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Criterion III: - Research, Innovations and Extension

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INTERNATIONAL JOURNAL OF COMPUTER TECHNOLOGY AND APPLICATIONS

AES-VR: A New Approach for Cloud Data Confidentiality

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Abstract

Confidentiality is one of the important security parameters related to cloud data security. The confidentiality is provided by applying encryption algorithm. In this paper we are proposing a variant of Advanced Encryption Standard (AES), i.e. AES-VR with a new property of key schedule process. This process is updated by adding a new layer of operation to achieve high diffusion property of cryptographic technique. The results have been tested for standard security parameters, viz. avalanche effect and strict avalanche criteria. This new approach is proposed to provide cloud data confidentiality.

1. Background:

The Advanced Encryption Standard (AES) is one of the symmetric key cryptographic techniques used to provide data confidentiality. It is designed to be effective in both hardware and software. It operates on block of data, byte-wise instead of bitwise. The size of data block used is 128 bits. It supports 3 different key sizes of 128, 192 and 256 bits. The 128 bit data block is treated as 16 bytes data, arranged in 4 X 4 matrix, called as state array. It performs operation in rounds, 10 rounds for 128 bit key, 12 rounds for 192 bit key, and 14 rounds for 256 bit key. AES is based on substitution permutation network hence it has several rounds for performing operation. The number of rounds, N_r, is calculated based on N_k, key size in number of words and N_b, block size in number of words, i.e. $N_r = 6 + \max\{N_b, N_k\}$. In each round it performs four steps of operations except the last round. These operations are listed below.

  i. *Key expansion*: cipher key is used as input for key expansion operation
  ii. *Initial round*: AddRoundKey: Initially state array is XORed with the first round key.
  iii. *Round*: During each round following

  iv. *Last round*: It is the final round in which following operations are performed on state array
    ➢ SubBytes
    ➢ ShiftRows
    ➢ AddRoundKey

The detailed description about AES can be found in [1] [2]. The AES is widely used to transfer data securely over the network. Since 2001 to till date various research in terms of attacks on AES and solutions for them is carried out. The security of AES lies in complexity of S-box and key schedule process. Below some of the research work related to enhancing security of AES is given followed by the main idea behind proposed AES-VR.

In [3] Partheeban introduced a new approach for building S-box. Here nonlinear transformations are applied to increase the complexity. The S-box is generated dynamically by using secret key used in AES.

In [4] Choy and others have proposed an on-the-fly key schedule which they claim that is resistant against related key differential and boomrang attacks. In this paper they have done the analysis of attacks and their solutions.

P. Freyre and others [5] proposed variations to AES and Twofish algorithms. For achieving this they suggested the use of maximal distance separable (MDS) matrices. They used the set of MDS matrices and any one matrix is randomly selected to process the variation in AES and Twofish. This is done to produce high diffusion. In this scheme space requirement increases to store the set of MDS matrices and introduces extra time required to process the matrix in key scheduling.

Krishnamurthy [6] presented new property of AES using S-box and inverse S-box. This property is used to construct S box which is key dependent. Abdullah and others [7] proposed AES variant by introducing modification in S-box. To perform this they added extra byte to the secret key. The random additional key is used to increase security. This additional byte imposes extra processing time.

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GCM-AES-VR : A Scheme for Cloud Data Confidentiality and Authenticity

Rajani S. Sajjan[1] , **Vijay R. Ghorpade**[2]

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Efficient resource allocation scheme for on-the-fly computing based mobile grids

Amit Sadanand Savyanavar ✉ & Vijay Ram Ghorpade

Abstract

Mobile grid (MG) is emergi ng as a new computing paradigm due to the ubiquitous availability of mobile devices. With the advancement in the capability of these devices, computationally intensive tasks can be executed using a peer-to-peer grid of such devices. MG can provide an edifice to execute parallel computationally intensive tasks. Key challenges that crop up while computing on a MG are resource constrained environment, inefficient resource allocation, high failure probability, etc. As a result, selection of appropriate nodes for task execution becomes critical for successful execution of the application. In this paper, we propose an efficient resource allocation model (ERAM) which provides resource allocation with failure handling. We created a MG comprising of Wi-Fi Direct connected Android smartphones. Different scenarios are considered for the purpose of experimentation. Our approach performs well with respect to application completion time, % battery consumption and recovery time from failure in comparison with existing techniques.

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Modelling and Development of Chaff cutter machine

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Abstract - *A chaff cutter is a mechanical device for cutting straw or hay into small pieces before being mixed together with other forage and fed to horses and cattle. This aids the animal's digestion and prevents animals from rejecting any part of their food. Chaff and hay play a vital role in most agricultural production as it was used for feeding horses. Chaff cutters have evolved from the basic machines into commercial standard machines that can be driven at various speeds and can achieved various lengths of cuts of chaff with respect to animal preference type.*

New chaff cutter machines include portable tractor driven chaff cutter - where chaff cutter can be in the field and load trolleys (if required).

Key Words: chaff, uniform chopping, fodder, cutter, machine.

1. INTRODUCTION

A chaff cutter is a mechanical device used to cut the straw or hay into small pieces so as to mix it together with other forage grass and fed to horses and cattle. This improves the animal's digestion and prevents animals from rejecting any part of their food. Chaff cutters have developed gradually from the simple machines to commercial standard machines that can be driven at various speeds so as to achieve various sizes of chaff with respect to animal preference type. New chaff cutter machines include portable tractor driven chaff cutters in which cutting of chaff is done in the field and loaded in trolleys. The present chaff cutter machine is less compact and having lack of safety and slow speed some compact machines having problem of blockage of grass. The population of cattle in India in 1987 was 199.7 million and in 2012, 199.9 million. Buffalo in 1987 -76.0 million but in 2012- 108.7 million. For such kind of population traditional human powered chaff cutting machines were used, but due to this the efforts for running the machine was physically demanding. And as per today's scenario the population of buffalos is drastically increased. So to increase the productivity and reduce the physical effort required for running the machine the motorized machineries came into existence it is best for dairy farmers. Presently fodder cutting machines are electric driven as well as hand operated or engine driven.

2. PROBLEM DETECTION IN CHAFF CUTTING PROCESS

The existing chaff cutting machines are observed and studied properly to detect the problems faced by the user are given below.

1. Bulky or less compact design
2. High voltage required such as 3 phase
3. Less safety while using by women
4. Noisy
5. Blockage of grass creates feed interference

By observing above limitations we manufactured and modified present chaff cutter.

2.1 Developed Work

1) New cutting technology – The research work in this domain was studied and new methods are developed to achieve desired goal.

2) Safety- Highest priority is given to safety. Because it is widely used by farmers and his family so it should be used by all of them with less skill.

3) Single phase operation – The power supplied to machine is single phase so to make it easy to operate at any location.

4) Noise- Less noise

5) Compact – Compact in design cause to install machine at limited place

6) Aesthetically pleasing and attractive design.

2.2 Procedure

1. Supply power source to electric motor- Here we are using single phase 2 H.P motor so we require single phase power supply. Input speed of our electric motor is 1425 rpm. In order to rotate chaff cutting blade we have to rotate them by using power drives.

2. Power transmission through belt-pulley drive which are mounted on shaft- For transmitting power we choose belt & pulley as power drive .This belt pulley arrangement is coupled to cutting blades by using coupling shaft. Hence rotation of cutting blades occur.

3. Feeding of food material - We feed fodder through hopper. As feed trough has large opening & high length this provides guide way to grass & other fodder material like dry corn straw, grass, soya bean, wheat stalk, with ease and thus reducing the manual work of farmer and increases the fodder production.

4. Collect fodder from output tube -After rotation of cutting blades, it causes cutting of supplied feed material like grass dry corn straw into powder form. This light weight particles thrown away by centrifugal force of cutting blade towards outlet tube .So, place container for collecting fodder.

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BRIDGE CONDITION MONITORING SYSTEM USING ZIGBEE

Mrs.A.H.Tirmare[1], Ms P.S.Mali[2], Ms.S.S.Shinde3,Ms.PoojaPatil[4] ,Ms.Saloni Lad[5], Ms.ShrutiSalokhe[6]
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Abstract – Now a day's lot of accidents occur due to ageing & poor condition of bridge all around the world. The conditions of the bridges are not monitored on a daily basis also it is difficult to monitor the conditions of all the bridges manually. This results in lack of maintenance of the bridge which can be dangerous for everyone and lead to a lot of accidents. However regardless the advancement of sensors and sensor data processing technologies, there is a one thing that has not been changed, data communication is through wire and optical cables. The advancement in wireless technology has lead to develop the wireless network based bridge monitoring system. So this paper focuses on implementation of atomized monitoring and controlling system for bridge using various sensors and zigbee.

