Figure 1. It absorbs both red region (long wavelength) and the blue region (short wavelength) of the visible light spectrum while the green colour wavelength which makes the plant appear to be green [8, 9].

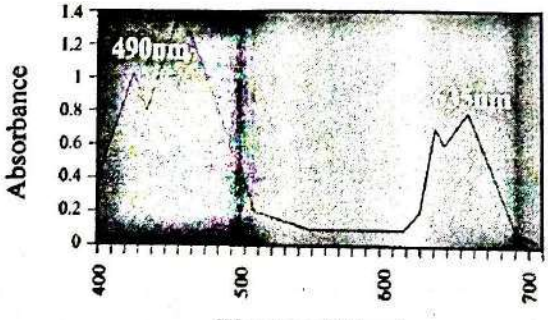

Figure 1 Absorption spectra of chlorophyll

Plants are able to satisfy their energy requirements by absorbing light from the blue and red parts of the spectrum. However, there is still a large spectral region between 500 to 600 nm where chlorophyll absorbs a little amount of light. Chlorophyll measuring meters measure the optical absorption of a leaf to estimate its chlorophyll content [10].

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Human Identification & Authentication Using Iris Biometrics

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Abstract - A biometric system provides automatic identification of an individual based on a unique feature or characteristic possessed by the individual. Iris recognition is regarded as the most reliable and accurate biometric identification system available. Most commercial iris recognition systems use patented algorithms developed by Daughman, and these algorithms are able to produce perfect recognition rates. First given image is converted into gray scale. The iris recognition system consists of an automatic segmentation system that is based on the Daugman integro differencial operator, and is able to localise the circular iris and pupil region, and reflections are removed by using simple morphological operations. The extracted iris region was then normalized into a rectangular block with constant dimensions to account for imaging inconsistencies. Finally, the Feature extraction is done by 1D Log-Gabor filters and template are created. The Hamming distance is used to find the similarities between two templates. Therefore iris recognition is shown to be a reliable and accurate biometric technology.

Index Term: Iris biometrics, Log Gabor, identification method.

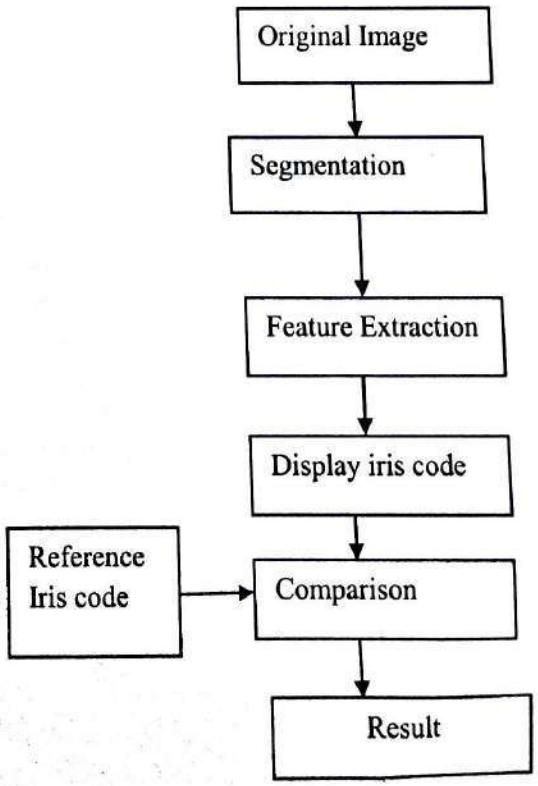
I.INTRODUCTION

Identification and authentication of any human is becoming very important in now days. In the surrounding where electronics devices are more commonly used and there is a need for accurate and secured authentication. Old techniques such as passwords, ID cards, are not accurate and secure. Thus there is an increasing need for automatic authentication process. In the last few years biometric identification is very popular. There is many other biometric systems are present such as fingerprint face, voice etc.

Among the physiological biometrics, iris is an important feature of the human and it has uniqueness. Now a day's Iris recognition technology is very popular in the authentication and identification eg. Airport security system, in different organizations etc.

