



3.3.2 Number of research papers per teachers in the Journals notified on UGC website during the last five years

INDEX SHEET

2016-2017

Sl. No.	Title of paper	Name of the author/s	Name of journal	Indexing	Page/ Journal No.
1	Security Alert using Face Recognition	Ms. Aswathy Wilson	International Research Journal of Engineering and Technology,	Others	115
2	A Review on Noise filters for digital Images	Ms. Namitha T N	International Research Journal of Engineering and Technology	Others	116
3	3D Saliency Detection	Ms. Namitha T N	International Journee of Engineering Trends and Technology	Scopus	117
4	CORMS : An automated Restarant Management System	Ms. Ninu Francis	International Reasearch Journal of Engineering and Technology	Others	118
5	Tuning characteristics of Co3O4 nanofiber mats developed for electrochemical sensing of glucose and H2O2	Gibin George	Thin Solid Films	Web of Science	119
6	Semi-Supervised Distributional Vector Generation Techniques for Text Classification	Dr. Wajeed	Indian Journal of Science and Technology	Scopus	120
7	Phase Shift Controlled Full Bridge DC-DC converter with less circulating loss.	Jarin T, Akhil A Balakrishnan, Shijoh V	Middle-East Journal of Scientific Research	Scopus	121
8	Sustentation of Energy by a Contemporary GSM based Prepaid Energy Meter	Jarin T, Shijoh V	Middle-East Journal of Scientific Research	Scopus	122
9	Renewable power centred Intelligent power supervision system for households.	Jarin T, Shijoh V	Middle-East Journal of Scientific Research	Scopus	123



10	Critical Investigation of Minimum field conductor for Overhead Transmission lines.	Jarin T	Middle-East Journal of Scientific Research	Scopus	124
11	FPGA Implementation of WG Stream Cipher	Anna Johnson	IJSET International Journal of Innovative Science, Engineering & Technology	Others	125
12	Ear Cavity Biometric Recognition	Ms. Bindhu K. Rajan, Mr. Rijo P C	IOSR Journal of Biotechnology and Biochemistry	Others	126
13	Adding Remote Controller Functionality To Any Stereo	Ambily Francis	International Journal of computer applications Technology and research	Others	127
14	Virtual Keyboard	Shaicy P Shaji	International Journal Of Engineering And Computer Science	Others	128
15	Wireless Health Monitoring System for Detection of ECG, EMG and EEG	Ms. Nyni K.A	International Journal of Advanced Research in Computer and Communication Engineering	Others	129
16	Smart Card Based Public Distribution System	Rijo PC	International Journal of Science and Research (IJSR)	Others	130
17	Drowsiness Detection and Rescue System	Roshni Rajan K	International Journal of Science and Research (IJSR)	Others	131

Security Alert Using Face Recognition

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Abstract - Security is one of the important requirements of homes and businesses which require biometric identification. This paper aims to identify a person through face recognition. Face recognition is very complex and multidimensional problem. Principal Component Analysis based on MATLAB is used for face matching decision. The system which converts facial images to feature characteristics of initial training database images is designed in MATLAB. Facial features are extracted from the face. Eigenvalues are calculated and represented as an Eigen vector. Using Euclidian distance method, an unknown face image and database image are compared. The recognized facial image has minimum Euclidian distance with the database images. When face is recognized by MATLAB Code it will send SMS to the authorized person using GSM module and an alarm will be running. Security system using MATLAB and Embedded system design is cost effective, reliable and highly accurate.

Key Words: Face recognition, PCA algorithm, Facial features, Eigenvectors, Euclidian distance, GSM module, Alarm.

1. INTRODUCTION

Security is one of the at most requirements of homes and business .In today high technology environment, organizations are becoming more and more dependent on their information systems. Many organizations will identify information as an area of their operation that needs to be highly secured as part of their system of internal control. This paper aims to identify a person through face recognition and provide alert when the security is at risk. [1] Face recognition is one of the applications of image processing. Image processing method is that it will convert an image into digital form and perform some operations on the image, in order to get an enhanced image or to excerpt some useful information from it.[2] It is a type of signal dispensation in which input is image, like video frame or photograph and output may be image or attribute associated with that image. Usually Image Processing system includes treating images as two dimensional signals while applying already set signal processing methods to them.[3]

We can make advantage of image processing and face recognition in our CCTV cameras. Video surveillance and the analysis of the obtained footage is a process which needs a huge memory. Video surveillance using CCTV is now being used everywhere [4]. But the effective video surveillance is not implemented anywhere. The current practice of video surveillance is installing a camera and analyzing the footages which are stored. But with the same cost we can implement something better.[5] That is rather than analyzing the footages after the incident occurred, notify the authority of organization at the time of incident so that higher authority can take necessary action without any delay. The system introduced in this paper includes many features which is cost effective and more secured. In our system a camera is installed in the room which is to be secured. Along with the camera a PIR sensor is used so that there is no need of keeping camera turned on. So when human presence is detected by PIR sensor, camera turns on and start capturing the video.[6] From the frames obtained from the captured video human face is detected and facial features are extracted using Viola Jones algorithm. The image is compared with the image stored in the dataset as the reference image using PCA algorithm. [7] When the face is recognized a message is sent to the higher authority regarding the time and date of access. When face is not recognized an alarm will be played to notify the security guard about the unauthorized entry attempt. Also a message is sent to higher authority regarding the entry time and date.