I.INTRODUCTION

Bridge condition monitoring system is an atomized monitoring system used to monitor the condition of bridge in real time.

This project gives a best solution to above mentioned problems as in manual system work is time consuming and need more manpower.

This type of automated system will be more reliable due to immediate sensing of bridged condition and due to remote monitoring. A centralized unit in a city can sense condition of number of bridges in a city and necessary action can be initiated in order to reduce accidents due to damage of bridges.

This system contains various sensors in order to sense parameters of bridges like bend, tilt, water level etc. Depending on the parameters and if there is a danger then the gate of the bridge will be closed. The DC motor is used to close or open the gate of the bridge.
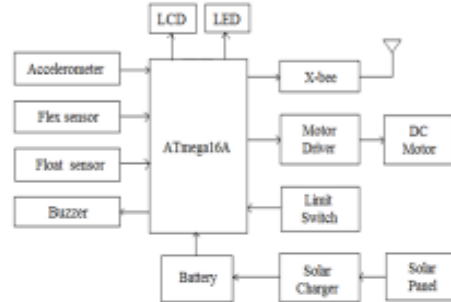
II.BLOCK DIAGRAM DESCRIPTION

Fig 1. Block Diagram of Transmitter of bridge condition monitoring system

Fig 2. Block Diagram of Receiver of bridge condition monitoring system

The Block diagram of Transmitter of bridge condition monitoring system is shown in fig 1.This system consists of ATmega16A interfaced with sensors Accelerometer, Flex sensor, Float sensor to sense different parameters of bridge. Zigbee is used to transmit data from bridge to control station. Buzzer indicates fault in bridge parameters. Motor driver is used for opening & closing of gate. Solar panel is used to give supply to microcontroller. In this project solar power is used as power supply for microcontroller and DC motor. The accelerometer is a complete 3 axis sensing sensor which senses a change in the xyz direction. If there is a bend or a tilt in the bridge then the output voltage varies which is given to

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Study of Steam Operated Jaggery Making System

Mr. P. D. Rajigare Mr. M. S. Shinge Mr. V. T. Didake Mr. K.K. Patil Mr. R.S.Mithari
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Abstract— In rural India bagasse is used as fuel for production of jaggery. There is big loss of heat as well as ash from it may be mixed with product which reduces its purity.so we need to check clean and more efficient process for jaggery. We have iterative study for different modes of jaggery making pan which uses steam as heating element. Here we discussed about the pan with steam coil immersed in sugarcane juice. Its design and comparison with pan with baffles is made.
Key words: Jaggery, Sugarcane Juice

I. INTRODUCTION

Jaggery is natural, traditional, sweetener made from sugarcane juice. It consumes 20.36% of sugarcane grown in India [5]. Jaggery is product of cottage industries prone to production inconsistencies and inefficiencies, use of chemicals, poor hygiene and quality. In present system of jaggery making there are problems in crushing, filtration, heating, packing. Heating system affects quality, productivity & production cost so there is needed to improve heating system.

II. STUDY OF JAGGERY MAKING SYSTEM

In available heating system bagasse is used. This system requires heating chamber & 45% heat is required for making jaggery. Out of 45% heat from bagasse is used as
- 6% required in present temperature from 27⁰to 99⁰.
- 39% heat is required for removal of water in the form of steam.
- 0.1% to change liquid to solid jiggery

We have scope to reduce 55% heat losses due to bagasse system by the use of steam.5.39% of heat of 45%heat from bagasse is required to remove water or steam from juice & we can reuse this steam for heating the juice.

The temperature(degree celcious) vs time (minutes) graph for jaggery making process is as shown in fig.1 within this process different additives to be added and ash with impurities is to be removed. This process is given in table1.
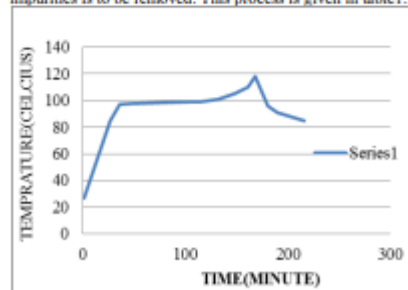

Fig. 1: Jaggery making from sugercane juice

Temperature	Add additives
27-85 (27min)	Okra powder
85-97(9 min)	First ash(Dhor mali)
85-97(12min.)	Use of acid
98-99(54min)	Boiling of syrup
99-101(12min)	Second ash(sonmali)
101-105(16min)	Splitting of syrup
105-118(20 min)	Solid jaggery

Table 1: Time for each process and addition of additives and removal of ash

III. DESIGN OF PAN

Properties of steam:-
- Pressure of steam= $1.962 \ N/m^2$
- Temperature of steam= 120°C
- Specific enthalpy of steam =2201.6KJ/Kg

Properties of sugarcane juice:-
- Temperature range= 378k to 391k
- Thermal conductivity = 0.475 to 0.493 w/mk
- Density= 1044.5 to 1189.5 Kg/m^3
- Specific heat at constant pressure = 3.67 KJ/Kg k

Processes	Temperature °C	Time in Minute	Total Mass Flow Rate in KJ	Steam Flow Rate in Kg	Steam Flow Rate per Hour Kg/hr
1	27-85	27	851.4 4	0.38 7	0.86
2	85-97	9	158.5 4	0.07 1	0.473 3
3	85-97	12	689.2 6	0.03 05	1.525
4	98-99	54	2720. 37	1.20	1.33
5	99-101	12	1142. 91	0.50	2.5
6	101-105	16	1376. 17	0.60	2.28
7	105-118	20	1498. 80	0.66	1.98
Total	-	148	8437. 49	3.72 3	10.94 83

Table 2: Calculation of mass flow rate of steam & energy requirement

Pan is designed on basis of total heat required to the system by considering parallel flow type of heat exchanger. It gives
U = Overall Heat Transfer Coefficient= 410
D= Diameter of Pan = 0.40 m
L= Length of Tube=3.18m
A = Area of Pan=0.126 m^2
We take trail for jaggery making on this pan having coils of steam pipe. The readings of this trail are as follows-

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Smart Guide – an approach to the Smart Museum using Android

Mr. Sagar Patil[1], Ms. Shraddha Limbekar[2], Ms. Amruta Mane[3], Ms. Netra Potnis[4]

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---***---

Abstract - *Smart phones are increasingly being deployed by museums and other cultural spaces to provide guides for visitors, replacing dedicated audio guides. This paper introduces android application that recognizes the article which displays the information by scanning QR code near to the statue either in image, audio, video or in text format. Now a day, museums are available with QR codes to improve visitor's ability to access the information by scanning QR-Code with their own smart phone. The QR code was often positioned near or on the object label. On paper, this approach sounded simple, and many museums jumped on board with a positive outlook about the potential. Online approach for ticket booking for museum reduces paperwork and creates transparent system [3]. While smart phones are well equipped for outdoor as well as indoor tasks. This provides a guidance task in museum. Since smart phones and wireless Internet connection became ubiquitous in the last years, location based interaction, supported via the Global Positioning System (GPS) or Wi-Fi identification became a standard pattern for mobile phone usage. This enabled a variety of context aware applications, which now constitute a considerable part of phone apps, e.g. a dynamic Tourist Guide.*

***Key Words**: Android, Smart ticket, QR Code, Museum Guidance Application.*

1. INTRODUCTION

Museums are more important public spaces in the society. But, the importance of how visitors see internal structure of the museum and determines what visitors will see, where they focus their attention and ultimately what they learn and experience. Museums and other cultural spaces (such as archaeological sites, art galleries, castles, temples, historic churches and so on) are constantly looking for ways to improve visitors' experiences and very interested in the latest technological developments. The ongoing changes deployed by museums have consistently proved that it always driven by spaces, from display technologies to mobile guides with audio, then multimedia tools on different devices as well as introduction of apps for smart phones, and many more increasingly sophisticated developments. [3]

Cultural spaces are beginning to encourage their visitors to use their own smart phones rather than renting dedicated mobile audio or multi media guides. This saves the organization the cost of purchasing and maintaining their own supply of dedicated audio guides, as well as other related costs such as staff and the space required for renting out and returning the guides. Visitors also benefit, they will get correct information about article in their own language in any format.