II. PRAPOSED SYSTEM

Block diagram of Iris Recognition System



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Watermarking of Color Image Using DWT-SVD

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Abstract:- . To enhance the security of the copyright image we propose imperceptible color image watermarking scheme. Recent day's internet technology is widely uses overall in the world. It uses many different type of data, digital images one of them. Using that user can produce many illegal copies of the digital image. The major problem is copyright protection of the digital image. To solve this problem watermarking scheme is introduced which provides protection to the copyright image. Discrete wavelet transform (DWT) is popular technique. It is commonly used in watermarking scheme. The blue channel of the color image of the cover image is separated then we apply DWT & SVD on that.DWT will decompose the cover image in four band. The single value decomposition will apply on LL, LH, HH, HL band.

Keywords:-Watermarking, Singular Value Decomposition, Copyright Protection, Security.

I. INTRODUCTION

Now a day's the internet technology is widely used. Unauthorized person can easily access digital images using a internet. They can access it & modified it. So the security & authority is the major issues in digital image that is we can call as copyright protection. The watermarking is based on domain of processing. Watermarking Scheme is divided by using domain these are Spatial-domain and Frequency domain. Different types of transform is used these are Discrete Cosine Transform (DCT), Discrete Fourier Transform (DFT), Discrete Wavelet Transform (DWT) & these are more robust than spatial domain scheme. Robustness is the resistance of an data that is embedded watermark against the different types of attacks. SVD is used to increase the security of the system. It is the matrix & one of the most useful tools in linear algebra. It is used in different applications in image compression, in signal processing field.

In Fig. 1 there is input color image & it is divided into three channels, these are Red, Green, and Blue. Out of these three Red channel is more sensitive than other channel to the human eye. Blue channel is least sensitive. So in proposed scheme Blue channel is used for the embedding. Wavelet transform gives four frequency sub-band coefficients.

Each sub-band is opposes to different types of attack. Singular value decomposition is factorization of real or complex number. To increase the security of cover image it is necessary to apply SVD on cover image to add the watermark in it. Thus we get watermarked image.

Design and Implementation of a Dynamic Key Management Scheme for Node Authentication Security in Wireless Sensor Networks

Sagar D. Dhawale **Dr. B. G. Hogade** **Dr. S. B .Patil**

Abstract*-Security and authentication are critical in wireless sensor networks[WSNs].** ***These networks are deployed in nasty environment under very less or no human supervision and mostly in unattended areas. Autonomous nature with tiny, resource constrained sensor nodes coupled with wireless nature make them unique and at the same time challengeable. The features are most unique, thus making these networks useful in diverse areas. The tasks assigned to these networks are generally of sensing the values or parameters which humans can't gather or sense. This includes environment monitoring, emergencies, health monitoring, battlefield surveillance and target tracking systems. This is because the environment and conditions where these networks are deployed. This makes networks prone to malicious users' and physical attacks due to some factors like radio nature of network, un-trusted transmission, unattended nature and open access. **Due to lack of resources a sensor node hinders the use of dynamic key management solutions designed for wired and adhoc networks** ***This paper proposes an authentication security for a sensor node in wireless sensor networks using zero knowledge protocol. The technique hides the keys from attacker while authentication and attacker will not have any knowledge about key. The proposed work uses rekeying mechanism with a system to use dynamic keys for node authentication. Moreover, a proposed technique is able to mitigate various attacks occurring on WSNs. The results show that the technique used is efficient.***

Index Terms: Wireless Sensor Networks, Attacks, Security, Keys, Algorithm.

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1. INTRODUCTION

Wireless sensor network (WSN) is a network of collection of tiny sensor nodes called as motes which are densely deployed over target area. The sensor are able to sense the data through events occurring in their coverage area and are able to either forward the data or process the data in some cases as shown in Fig 1. A sensor network node typically consists of Radio transceiver, a microcontroller and battery or typical form of an embedded type of energy source. There are three main research areas related to wireless sensor networks namely, deployment, operation and security. The deployment includes the establishment of network and the structure of overall network. It includes static or dynamic nature and planer or non planer networks. The operation involves actual data transmission protocol used and overall working of the network [1]. The security part is most crucial as it encompasses many dimensions of security. There might be requirement of data security, integrity, node authentication security and security against various attacks on WSNs.

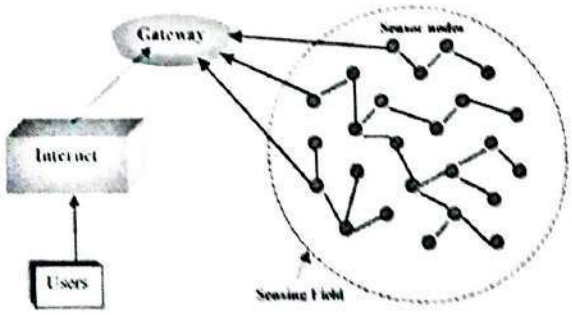

Fig 1: A sample WSN.

One can't directly apply the security techniques to WSN which are already available for wired networks. The main reason behind this is risk due to limited physical protection of the devices and openness of the wireless communication channel. Other reasons include limited energy source, processing capability and less memory size. A large number of sensor nodes are deployed to monitor the physical or environmental conditions, such as temperature, sound, vibration, pressure, motion or pollutants detection and for the surveillance in the military applications and many other security systems. We address the security area for wireless sensor networks. As nodes can be compromised to

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Experimental study of heat transfer parameters of serrated plate fin heat exchanger for different materials

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Abstract

The heat transfer and flow friction Characteristics of plate fin surfaces are presented in terms of the Colburn factor j and the Fanning friction factor f verses Reynolds number Re, the relationships being different for different surfaces. The laminar flow model predicts j and f values at low Reynolds number; the data is throughout the range of interest. Velocity and temperature fields have been Computed and j and f factors determined over appropriate range of Reynolds number and geometric dimensions. For this work I have designed heat exchanger according to procedure of design of serrated plate fin heat exchanger [12], Correlation used for finding various heat transfer parameters having Reynolds number less than 200 [6]. Experimental setup was manufactured using calculated parameters of design. The effects of the materials Brass and Copper SPFHE on the heat transfer enhancement and friction factor behaviors in laminar flow regimes (Re < 200) are described. The fin dimension of serrated type plate fin heat exchanger SPFHE (H=3mm, t=0.2mm, s=2.5, lf=5mm for hot fluid and H=9.5mm, t=0.2mm, s=, lf=5mm for Cold fluid) same for both materials. On this setup readings were taken by varying flow rate of hot oil, at Constant air for different temperatures of selected materials. After getting readings Calculations were done for heat transfer parameters like Reynolds number, Colburn factor and Fanning friction factor.

Introduction

Heat exchangers are devices used to transfer heat between two or more fluid streams having different temperatures. There are many applications of heat exchanger used in industries like power generation, chemical processing, electronics cooling, air-Conditioning, refrigeration and automotive applications. In this work we have examined the results obtained in serrated plate fin heat exchanger for different materials. Heat transfer parameters like Reynolds number, Colburn factor and Fanning friction factor were discussed. In addition, we had examined relation of above heat transfer parameter for different materials and revealed by various graphs.

The flowing fluids in Cross flow serrated type plate fin heat exchanger are hot fluid as oil and Cold fluid as air. Copper and Brass materials were selected for conducting the trials on serrated type plate fin heat exchanger. The Comparative study for these two materials along with heat transfer parameters were carried out. Copper SPFH have more heat transfer and less friction drop as Compare to brass at various temperatures. So from results sele Copper material than brass for more efficiency. After successful Completion of this work it has been decided th Copper material is more efficient than brass material. Also it is seen that as the flow rate of Cold air increases t heat transfer parameter Colburn factor j increases, hence improved heat transfer rate is achieved.

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Experimental Study of Heat Transfer Parameters using internal threaded pipe fitted with inserts of different materials

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Abstract

Many heat transfer enhanced techniques have simultaneously been developed for the improvement of energy consumption, material saving, size reduction and pumping power reduction. Screw tape inserts in tubes are a typical technique that offers a higher heat transfer increase and, at the same time, only a mild pressure drop penalty. This study investigates the heat transfer characteristics of a horizontal tube-in-tube heat exchanger having internal threaded pipe with Screw tape inserts of different materials i.e. Mild steel screw tape and Aluminum screw tape inserted in the inner tube. Heat transfer, flow friction characteristics in a threaded tube fitted with screw tape, using oil as working fluid are investigated experimentally. Influences of the changing material i.e M.S screw tape and Aluminum screw tape arrangements are also described. The experiments are conducted using the tapes with same twist ratios and pitch over a Reynolds number range less than 2,000 in a heat exchanger.