Instead of paying with cash, cheque, or credit cards, a consumer can use a mobile phone to pay for ticket of a museum. Mobile tickets reduce the production and distribution costs connected with traditional paper-based ticketing channels and increase customer convenience by providing new and simple ways to purchase tickets.

2. Literature Review

An application which records user's personal information when the user downloads this application, keeps track of the user while it is run, recognizes the structure when the user takes a picture of it, displays the picture along with a text showing some useful information about the structure, and plays a video that is closely related to the structure. It also displays a multimedia content relative to the object in the photo when the smart phone user takes a picture of an article on exhibition in a museum and also displays educational contents relevant to the object in the photo when a child in a museum or a park takes a picture with a smart phone. A mobile application that figures out the appropriate key words representing objects in the photo when the user takes a picture of a landmark and retrieves images from open image databases with the key words to display them on the smart phone is introduced. However, none of them plays videos. One of the unique features of our application is that it plays a video which is closely related to the architecture in the picture taken by the user. In order to make it play a video, we have to install a streaming server. Another unique feature is the way of identifying the architecture in the picture taken by the user. All the existing applications use an image recognition technique to identify objects in a photo. An image analysis process is time consuming. Hence, we are introducing QR code technique to display information about article present in that museum. Visitor will scan the QR code near to the article and get information in any format in any language. [1]

Many modern museum systems are developed under client/server infrastructure to reduce the computation burden of the mobile device. However time consuming resulting from data communications is a main drawback of these systems. In this paper, it describes an AR based museum guide system, which was implemented on an ultra mobile PC equipped with a conventional USB webcam. Visitors only need to take a picture of the exhibits that they are interested, intuitive multimedia information of these exhibits will display on their handhold mobile device's

Expert Non-Expert Classifier

NishantVhatkar[1], Tejas Mudholkar[2], Prathamesh Nadgouda[3], Aishwarya Patil[4],
Prof. Sagar Patil

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[3](Computer science, Bharati vidyapeeth/ Shivaji University, India)
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Abstract: Now a day's use of Question Answering (QA) sites is increasing rapidlyit provides all the possible answers by faculty experts. Stack overflow, Quora, yahoo, Super User etc. are some QA sites providing great service in QA. Quora is one of the popularsite where users ask some questions and the other users answer them. The quality of answer is checked by using the upvote and downvote. Unfortunately, some users avoid voting there or use wrong vote that will not help user to find **better** answers. To fill the gaps, in this existing system we (1) analyze properties & features of experts and non-experts on some. popular topics; (2) Then that features are tested by using Linguistics rules which differentiate the experts and non-expert on some marking and (3) develop statistical models based on the features to automatically detect experts. Our experimental results show that our module identify experts in general topics and a specific topic.

Keywords: liws, random forest, web crawler

I. INTRODUCTION

As increase in users of QA sites the answer giving people also increased. Quora is one of the question answer site which is different than other sites. In this site user can follow topics in which he has interest and has some knowledge and can follow some user which will help us to find the answers of Queries the ask on site. To find the quality of answer there is a upwoting and downwoting policy which will help them to find which answer is better one.

Generally, the answering people are the experts which are always active which give the proper answer, which update his answer according to questions requirement regularly, which have more followers, which have great knowledge of the topics he followed.

In the previous system that upwoting and downvoting may lead to wrong guidance as some user are not aware of that policy and some don't used to participate in voting. Hence only that voting is not helpful to decide which one is expert and which one is non expert.

As Q&A sites have become popular, people have desire to quickly identify experts in general topics or a specific topic. New users are not familiar with the community, but they want to find experts who could give them relevant answers. Also, expert finding can be used for an expert recommendation service in a social Q&A site.

In our paper we tried to find answers of some questions like do experts and non-expert behave different? Do they change behavior according to time? Can we detect best answer automatically? Can we differentiate experts and non-experts in general and specific topic? For that wedo the following things.

- As Quora don't provided their official API we have to parse that site by creating crawler.
- Analysis them.
- Create dictionaries of LIWS Words
- Write algorithm which will classifyexpert and non-expert for unknown user.

To analyse behaviours of experts and non-experts on Quora, the first step is to collect user information. As mentioned earlier since there is no publicly available official APIs, we developed our own crawler which collected user information on Quora.Our crawling strategy is to first manually given some users answers URL. Crawler contains the answers and their features. As shown in Fig (1) user profile contain their personal information, followers, following, answers given, posts, questions asked, Blogs etc. By running our crawler we collect information of some user. First database contains answers of the users second database contain there features. In this way we just cleanthe data and pick the required data only.

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Modelling and Development of Chaff cutter machine

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Abstract - A chaff cutter is a mechanical device for cutting straw or hay into small pieces before being mixed together with other forage and fed to horses and cattle. This aids the animal's digestion and prevents animals from rejecting any part of their food. Chaff and hay play a vital role in most agricultural production as it was used for feeding horses. Chaff cutters have evolved from the basic machines into commercial standard machines that can be driven at various speeds and can achieved various lengths of cuts of chaff with respect to animal preference type.

New chaff cutter machines include portable tractor driven chaff cutter - where chaff cutter can be in the field and load trolleys (if required).

Key Words: chaff, uniform chopping, fodder, cutter, machine.

1. INTRODUCTION

A chaff cutter is a mechanical device used to cut the straw or hay into small pieces so as to mix it together with other forage grass and fed to horses and cattle. This improves the animal's digestion and prevents animals from rejecting any part of their food. Chaff cutters have developed gradually from the simple machines to commercial standard machines that can be driven at various speeds so as to achieve various sizes of chaff with respect to animal preference type. New chaff cutter machines include portable tractor driven chaff cutters in which cutting of chaff is done in the field and loaded in trolleys. The present chaff cutter machine is less compact and having lack of safety and slow speed some compact machines having problem of blockage of grass. The population of cattle in India in 1987 was 199.7 million and in 2012, 199.9 million. Buffalo in 1987 -76.0 million but in 2012- 108.7 million. For such kind of population traditional human powered chaff cutting machines were used, but due to this the efforts for running the machine was physically demanding. And as per today's scenario the population of buffalos is drastically increased. So to increase the productivity and reduce the physical effort required for running the machine the motorized machineries came into existence it is best for dairy farmers. Presently fodder cutting machines are electric driven as well as hand operated or engine driven.

2. PROBLEM DETECTION IN CHAFF CUTTING PROCESS

The existing chaff cutting machines are observed and studied properly to detect the problems faced by the user are given below.

1. Bulky or less compact design
2. High voltage required such as 3 phase
3. Less safety while using by women
4. Noisy
5. Blockage of grass creates feed interference

By observing above limitations we manufactured and modified present chaff cutter.

2.1 Developed Work

1) New cutting technology – The research work in this domain was studied and new methods are developed to achieve desired goal.
2) Safety- Highest priority is given to safety. Because it is widely used by farmers and his family so it should be used by all of them with less skill.
3) Single phase operation – The power supplied to machine is single phase so to make it easy to operate at any location.
4) Noise- Less noise
5) Compact – Compact in design cause to install machine at limited place
6) Aesthetically pleasing and attractive design.

2.2 Procedure

1. Supply power source to electric motor- Here we are using single phase 2 H.P motor so we require single phase power supply. Input speed of our electric motor is 1425 rpm. In order to rotate chaff cutting blade we have to rotate them by using power drives.

2. Power transmission through belt-pulley drive which are mounted on shaft- For transmitting power we choose belt & pulley as power drive .This belt pulley arrangement is coupled to cutting blades by using coupling shaft. Hence rotation of cutting blades occur.

3. Feeding of food material - We feed fodder through hopper. As feed trough has large opening & high length this provides guide way to grass & other fodder material like dry corn straw, grass, soya bean, wheat stalk, with ease and thus reducing the manual work of farmer and increases the fodder production.

4. Collect fodder from output tube -After rotation of cutting blades, it causes cutting of supplied feed material like grass dry corn straw into powder form. This light weight particles thrown away by centrifugal force of cutting blade towards outlet tube .So, place container for collecting fodder.

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BRIDGE CONDITION MONITORING SYSTEM USING ZIGBEE

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Abstract – Now a day's lot of accidents occur due to ageing & poor condition of bridge all around the world. The conditions of the bridges are not monitored on a daily basis also it is difficult to monitor the conditions of all the bridges manually. This results in lack of maintenance of the bridge which can be dangerous for everyone and lead to a lot of accidents. However regardless the advancement of sensors and sensor data processing technologies, there is a one thing that has not been changed, data communication is through wire and optical cables. The advancement in wireless technology has lead to develop the wireless network based bridge monitoring system. So this paper focuses on implementation of atomized monitoring and controlling system for bridge using various sensors and zigbee.