Introduction

Laminar flow is encountered in many industrial applications. Flow of solar thermal mass of viscous oil in a parabolic trough solar collector in solar electric thermal power plant is an example. In Such case of laminar flow, there is major thermal resistance in the bulk flow in addition to the dominant thermal resistance in the thin boundary layer adjacent to the flow. Twisted-tape inserts are, therefore, used to mix the gross flow effectively in laminar flow to reduce the thermal resistance in the core flow through the helical screw inserts also turbulators. Use of heat transfer enhancement techniques lead to increase in heat transfer coefficient at the cost of increase in pressure drop, while designing a heat exchanger using any of these techniques, analysis of heat transfer rate, and to perform experimental work on considered arrangement to develop characteristics equation for predicting thermo hydraulic performance of heat exchanger. Apart from this issues like long term performance and detailed economic analysis of heat exchanger has to be studied. To achieve high heat transfer rate in an existing or new heat exchanger several techniques have been proposed in recent works and are discussed in chapter 3.Screw tapes a type of passive heat transfer have shown good results in past studies. For experimental work different types of screw tapes of different materials of same dimensions(pitch 9mm ,depth 2.5mm, thickness of tape t= 1mm) combined with internal threaded copper pipe (ID= 13mm OD= 19mm, W= 8 mm, d= 3mm L=550 mm) have been studied.

Date et al. [1] has integrated correlation for friction factor that reflects the influences of secondary flows and wall shear by extracting relationships for relevant parameters from previous numerical predictions of laminar flow in a tube containing a full length twisted tape, the axial momentum equation for flow in a tube containing regularly spaced twisted tape elements **Dewan et al. [2]** has shown that heat transfer augmentation techniques (passive, active or a combination of passive and active methods) are commonly used in areas such as process industries, heating and cooling in evaporators, thermal power plants, air-conditioning equipment, refrigerators, radiators for space vehicles, automobiles, etc. **Sivashanmugam et al. [3]** presented Experimental investigation

Review of Heat Transfer Parameters of Serrated Plate Fin Heat Exchanger for Different Materials

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Abstract

The heat transfer and flow friction characteristics of plate fin surfaces are presented in terms of the Colburn factor j and the Fanning friction factor f verses Reynolds number Re, the relationships being different for different surfaces. The laminar flow model predicts j and f values at low Reynolds number; the data is throughout the range of interest. Velocity, and temperature fields have been computed and j and f factors determined over appropriate range of Reynolds number and geometric dimensions. For this work I have designed heat exchanger according to procedure of design of serrated plate fin heat exchanger [11], correlation used for finding various heat transfer parameters having Reynolds number less than 200 [6]. Experimental setup was manufactured using calculated parameters of design. On this setup readings were taken by varying flow rate of hot oil, at constant air for different temperatures of selected materials. After getting readings calculations were done for heat transfer parameters like Reynolds number, Colburn factor and Fanning friction factor.

Introduction

Plate fin heat exchangers are widely used in automobile, aerospace, cryogenic and chemical industries. They are characterized by high effectiveness, compactness (high surface area density), low weight and moderate cost. Although these exchangers have been extensively used around the world for several decades, the technologies related to their design and manufacture remain confined to a few companies in developed countries. Recently efforts are being made in India towards the development of small plate fin heat exchangers for cryogenic and aerospace applications. Following is the literature survey.

Kayset et al. [1] demonstrated both the model and modeling method will be useful and valuable for other heat exchanger reformer designs and optimization; it can also provide a reference for the design of the control system in the future.

Saidi et al. [2] carried out numerical analysis of the instantaneous flow and heat transfer for offset strip fin geometries in self sustained oscillatory flow. The creation processes of the temperature and velocity fluctuations have been studied and the dissimilarity between these has been proved.