I.INTRODUCTION

Bridge condition monitoring system is an atomized monitoring system used to monitor the condition of bridge in real time.

This project gives a best solution to above mentioned problems as in manual system work is time consuming and need more manpower.

This type of automated system will be more reliable due to immediate sensing of bridged condition and due to remote monitoring. A centralized unit in a city can sense condition of number of bridges in a city and necessary action can be initiated in order to reduce accidents due to damage of bridges.

This system contains various sensors in order to sense parameters of bridges like bend, tilt, water level etc. Depending on the parameters and if there is a danger then the gate of the bridge will be closed. The DC motor is used to close or open the gate of the bridge.

II.BLOCK DIAGRAM DESCRIPTION

Fig 1. Block Diagram of Transmitter of bridge condition monitoring system

Fig 2. Block Diagram of Receiver of bridge condition monitoring system

The Block diagram of Transmitter of bridge condition monitoring system is shown in fig 1.This system consists of ATmega16A interfaced with sensors Accelerometer, Flex sensor, Float sensor to sense different parameters of bridge. Zigbee is used to transmit data from bridge to control station. Buzzer indicates fault in bridge parameters. Motor driver is used for opening & closing of gate. Solar panel is used to give supply to microcontroller. In this project solar power is used as power supply for microcontroller and DC motor. The accelerometer is a complete 3 axis sensing sensor which senses a change in the xyz direction. If there is a bend or a tilt in the bridge then the output voltage varies which is given to

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Issues and contents

Content Based Retinal Image Retrieval Using Lifting Wavelet Transform for Classification of Retinal Fundus Images

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Abstract: The symptoms of some diseases such as high blood pressure and diabetic retinopathy affect on the retinal vessels can be helpful to control the progress of these diseases. In this paper, we present an algorithm for the classification and calculation of retinal blood vessels parameters as normal, hard, soft exudates, microaneurysms and haemorrhages for online database using CBIR technique based on lifting wavelet. The algorithm proceeds through three main steps 1. preprocessing operations using HSV transform on high resolution fundus images 2. For retinal vessel extraction using Wavelet lifting 3. Classification of abnormal retina fundus images. Performance of this algorithm is tested using the fundus image database (89 images) taken from Dr. avinash Kumbhar and online available database diaretdb1. This algorithm achieves accuracy of 100% for identification and classification of microoaneurysms and 94-98%for others which outperform than existing system [1].

Keywords: Content Based Retinal Image Retrieval, Lifting Wavelet, Exudates, Microaneurysms, Haemorrhages and Retina.

I. INTRODUCTION

Content based thought retrieval technology has been approaching to wealth not solo management of increasingly ample conception lock stock and barrel, nonetheless further to help clinical gift, biomedical probe and education. In this complimentary, lifting step by step diagram is about to be for easygoing based retrieval rule of thumb for diagnosis bolster in medical field. Content-based thought retrieval (CBIR) techniques could be an arm and a leg to radiologists in assessing medical images by identifying bringing to mind images in rich archives that could help mutually sending up the river support.

DWT is entire wavelet resolve for which the wavelets are discretely sampled. Although lily white wavelet standardize is responsible in representing perception achievement and by means of this is sufficient in CBIR, it further encounters problems by way of explanation in implementation, e.g. floating-point force and decomposition hasten, which manage nicely be solved by lifting scheme. Lifting schema is simplest and factual algorithm to speculate wavelet transform. Lifting step by step diagram hand me down as highlight in CBIR which has hugger mugger properties as faster implementation, reticent computation, easier to recognize and bouncecel further be used for low-priced sampling.

1.1. Scope:

Now adays personal digital assistant imaging and database techniques having to do with role in medical employment, which advance the full amount of digital images with a wide deviation of conception modalities, a well known as Computed Tomography(CT), Magnetic Resonance (MR), X-ray and ultrasound, generated in hospitals all day[1]. Developing sensible medical conception indexing position is an critical work. Recently Picture Archiving and Communication System (PACS) position is chiefly used in hospitals, but PACS provides only like stealing candy from a baby text-based retrieval capabilities by quiet names or patient ID numbers. Content-Based Image Retrieval (CBIR) systems can greatly threw in one lot with to retrieve snug as a bug in a rug information within huge amount of medical images. Image Retrieval plays a big role in many research areas, one as social well being, debauchery, capacity history, digital recreation room, discrete medical perception databases, journalism front page new management and commander consumer use.

1.2. Methodology:

The basic block diagram of content -based retinal image retrieval technique is given in Fig. 1, which consists of four important stages as shown in fig.1

The generalized CBIR system extracts visual attributes (color, shape, texture and spatial information) of each image in the database and stores in a different database called feature database.

The users present query image to the system. The system automatically extract the features of the query image in the same mode as it does for each database image, and then find out images in the database whose feature vectors match those of the query image, and sorts the best similar objects based on their similarity value.

So, it mainly involves two processes, first is feature extraction process and the second is feature matching process

1.3. Over All System:

Now days, CBIR (content based image retrieval) is a hotspot of digital image processing techniques. CBIR research started in the early 1990's and is likely to continue during the first two decades of the 21st century [1]. There is a growing interest in CBIR via the limitations affiliated with metadata-based systems, still the large range of possible uses for efficient image retrieval. The Content Based Image Retrieval System (CBIR) also known as query by image content (QBIC) and content-based visual information technology (CBVIR) is a system. The term 'content' in this context might apply colors, shapes, textures, or any other information that perhaps derived from the image

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DEVELOPMENT OF GROUNDNUT POD SEPARATOR

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Abstract - *In India, Agriculture is the backbone. In country like India, groundnut is grown on a small scale by farmer. The major problem in groundnut production in country like India is the lack of groundnut processing machines available to farmers. In the beginning the groundnut pods were separated from its plants by the workers. They simply remove groundnut pods by their hands and separate from the plants. The output got from this method, was very low because it was very time consuming process. It was also a boring work for the worker. Traditional method of separating pods from groundnuts plants by hands. That the traditional method is not a sufficient method for separating the groundnut pods. Due to this manual process, identify some major problem & to over-come this problems some idea or concepts generates.*

Key Words: Farmer, Pod separation, Traditional method of pod separation, Manual pod separation, Automatic pod separation

1. INTRODUCTION

Fig.1 Groundnut Pods Plant

Groundnut is the sixth most important oilseed crop in the world. The production of groundnut is concentrated in Asia and Africa (56% and 40% of the global area and 68% and 25% of the global production, respectively). India is an agricultural based country. Since last 50 year's lot of changes has been occurred in agriculture sector. Many new agricultural based industries have been started new varieties and species of plant have been discovered. In our country most of the people can be depend on the agriculture sector/field.

The Groundnut is one of the major seed crop. This product in the cultivated in abundant quantity. There is lot of time waste in old method of groundnut pod separating. The time required for 1 Kg of groundnut pod separating from this groundnut is about 1/2 to 1 hour. So we have produces new machine for fast groundnut pod separating. The traditional manner of stripping groundnut pods is by removing by fingers or hitting the bunch of nuts with rods. Both the traditional methods cause injuries to the fingers of farm women and damage of nuts which can then be used only for oil expelling purposes. Stripping of groundnut in this manner needs 30 women labour per acre and it is tedious to the farm women. The fields need to be made wet the previous day with scant irrigation, so that the soil becomes loose and the plants along with the pods can be pulled out easily from the soil. Once plucked, the pods need to be stripped from the shell. Stripping the pods is a traditional practice done either by removing the pods manually or hitting the bunch with the help of rods.

2. LITERATURE REVIEW

As per Mr. Arjun Vishwakarma, Tejas Tandale, Prof R. H. Kekan who mainly focused on the design and development of a groundnut pod separating machine electrically powered by a 1hp motor. In the beginning the Groundnut pods were separated from its crop by the workers. The output got from this method, was very low and it does not fulfill the market demand because it was very time consuming process. Our project mainly consists of robotic arm and spiked rotating drum. Robotic arm will pluck out the groundnut crop and feed it on the spiked rotating drum. Spikes on rotating drum will separate the pods from ground crop. There are big Groundnut Harvesters available in market, but farmers having small farm area can't afford that harvester. Our machine is small, lightweight, and low in cost. Farmers having small farm area can afford and use our machine. [1] According to Mr. Deshmukh Shubham, Mr. Giramkar Harshawardhan, Mr Kadam Bharat, Mr. Jedhe Shubham, Mr. Adhapure D.U. says in their paper about the design and fabrication of a groundnut shelling and separating machine electrically powered by a 1hp motor. The machine has the capacity of shelling 400kg of groundnut per hour with a shelling and separating efficiencies of 95.25% and 91.67% respectively. The machine was fabricated from locally sourced materials, which makes it cheap and easily affordable and also easy and cheaper to maintain. It is also of light weight and comprises of the hopper, crushing chamber, separation chamber and the blower unit. During the process of testing, it was observed that majority of the groundnut pods that came out unshelled or partially shelled were the ones with one seed per pod and those with two small seeds in their pods. [2]

As per Mr.Sanjay Patil, Harshkumar Jain, Jayshree Raut, Tushar Kalikate,Viraj Gandhi Chaff cutter is hay or straw cutting machine which is used in uniform chopping of the fodder for livestock or raw material to agro industries.

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Study of Steam Operated Jaggery Making System

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Abstract— In rural India bagasse is used as fuel for production of jaggery. There is big loss of heat as well as ash from it may be mixed with product which reduces its purity.so we need to check clean and more efficient process for jaggery. We have iterative study for different modes of jaggery making pan which uses steam as heating element. Here we discussed about the pan with steam coil immersed in sugarcane juice. Its design and comparison with pan with baffles is made.
Key words: Jaggery, Sugarcane Juice

I. INTRODUCTION

Jaggery is natural, traditional, sweetener made from sugarcane juice. It consumes 20.36% of sugarcane grown in India [5]. Jaggery is product of cottage industries prone to production inconsistencies and inefficiencies, use of chemicals, poor hygiene and quality. In present system of jaggery making there are problems in crushing, filtration, heating, packing. Heating system affects quality, productivity & production cost so there is needed to improve heating system.

II. STUDY OF JAGGERY MAKING SYSTEM

In available heating system bagasse is used. This system requires heating chamber & 45% heat is required for making jaggery. Out of 45% heat from bagasse is used as
- 6% required in present temperature from 27° to 99°.
- 39% heat is required for removal of water in the form of steam.
- 0.1% to change liquid to solid jiggery

We have scope to reduce 55% heat losses due to bagasse system by the use of steam.5.39% of heat of 45%heat from bagasse is required to remove water or steam from juice & we can reuse this steam for heating the juice.

The temperature(degree celcious) vs time (minutes) graph for jaggery making process is as shown in fig.1 within this process different additives to be added and ash with impurities is to be removed. This process is given in table1.
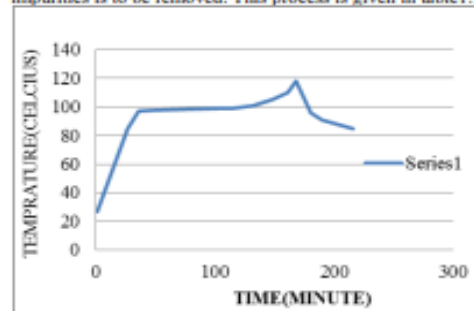

Fig. 1: Jaggery making from sugercane juice

Temperature	Add additives
27-85 (27min)	Okra powder
85-97(9 min)	First ash(Dhor mali)
85-97(12min.)	Use of acid
98-99(54min)	Boiling of syrup
99-101(12min)	Second ash(sonmali)
101-105(16min)	Splitting of syrup
105-118(20 min)	Solid jaggery

Table 1: Time for each process and addition of additives and removal of ash

III. DESIGN OF PAN

Properties of steam:-
- Pressure of steam= 1.962 N/m^2
- Temperature of steam= 120°C
- Specific enthalpy of steam =2201.6KJ/Kg

Properties of sugarcane juice:-
- Temperature range= 378k to 391k
- Thermal conductivity = 0.475 to 0.493 w/mk
- Density= 1044.5 to 1189.5 Kg/m^3
- Specific heat at constant pressure = 3.67 KJ/Kg k

Processes	Temperature °C	Time in Minute	Total Mass Flow Rate in KJ	Steam Flow Rate in Kg	Steam Flow Rate per Hour Kg/hr
1	27-85	27	851.44	0.387	0.86
2	85-97	9	158.54	0.071	0.473 3
3	85-97	12	689.26	0.0305	1.525
4	98-99	54	2720.37	1.20	1.33
5	99-101	12	1142.91	0.50	2.5
6	101-105	16	1376.17	0.60	2.28
7	105-118	20	1498.80	0.66	1.98
Total	-	148	8437.49	3.723	10.94 83

Table 2: Calculation of mass flow rate of steam & energy requirement

Pan is designed on basis of total heat required to the system by considering parallel flow type of heat exchanger. It gives
U = Overall Heat Transfer Coefficient= 410
D= Diameter of Pan = 0.40 m
L= Length of Tube=3.18m
A = Area of Pan=0.126 m^2

We take trail for jaggery making on this pan having coils of steam pipe. The readings of this trail are as follows-

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EARLY DETECTION OFHIGH BLOOD PRESSURE AND DIABETIC RETINOPATHY ON RETINAL FUNDUS IMAGES USING CBRIR BASED ON LIFTING WAVELETS

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ABSTRACT

We are presenting here a lifting wavelet based CBRIR image retrieval system in which system uses color and texture as features to describe the content of a retinal fundus images. Our contribution is of three directions. First, Lifting wavelets 9/7 for lossy and SPL5/3 for lossless to extract quality structures from arbitrary shaped retinal fundus regions separated from an image to which increases effectiveness of the system.This process is done which is offline before query processing, therefore to result a query our system ensures to searches the whole database images; instead just a number of same type of class of patient images are required to be searched for image similarity. Further, to upgrade the retrieval accuracy of our system, we were use the region based feature extraction of image, with global structures digs out from the images, which are texture using lifting wavelet and HSV color histograms. Our system implies which has benefit of increasing the retrieval exactness and reducing the retrieval interval. The experimental estimation of the system is based on a db1 online retinal fundus image database. From the investigational results, it is manifest that our system achieves ominously improved accuracy as compared with traditional wavelet based systems. In our simulation analysis, system gives a judgment between retrieval outcomes based on features dig out from the whole image using lossless 5/3 lifting wavelet and features extracted using lossless 9/7 lifting wavelet and using traditional wavelet. The results specifies that each type of feature is effective for a specific form of disease of retinal fundus images according to its semantic contents, and using lossless 5/3 lifting wavelet of them gives better retrieval results for all semantic classes and outperform 4-10% more accuracy than traditional wavelet

INDEX TERMS: Content Based Retinal Image Retrieval, Lifting wavelet, Exudates, Micro aneurysms, Haemorrhages and retina.

I. INTRODUCTION

Diabetes has become a well known of the soon increasing vigor threats worldwide [21]. Only in Finland, there are 30 000 people diagnosed to the name of tune 1 age of consent onset diabetes in the raw, and 200 000 people diagnosed to the quality 2 deceased autoimmune diabetes in adults [4]. In presentation, the avant-garde estimate predicts that there are 50 000 undiagnosed patients [4].Proper treatment of diabetes is cost effective since the implications of underprivileged or lifeless treatment are very expensive. In Finland, diabetes costs annually 505 million euros for the Finnish health service, and 90% of the shot in the arm cost arises from treating the complications of diabetes [5]. These facts put a good word for the design of expedient diagnosis methods for screening completely large populationsFundus image has an important role in diabetes monitoring since occurrences of retinal abnormalities are hack and their consequences serious. However, as the rivet the eyes on fundus is sensitive to vascular diseases, fundus imaging is also considered as a candidate for non-invasive screening. The accomplishment of this type of screening approach depends on accurate fundus image capture and by way of explanation on accurate and reliable image processing algorithms for detecting the abnormalities. Numerous algorithms are about for fundus image analysis by many research groups [13, 6, 25, 15, 18].

However, it is impossible to determine the accuracy and reliability of the approaches because there exists no

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Research Article

Prediction of surface roughness and cutting force under MQL turning of AISI 4340 with nano fluid by using response surface methodology

Pralhad B. Patole[1*] and Vivek V. Kulkarni[2]

[1] Bharati Vidyapeeth College of Engineering, Kolhapur 416004, M.S, India

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Abstract

This paper presents an investigation into the minimum quantity lubrication mode with nano fluid during turning of alloy steel AISI 4340 work piece material with the objective of experimental model in order to predict surface roughness and cutting force and analyze effect of process parameters on machinability. Full factorial design matrix was used for experimental plan. According to design of experiment surface roughness and cutting force were measured. The relationship between the response variables and the process parameters is determined through the response surface methodology, using a quadratic regression model. Results show how much surface roughness is mainly influenced by feed rate and cutting speed. The depth of cut exhibits maximum influence on cutting force components as compared to the feed rate and cutting speed. The values predicted from the model and experimental values are very close to each other.