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Single-Phase Heat Transfer and Pressure Drop In the Micro-Fin Tube with Coiled Wire Insert

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Abstract: *The heat transfer duty or thermal performance of heat exchangers can be improved by heat transfer enhancement techniques. Coiled wire insert has been used as one of the passive heat transfer enhancement techniques and are the most widely used tubes in several heat transfer applications, for example, heat recovery processes, air conditioning and refrigeration systems, chemical reactors, food and dairy processes, Thermal Power plants, radiators for space vehicles, automobiles etc. These techniques broadly are of three types viz. passive, active and compound techniques. The present paper is a review of the passive augmentation techniques used in the recent past.*

Keywords: *coiled wire insert, Heat transfer augmentation technique, Micro fin tube, Passive methods,*

I. Introduction

Heat exchangers have several industrial and engineering applications. The design procedure of heat exchangers is quite complicated, as it needs exact analysis of heat transfer rate and pressure drop estimations apart from issues such as long-term performance and the economic aspect of the equipment. Whenever inserts are used for the heat transfer enhancement, along with the increase in the heat transfer rate, the pressure drop also increases. Therefore any augmentation device should optimize between the benefits due to the increased heat transfer coefficient and the higher cost involved because of the increased frictional losses. The present paper includes various heat transfer augmentation techniques. A literature review of heat transfer augmentation using passive techniques has been included. Experimental work on heat transfer augmentation using coiled wire inserts and a new kind of insert is carried out. Inserts when placed in the path of the flow of the liquid, create a high degree of turbulence resulting in an increase in the heat transfer rate and the pressure drop.

II. Need Of Argumentation

In Tube in tube heat exchanger design the tube side often represents poor performance when handling viscous liquids in laminar flow. This is because near the tube wall, there is thermally inefficient boundary layer with very little mixing. Since heat transfer is controlled principally by the thickness of the boundary layer and its thermal conductivity. A very poor heat transfer coefficient results, so it is required.

III. What Inserts Do

These inserts continually remove low velocity fluid from the tube wall and replace it with fluid from the centre of the tube. By braking up the boundary layer at the wall and promoting radial mixing of the tube side fluid, these inserts increases the heat transfer coefficient dramatically for a given pressure drop. These increases could be as large as 20 times for flow at very low Reynolds numbers.

IV. How Inserts Are Useful

- Reduce the first cost of a heat exchanger.
- Saving pumping power.
- Reduce the number of shells.
- Revamp application.

V. Classification Of Various Heat Transfer Enhancement Techniques-

They are broadly classified into three different categories:

1. Passive Techniques
2. Active Techniques
3. Compound Techniques.

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Experimental Study onHeat Transfer andPressure Drop In Micro-Fin Tubes withand Without Coiled Wire Insert

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ABSTRACT

The coiled wire inserts in microfin tubes are a typical technique that offers a higher heat transfer increase and, at the same time, only a mild pressure drop penalty. This study investigates the heat transfer characteristics and pressure drop in a microfin tube with and without coiled wire insert. Coiled wire insert has been used as one of the passive heat transfer enhancement techniques and are the most widely used tubes in several heat transfer applications. The experiments are conducted using two heat exchangers, contains microfin tube with coil wire inserts and microfin tube without coil wire insert.It contains the micro-fin tube in which Coiled wire insert is fabricated by bending iron wire into coil wire with coil diameter of 7.80 mm, coil pitch of 3.2 mm and length 610 mm. The tests are performed at the cold and hot water mass flow rates ranging between 0.01667 and 0.06667 kg/s. The inlet cold and hot water temperatures are between 20 ^{0}C and 25^{0}Cand between 40 ^{0}C to 45 ^{0}C, respectively. The experimental investigation and the calculations are discussed in this paper. Effect of different Reynolds numbers on the heat transfer rate, overall heat transfer rate, Heat transfer coefficient results, pressure drop and friction factor for microfin tube with and without coil wire insert are investigated.