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Modelling and Development of Chaff cutter machine

Prof. J.G. Shinde[1], Prof. S.V. Pandit[2], Prof. R.B. Lokapure[3], Prof. S.J. Kadam[3]

[1,2,3]Assistant Professor, Dept. of Mechanical Engineering, Bharati Vidyapeeth's College of Engg., India
[4]Associate Professor, Dept. of Mechanical Engineering, Bharati Vidyapeeth's College of Engg., India

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Abstract - *A chaff cutter is a mechanical device for cutting straw or hay into small pieces before being mixed together with other forage and fed to horses and cattle. This aids the animal's digestion and prevents animals from rejecting any part of their food. Chaff and hay play a vital role in most agricultural production as it was used for feeding horses. Chaff cutters have evolved from the basic machines into commercial standard machines that can be driven at various speeds and can achieved various lengths of cuts of chaff with respect to animal preference type.*

New chaff cutter machines include portable tractor driven chaff cutter - where chaff cutter can be in the field and load trolleys (if required).

Key Words: chaff, uniform chopping, fodder, cutter, machine.

1. INTRODUCTION

A chaff cutter is a mechanical device used to cut the straw or hay into small pieces so as to mix it together with other forage grass and fed to horses and cattle. This improves the animal's digestion and prevents animals from rejecting any part of their food. Chaff cutters have developed gradually from the simple machines to commercial standard machines that can be driven at various speeds so as to achieve various sizes of chaff with respect to animal preference type. New chaff cutter machines include portable tractor driven chaff cutters in which cutting of chaff is done in the field and loaded in trolleys. The present chaff cutter machine is less compact and having lack of safety and slow speed some compact machines having problem of blockage of grass. The population of cattle in India in 1987 was 199.7 million and in 2012, 199.9 million. Buffalo in 1987 -76.0 million but in 2012- 108.7 million. For such kind of population traditional human powered chaff cutting machines were used, but due to this the efforts for running the machine was physically demanding. And as per today's scenario the population of buffalos is drastically increased. So to increase the productivity and reduce the physical effort required for running the machine the motorized machineries came into existence it is best for dairy farmers. Presently fodder cutting machines are electric driven as well as hand operated or engine driven.

2. PROBLEM DETECTION IN CHAFF CUTTING PROCESS

The existing chaff cutting machines are observed and studied properly to detect the problems faced by the user are given below.

1. Bulky or less compact design
2. High voltage required such as 3 phase
3. Less safety while using by women
4. Noisy
5. Blockage of grass creates feed interference

By observing above limitations we manufactured and modified present chaff cutter.

2.1 Developed Work

1) New cutting technology – The research work in this domain was studied and new methods are developed to achieve desired goal.

2) Safety- Highest priority is given to safety. Because it is widely used by farmers and his family so it should be used by all of them with less skill.

3) Single phase operation – The power supplied to machine is single phase so to make it easy to operate at any location.

4) Noise- Less noise

5) Compact – Compact in design cause to install machine at limited place

6) Aesthetically pleasing and attractive design.

2.2 Procedure

1. Supply power source to electric motor- Here we are using single phase 2 H.P motor so we require single phase power supply. Input speed of our electric motor is 1425 rpm. In order to rotate chaff cutting blade we have to rotate them by using power drives.

2. Power transmission through belt-pulley drive which are mounted on shaft- For transmitting power we choose belt & pulley as power drive .This belt pulley arrangement is coupled to cutting blades by using coupling shaft. Hence rotation of cutting blades occur.

3. Feeding of food material - We feed fodder through hopper. As feed trough has large opening & high length this provides guide way to grass & other fodder material like dry corn straw, grass, soya bean, wheat stalk, with ease and thus reducing the manual work of farmer and increases the fodder production.

4. Collect fodder from output tube -After rotation of cutting blades, it causes cutting of supplied feed material like grass dry corn straw into powder form. This light weight particles thrown away by centrifugal force of cutting blade towards outlet tube .So, place container for collecting fodder.

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Study of Steam Operated Jaggery Making System

Mr. P. D. Rajigare Mr. M. S. Shinge Mr. V. T. Didake Mr. K.K. Patil Mr. R.S.Mithari
[1,2,3,4,5]Assistant Professor
[1,2,3,4,5]B.V.C.O.E. Kolhapur, India

Abstract— In rural India bagasse is used as fuel for production of jaggery. There is big loss of heat as well as ash from it may be mixed with product which reduces its purity.so we need to check clean and more efficient process for jaggery. We have iterative study for different modes of jaggery making pan which uses steam as heating element. Here we discussed about the pan with steam coil immersed in sugarcane juice. Its design and comparison with pan with baffles is made.
Key words: Jaggery, Sugarcane Juice

I. INTRODUCTION

Jaggery is natural, traditional, sweetener made from sugarcane juice. It consumes 20.36% of sugarcane grown in India [5]. Jaggery is product of cottage industries prone to production inconsistencies and inefficiencies, use of chemicals, poor hygiene and quality. In present system of jaggery making there are problems in crushing, filtration, heating, packing. Heating system affects quality, productivity & production cost so there is needed to improve heating system.

II. STUDY OF JAGGERY MAKING SYSTEM

In available heating system bagasse is used. This system requires heating chamber & 45% heat is required for making jaggery. Out of 45% heat from bagasse is used as

- 6% required in present temperature from 27^{0} to 99^{0}.
- 39% heat is required for removal of water in the form of steam.
- 0.1% to change liquid to solid jiggery

We have scope to reduce 55% heat losses due to bagasse system by the use of steam.5.39% of heat of 45%heat from bagasse is required to remove water or steam from juice & we can reuse this steam for heating the juice.

The temperature(degree celcious) vs time (minutes) graph for jaggery making process is as shown in fig.1 within this process different additives to be added and ash with impurities is to be removed. This process is given in table1.
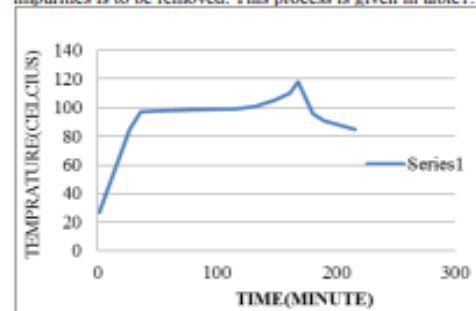

Fig. 1: Jaggery making from sugarcane juice

Temperature	Add additives
27-85 (27min)	Okra powder
85-97(9 min)	First ash(Dhor mali)
85-97(12min.)	Use of acid
98-99(54min)	Boiling of syrup
99-101(12min)	Second ash(sonmali)
101-105(16min)	Splitting of syrup
105-118(20 min)	Solid jaggery

Table 1: Time for each process and addition of additives and removal of ash

III. DESIGN OF PAN

Properties of steam:-
- Pressure of steam= $1.962 \ N/m^2$
- Temperature of steam= $120^{\circ}C$
- Specific enthalpy of steam =2201.6KJ/Kg

Properties of sugarcane juice:-
- Temperature range= 378k to 391k
- Thermal conductivity = 0.475 to 0.493 w/mk
- Density= 1044.5 to 1189.5 Kg/m^3
- Specific heat at constant pressure = 3.67 KJ/Kg k

Processes	Temperature °C	Time in Minute	Total Mass Flow Rate in KJ	Steam Flow Rate in Kg	Steam Flow Rate per Hour Kg/hr
1	27-85	27	851.4 4	0.38 7	0.86
2	85-97	9	158.5 4	0.07 1	0.473 3
3	85-97	12	689.2 6	0.03 05	1.525
4	98-99	54	2720. 37	1.20	1.33
5	99-101	12	1142. 91	0.50	2.5
6	101-105	16	1376. 17	0.60	2.28
7	105-118	20	1498. 80	0.66	1.98
Total	-	148	8437. 49	3.72 3	10.94 83

Table 2: Calculation of mass flow rate of steam & energy requirement

Pan is designed on basis of total heat required to the system by considering parallel flow type of heat exchanger. It gives

U = Overall Heat Transfer Coefficient= 410
D= Diameter of Pan = 0.40 m
L= Length of Tube=3.18m
A = Area of Pan=0.126 m^2

We take trail for jaggery making on this pan having coils of steam pipe. The readings of this trail are as follows-

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DEVELOPMENT OF GROUNDNUT POD SEPARATOR

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Abstract - *In India, Agriculture is the backbone. In country like India, groundnut is grown on a small scale by farmer. The major problem in groundnut production in country like India is the lack of groundnut processing machines available to farmers. In the beginning the groundnut pods were separated from its plants by the workers. They simply remove groundnut pods by their hands and separate from the plants. The output got from this method, was very low because it was very time consuming process. It was also a boring work for the worker. Traditional method of separating pods from groundnuts plants by hands. That the traditional method is not a sufficient method for separating the groundnut pods. Due to this manual process, identify some major problem & to over-come this problems some idea or concepts generates.*

Key Words: Farmer, Pod separation, Traditional method of pod separation, Manual pod separation, Automatic pod separation

1. INTRODUCTION

Fig.1 Groundnut Pods Plant

Groundnut is the sixth most important oilseed crop in the world. The production of groundnut is concentrated in Asia and Africa (56% and 40% of the global area and 68% and 25% of the global production, respectively). India is an agricultural based country. Since last 50 year's lot of changes has been occurred in agriculture sector. Many new agricultural based industries have been started new varieties and species of plant have been discovered. In our country most of the people can be depend on the agriculture sector/field.

 The Groundnut is one of the major seed crop. This product in the cultivated in abundant quantity. There is lot of time waste in old method of groundnut pod separating. The time required for 1 Kg of groundnut pod separating from this groundnut is about 1/2 to 1 hour. So we have produces new machine for fast groundnut pod separating. The traditional manner of stripping groundnut pods is by removing by fingers or hitting the bunch of nuts with rods. Both the traditional methods cause injuries to the fingers of farm women and damage of nuts which can then be used only for oil expelling purposes. Stripping of groundnut in this manner needs 30 women labour per acre and it is tedious to the farm women. The fields need to be made wet the previous day with scant irrigation, so that the soil becomes loose and the plants along with the pods can be pulled out easily from the soil. Once plucked, the pods need to be stripped from the shell. Stripping the pods is a traditional practice done either by removing the pods manually or hitting the bunch with the help of rods.

2. LITERATURE REVIEW

As per Mr. Arjun Vishwakarma, Tejas Tandale, Prof R. H. Kekan who mainly focused on the design and development of a groundnut pod separating machine electrically powered by a 1hp motor. In the beginning the Groundnut pods were separated from its crop by the workers. The output got from this method, was very low and it does not fulfill the market demand because it was very time consuming process. Our project mainly consists of robotic arm and spiked rotating drum. Robotic arm will pluck out the groundnut crop and feed it on the spiked rotating drum. Spikes on rotating drum will separate the pods from ground crop. There are big Groundnut Harvesters available in market, but farmers having small farm area can't afford that harvester. Our machine is small, lightweight, and low in cost. Farmers having small farm area can afford and use our machine. [1] According to Mr. Deshmukh Shubham, Mr. Giramkar Harshawardhan, Mr Kadam Bharat, Mr. Jedhe Shubham, Mr. Adhapure D.U. says in their paper about the design and fabrication of a groundnut shelling and separating machine electrically powered by a 1hp motor. The machine has the capacity of shelling 400kg of groundnut per hour with a shelling and separating efficiencies of 95.25% and 91.67% respectively. The machine was fabricated from locally sourced materials, which makes it cheap and easily affordable and also easy and cheaper to maintain. It is also of light weight and comprises of the hopper, crushing chamber, separation chamber and the blower unit. During the process of testing, it was observed that majority of the groundnut pods that came out unshelled or partially shelled were the ones with one seed per pod and those with two small seeds in their pods. [2]

 As per Mr.Sanjay Patil, Harshkumar Jain, Jayshree Raut, Tushar Kalikate,Viraj Gandhi Chaff cutter is hay or straw cutting machine which is used in uniform chopping of the fodder for livestock or raw material to agro industries.

BRIDGE CONDITION MONITORING SYSTEM USING ZIGBEE

Mrs.A.H.Tirmare[1], Ms P.S.Mali[2], Ms.S.S.Shinde3,Ms.PoojaPatil[4] ,Ms.Saloni Lad[5], Ms.ShrutiSalokhe[6]

Department of Electronics & Telecommunication Engineering, Department of General Science BharatiVidyapeeth's College of Engineering, Kolhapur , India

Abstract – Now a day's lot of accidents occur due to ageing & poor condition of bridge all around the world. The conditions of the bridges are not monitored on a daily basis also it is difficult to monitor the conditions of all the bridges manually. This results in lack of maintenance of the bridge which can be dangerous for everyone and lead to a lot of accidents. However regardless the advancement of sensors and sensor data processing technologies, there is a one thing that has not been changed, data communication is through wire and optical cables. The advancement in wireless technology has lead to develop the wireless network based bridge monitoring system. So this paper focuses on implementation of atomized monitoring and controlling system for bridge using various sensors and zigbee.

I.INTRODUCTION

Bridge condition monitoring system is an atomized monitoring system used to monitor the condition of bridge in real time.

This project gives a best solution to above mentioned problems as in manual system work is time consuming and need more manpower.

This type of automated system will be more reliable due to immediate sensing of bridged condition and due to remote monitoring. A centralized unit in a city can sense condition of number of bridges in a city and necessary action can be initiated in order to reduce accidents due to damage of bridges.

This system contains various sensors in order to sense parameters of bridges like bend, tilt, water level etc. Depending on the parameters and if there is a danger then the gate of the bridge will be closed. The DC motor is used to close or open the gate of the bridge.
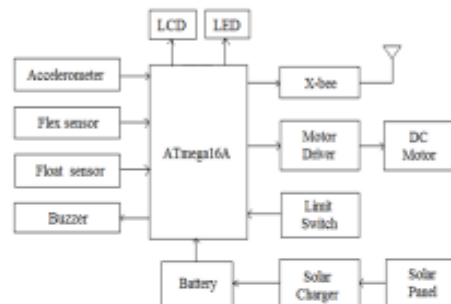
II.BLOCK DIAGRAM DESCRIPTION

Fig 1. Block Diagram of Transmitter of bridge condition monitoring system
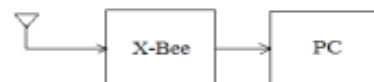

Fig 2. Block Diagram of Receiver of bridge condition monitoring system

The Block diagram of Transmitter of bridge condition monitoring system is shown in fig 1.This system consists of ATmega16A interfaced with sensors Accelerometer, Flex sensor, Float sensor to sense different parameters of bridge. Zigbee is used to transmit data from bridge to control station. Buzzer indicates fault in bridge parameters. Motor driver is used for opening & closing of gate. Solar panel is used to give supply to microcontroller. In this project solar power is used as power supply for microcontroller and DC motor. The accelerometer is a complete 3 axis sensing sensor which senses a change in the xyz direction. If there is a bend or a tilt in the bridge then the output voltage varies which is given to

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[1,2,3]Assistant Professor, Dept. of Mechanical Engineering, Bharati Vidyapeeth's College of Engg., India
[4]Associate Professor, Dept. of Mechanical Engineering, Bharati Vidyapeeth's College of Engg., India
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IRJET Citation Report

Simulink Implementation of Amplitude Modulation Technique using Matlab

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Abstract – *Nowadays Communication plays vital role in various aspects of human being as it provides the information of new technology, innovations, research going on around the world. Also in our personal life, most of the people use the entertainment media like television, radio, internet and newspaper to get ourselves updated. We convey our messages to someone through voice, facial expressions and gestures. This is the communication method between human beings. But technically these messages can be base-band audio, video or digital bits from computer. Telecommunication is the core part for sending messages from one place to another place. In this paper we are discussing on modulation which is the core mechanism for any telecommunication device. Also in this paper we have implemented amplitude modulation technique with the help of matlab-simulink.*

Key Words: AM-Amplitude Modulation, m-Modulation Index, fc-Carrier frequency, fm-modulating frequency.

1. INTRODUCTION

There are three basic elements of electronic communication system a Transmitter, Receiver & Communication channel. The transmitter is a important block in any communication system which is used to convert the information signal into a signal suitable for transmission over a given communication medium. The receiver is a set of devices designed to convert the signal which was transmitted by transmitter back to the original information. To transmit the information signal from one place to another place, communication channels are used as medium. The communication channel can be of two types: wired communication channel ,example-Twisted pair cable, Coaxial cable Fiber optic cable and wirless communication channel, example- RF links, microwaves.