Keywords:- coiled wire insert, Heat transfer augmentation technique, Micro fin tube, Passive methods,

1. INTRODUCTION

Heat exchangers have several industrial and engineering applications. The design procedure of heat exchangers is quite complicated, as it needs exact analysis of heat transfer rate and pressure drop estimations apart from issues such as long-term performance and the economic aspect of the equipment. Whenever inserts are used for the heat transfer enhancement, along with the increase in the heat transfer rate, the pressure drop also increases. Therefore, any augmentation device should optimize between the benefits due to the increased heat transfer coefficient and the higher cost involved because of the increased frictional losses.The present paper includes various heat transfer augmentation techniques. A literature review of heat transfer augmentation using passive techniques has been included. Augmentation techniques increase convective heat transfer by reducing the thermal resistance in a heat exchanger. Use of Heat transfer enhancement techniques lead to increase in heat transfer coefficient but at the cost of increase in pressure drop.Experimental work on heat transfer augmentation using coiled wire inserts and a new kind of insert is carried out. Inserts when placed in the path of the flow of the liquid, create a high degree of turbulence resulting in an increase in the heat transfer rate and the pressure drop. The work includes the determination of heat transfer coefficient and pressure drop in micro-fin tube with coil wire insert and without coil wire insert. The results of micro-fin tube with coiled wire insert are compared with the values for the micro-fin tube without coiled wire insert

2. OBJECTIVES

- Investigating the heat transfer characteristics in Micro-fin tube with and without coiled wire insert.
- To determine the pressure drop in Micro-fin tube with and without coiled wire insert.

3.METHODOLOGY (ACTION PLAN)

- Preparation of test rig with required measuring instrumentation.
- Experimentation will be carried out by varying percentage of fluid (Refrigerant), mass flow rate and by using micro-tube with and without coiled wire inserted.
- Obtained data will analyze with various parameters of micro-tube with and without coiled wire inserted.
- Validation of results with available literature.

Thermal performance of wickless heat pipe solar collector with surfactant added nanofluid and solar tracking- A Review

Abhijeet A. Pawar, Digvijay B. Shelke

Abstract— These Several techniques for heat transfer enhancement have been introduced to improve the overall thermal performance of heat exchangers resulting in the reduction of the heat exchanger size and the cost of operation. In general, the heat transfer enhancement techniques can be classified into two methods including active method (requires external power source) and passive method (not requires external power source). The mechanism for improvement of heat transfer performance in the passive method is promoting the turbulence near the tube wall surface to reduce the thermal boundary layer thickness. This turbulence introduces a chaotic fluid mixing which acted by several enhancing modified tubes such as a finned tube, tube with rib, tube with spirally roughened wall, corrugated tube, fluted tube, helical tube, elliptical axis tube and micro-fin tube, etc.

Active techniques, which require an extra external power source, include mechanical aids, surface vibration, fluid vibration, fluid pulsation, electrostatic fields, injection or suction of fluid and jet impingement. Consideration about tube heat transformation in the inner gradient of temperature was mainly concentrated on the boundary layer, if boundary layer could be broken effectively and the thermo-resistance which lay in laminar boundary layer or turbulence sub layer could be diminished, we could enhance local heat exchange coefficient and intensify heat exchange process by convection.

***Index Terms*—Wickless heat Pipe, Solar flat plate collector, Nano fluid, Surfactant.**

I. INTRODUCTION

The solar energy is the most capable of the alternative energy sources. Due to increasing demand for energy and rising cost of fossil type fuels (i.e., gas or oil) solar energy is considered an attractive source of renewable energy that can be used for water hearing in both homes and industry. Heating water consumes nearly 20% of total energy consumption for an average family. Solar water heating systems are the cheapest and most easily affordable clean energy available to homeowners that may provide most of hot water required by a family.

Solar heater is a device which is used for heating the water, for producing the steam for domestic and industrial purposes by utilizing the solar energy. Solar energy is the energy which is coming from sun in the form of solar radiations in infinite amount, when these solar radiations falls on absorbing surface, then they gets converted into the heat, this heat is used for heating the water. This type of thermal collector suffers from heat losses due to radiation and convection. Such losses increase rapidly as the temperature of the working fluid increases.