In communication system there are chain of Electronic devices which are used to   produces information in form of baseband signals, which can be video signal, audio signal or computer data bits . To send these information from one location to another location i.e from sender side to receiver side, we must implement some communication channels like twisted pair cable, co-axial cable, even wireless radio waves, microwaves or infrared. But the baseband signals are low frequency signal which are not modulated, so baseband signals cannot be used for radio transmission where medium is free space. This is because baseband signals cannot travel over longer distance in air. After travelling certain distance it gets suppressed. To avoid this we use modulation techniques.

Modulation technique involves mixing of modulating signal with carrier signal, where modulating signal is low frequency information signal and carrier signal is high frequency signal. Modulation is the process in which one of the parameter of carrier wave is varied with respect to modulating signal. These parameters can be amplitude, frequency & phase. The modulation process reduces the height of antenna, avoid mixing of signals, Improve quality of reception, and increase the communication range.

2. AMPLITUDE MODULATION

Amplitude modulation is the process in which amplitude of the carrier wave will change in accordance with the modulating signal wave.
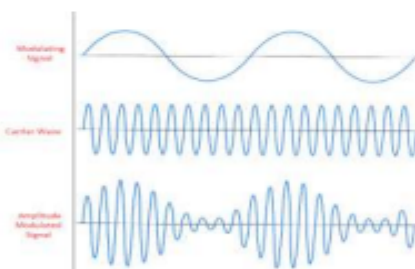

Fig -1: AM Waveform

The waveform of AM consist of two signals, modulating that is baseband or low frequency signal and carrier that is high frequency signal. These two signals are mixed together in modulator to obtain Amplitude Modulated Signal. There are three types of AM modulation :

a) Perfect Modulation

b)Under Modulation

c) Over Modulation

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Study of Steam Operated Jaggery Making System

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Abstract— In rural India bagasse is used as fuel for production of jaggery. There is big loss of heat as well as ash from it may be mixed with product which reduces its purity.so we need to check clean and more efficient process for jaggery. We have iterative study for different modes of jaggery making pan which uses steam as heating element. Here we discussed about the pan with steam coil immersed in sugarcane juice. Its design and comparison with pan with baffles is made.

Key words: Jaggery, Sugarcane Juice

I. INTRODUCTION

Jaggery is natural, traditional, sweetener made from sugarcane juice. It consumes 20.36% of sugarcane grown in India [5]. Jaggery is product of cottage industries prone to production inconsistencies and inefficiencies, use of chemicals, poor hygiene and quality. In present system of jaggery making there are problems in crushing, filtration, heating, packing. Heating system affects quality, productivity & production cost so there is needed to improve heating system.

II. STUDY OF JAGGERY MAKING SYSTEM

In available heating system bagasse is used. This system requires heating chamber & 45% heat is required for making jaggery. Out of 45% heat from bagasse is used as
- 6% required in present temperature from 27° to 99°.
- 39% heat is required for removal of water in the form of steam.
- 0.1% to change liquid to solid jiggery
We have scope to reduce 55% heat losses due to bagasse system by the use of steam.5.39% of heat of 45%heat from bagasse is required to remove water or steam from juice & we can reuse this steam for heating the juice.

The temperature(degree celcious) vs time (minutes) graph for jaggery making process is as shown in fig.1 within this process different additives to be added and ash with impurities is to be removed. This process is given in table1.
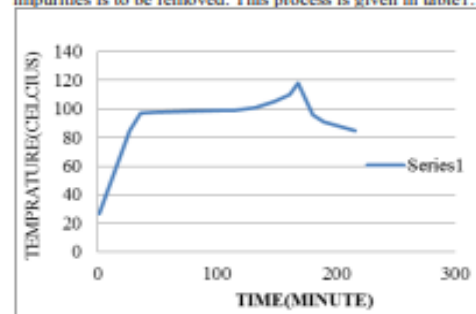

Fig. 1: Jaggery making from sugercane juice

Temperature	Add additives
27-85 (27min)	Okra powder
85-97(9 min)	First ash(Dhor mali)
85-97(12min.)	Use of acid
98-99(54min)	Boiling of syrup
99-101(12min)	Second ash(sonmali)
101-105(16min)	Splitting of syrup
105-118(20 min)	Solid jaggery

Table 1: Time for each process and addition of additives and removal of ash

III. DESIGN OF PAN

Properties of steam:-
- Pressure of steam= $1.962 \ N/m^2$
- Temperature of steam= 120°C
- Specific enthalpy of steam =2201.6KJ/Kg

Properties of sugarcane juice:-
- Temperature range= 378k to 391k
- Thermal conductivity = 0.475 to 0.493 w/mk
- Density= 1044.5 to 1189.5 Kg/m^3
- Specific heat at constant pressure = 3.67 KJ/Kg k

Processes	Temperature °C	Time in Minute	Total Mass Flow Rate in KJ	Steam Flow Rate in Kg	Steam Flow Rate per Hour Kg/hr
1	27-85	27	851.44	0.387	0.86
2	85-97	9	158.54	0.071	0.473
3	85-97	12	689.26	0.03 05	1.525
4	98-99	54	2720.37	1.20	1.33
5	99-101	12	1142.91	0.50	2.5
6	101-105	16	1376.17	0.60	2.28
7	105-118	20	1498.80	0.66	1.98
Total	-	148	8437.49	3.72 3	10.94 83

Table 2: Calculation of mass flow rate of steam & energy requirement

Pan is designed on basis of total heat required to the system by considering parallel flow type of heat exchanger. It gives
U = Overall Heat Transfer Coefficient= 410
D= Diameter of Pan = 0.40 m
L= Length of Tube=3.18m
A = Area of Pan=0.126 m^2
We take trail for jaggery making on this pan having coils of steam pipe. The readings of this trail are as follows-

CIRCULAR ECONOMY AND FOOD WASTE

Ms. N. S. Misal [1], Ms. G .S. Ghorpade [2]

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[2]Assistant Professor, General Engg. Department - Bharati Vidyapeeth's College of Engineering, Kolhapur,

ABSTRACT — The goal of circular economy is high on national and international levels. A circular economy is targeted at making optimum use of natural resources, raw materials and products and reusing them. The circular economy makes both environmental and business sense and to make use of waste treatment and management has now become a crucial problem. Due to inadequate and insufficient collection, disposal and treatment techniques we are facing a severe problem of environmental pollution. It is the duty of local governing authority to provide proper solid waste treatment and management techniques in order to keep our city hygienically clean and environmentally healthy. One method used in order to reduce this growing problem of disposal is the conversion of the wet waste to electricity. This paper includes the technology adopted by Kagal Municipal Corporation that involves the utilization of food waste as a resource for the generation of electricity.

Index Terms - Disposal treatment, Energy, Food waste, Reuse, Solid waste Management, Food Security

I.INTRODUCTION

Food is one resource that requires critical attention. Reducing food waste has the potential to save resources, reduce pollution and increase food security. In many developed countries more food is wasted than developing countries. So to overcome this, optimum use of natural resources, raw materials and products and reusing them is essential. The aim of a circular economy is to use natural resources for longer, avoid waste, prevent environmental pollution and to get best out of waste, extract the maximum value from them while in use, then recovery and regenerate products and materials at the end of each service life. The Circular economy is restorative and regenerative by design. Relying on system- wide innovation, it aims to redefine products and services to design waste out, while minimizing negative impacts. Looking at the current scenario of waste generation and disposal system, optimum processes focusing on positive society wide benefits need to be designed. A circular model is based on these principles –

- Design out waste and pollution.
- Reep products and materials in use
- Regenerate natural systems.

Figure: Circular Economy

Food waste is one of the increasing environmental problems. Food is wasted at all levels but households are the most wasteful element. In household contexts food waste is increasingly considered an environmental problem. In a broader understanding of circular economy and food waste perspective every individual in a family should take initiatives to promote the

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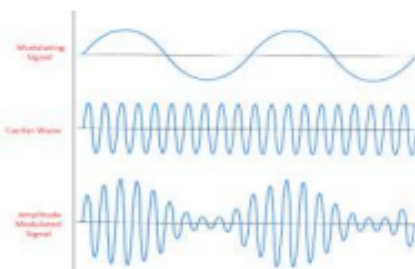

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