II LITERATURE REVIEW

The developments are being carried out continuously in the field of cover materials, absorber plate materials, absorber and glazing coating etc. along with the changes in the design, fluid used for heat transfer. Numbers of studies have been carried out on thermal performance of solar water heater and found more increase in the thermal efficiency in comparison to conventional solar water heater. These studies include use of double side absorber plate, honeycomb material, nanomaterial and more efficient coatings.

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EXPERIMENTAL STUDY OF THERMAL PERFORMANCE OF HEAT PIPE WITH BORON NITRIDE/WATER NANOFLUID

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Abstract

Thermal performances of heat pipes charged with pure water, boron nitride / water nanofluids respectively, were investigated experimentally. Both the average evaporator wall temperature and the overall thermal resistance of the heat pipes at different nanoparticle mass concentrations (0-3 % for Boron nitride nanofluids) and at the volume filling ratio of 30% were tested and compared. Experimental results showed that different concentration of nanofluids caused different thermal performances of heat pipe. The average evaporator wall temperature and overall thermal resistance of the heat pipe charged with BN/water nanofluids at different mass concentrations (0-3 %) as a function of the power input were investigated. As expected, the evaporator wall temperature and overall thermal resistance decreased after using BN/water nanofluids instead of pure water (i.e., nanofluid with 0 % concentration). This decrease became more obvious with increasing concentrations of boron nitride nanoparticles from 1 % to 3%. At the optimal concentration of 3 % boron nitride in water and 100 W power input, reduction in the evaporator wall temperature and overall thermal resistance of the boron nitride/water nanofluid charged heat pipe of about 5.66^{0}C (or 8.28%) and 0.1033 ^{0}C/W (or 37.80%) respectively were obtained as compared with pure water charged heat pipe at 0^0 inclination. Thus, addition of boron nitride nanoparticles to base water improved the thermal performance of heat pipe. The performance of

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CLEANING IN PLACE AUTOMATION FOR PROCESS INDUSTRY USING PLC AND SCADA SOFTWARE

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ABSTRACT

In Process Industries, proper hygiene should be maintained to ensure the proper quality of the product. So, the cleaning of Process Equipment's must be done very properly and hygienically. Clean in Place (CIP) Automation is a best way to clean the process equipment's without disassembling. There are various requirements for cleaning equipment as well as many cleaning types. Some process equipment is cleaned with only water while other equipment is cleaned using detergents such as acids or caustic solutions. Also, some plants have taken to recovering the water used for a final rinse and use it as the initial rinse of the next CIP sequence in order to reduce the overall production cost. The following paper gives an approach that makes CIP automation a straight forward task and provides ample modularity and flexibility through the use and application of PLC and SCADA. This paper outlines the method of conversion of manual cleaning towards the fully automated cleaning and making the plant environment safer.

Keywords*: *Automation, CIP, PLC, SCADA.

I. INTRODUCTION

Cleaning in Place is commonly used in hygiene critical industries, such as Food, Dairy, Beverage and Pharmaceuticals etc., to clean a wide range of Plants. CIP refers to the use of a mix of various chemicals, heat and cold water to clean equipment's, machinery, vessels or pipe work without dismantling or disassembling the plant. The process can be one shot or sequence, in which everything goes to drain or recovery, which recycles most of the liquid. CIP automation can be a very efficient way of cleaning because cleaning process is faster; also it requires less human power. CIP is more repeatable and focuses on less chemical risk to cleaning operator. CIP technique provides significant advantages to manufactures as it provides cleaning of equipment's in run time at lower costs which improves product quality and plant hygiene. In order to keep less human interference in process, PLC (Programmable Logic Controller) and SCADA (Supervisory Control and Data Acquisition) is used. SCADA screen is developed in order to control plant and monitor entire system from control room.

II. DRAWBACK OF CONVENTIONAL SYSTEM

There are many conventional systems available to clean the industrial equipment's and machinery. Those systems are manual or semiautomatic which require human power to dismantle the plant or enter the equipment. The cleaning operator needs to enter into the plant and also to handle the hazardous chemicals for cleaning which is definitely not safe and dangerous. Also, those systems are both time and power consuming which is not desirable in any process industry.