2. SYSTEM ARCHITECTURE

System architecture defines the overall structure of the system which also defines the components used and the relationship between the components. The system consists of an embedded side and a software side. In embedded side we use a microcontroller (atmega328), PIR sensor, GSM module, Buzzer, Voltage regulator and a transformer. Software used is Matlab 2012.The software side and embedded sides communicate using RF Transmitter and Receiver.

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PRINCIPAL Page 687

A Review on Noise Filters For Digital Images

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Abstract - Impulse noise is a specific type of noise which causes alternation of the pixels in the images so that their gray values do not exhibit compatibility with their local neighbourhood. Usually images are degraded by impulse noise of short duration and high energy because of the errors caused by noisy sensors or transmission channels. In impulse noise (sparse light and dark disturbances), pixels in the image are very different in color or intensity from their surrounding pixels; the defining characteristic is that the value of a noisy pixel bears no relation to the color of surrounding pixels. Denoising can be done through filtering, which can be either linear filtering or non-linear filtering. Here we are discussing various noise filters such as median filter, adaptive switching median-based filter, center weighted median

Key Words: Impulse noise, De noising ,median filter, adaptive switching median-based filter, center weighted median filter.

1. INTRODUCTION

The term digital image processing refers to the manipulation of digital images by means of a digital computer. The different stages or functions of an image-processing system includes image acquisition, image enhancement, image restoration, color image processing, image storage, image compression, image segmentation, multi resolution processing, image representation and description, morphological processing, image display etc. Whenever an image is moved from one form to another form among those stages, many types of noise or noise like degradations can be present in that image. The term noise in digital images refers to any intensity value of an image which does not match the reality quite exactly. Image Denoising is the process to reconstruct or recover an image that has been degraded by the noise.

Median filter tends to preserve the sharpness of image edges while removing the noise. There are several variations of median filters such as weighted median filters, adaptive median filters, directional weighted median filters, centre-weighted filter, min-max filter, max-median filter, midpoint filter etc.

Switching median filters are another class of non-linear filter and they are very efficient than standard median filter. It consists of a noise detector and a standard median filter. It preserves the uncorrupted pixel from filtering, that is, the filtering is performed only if the detector finds the corrupted pixel. Adaptive switching filters are the extension of switching filters, whose behaviour changes based on the statistical characteristics of the image inside the filter region

defined by the rectangular filtering window. Adaptive filter performance is usually superior to non-adaptive type filters.

2. SURVEY ON VARIOUS FILTERS

Noise adaptive switching median-based filter for impulse noise removal from extremely corrupted images.

[A. Fabijan' ska D. Sankowski, IEEE IET Image Process., 2011, Vol. 5, Iss. 5, pp. 472-480]

This is a type of switching median filter, which identifies the noisy pixels and then corrects them by using median filter. It searches the image for local intensity extrema in order to decide whether the pixel is corrupted or uncorrupted. The search is performed in areas determined by square window which passes through the image pixel by pixel. In each window local intensity minima and local intensity maxima are determined. Location of the local intensity extrema is marked by increasing the corresponding values on maps of local extrema.

Median filter

[R. C. Gonzalez and R. E. Woods, Digital Image Processing, 3rd edition, Pearson Education Prentice-Hall-2009]

This is an order-static nonlinear spatial filter, whose response is based on ordering (ranking) the pixels contained in the image area encompassed by the filter, and then replacing the value of the center pixel with the value determined by the ranking result. It replace the value of a pixel by the median of the intensity values in the neighbourhood of that pixel original value of the pixel is included in the computation of the median. Median filters are popular for certain type of random noise because they provide excellent noise reduction capability with considerably less blurring than linear smoothing filters of similar size. Median filters are effective in the presence of impulse noise, because of it's appearance as white and black dots superimposed on an image.

Cognition and removal of impulse noise with uncertainty [Zhe Zhou, IEEE TRANSACTIONS ON IMAGE PROCESSING, VOL. 21, NO. 7, JULY 2012 pp 3157-3167]

Uncertainties are the major inherent feature of impulse noise. This fact makes image denoising a difficult task. Understanding the uncertainties can improve the performance of image denoising. This paper presents a novel adaptive detail-preserving filter based on the cloud model

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3D Saliency Detection

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Abstract — Saliency is the most important part of an image. An image will have more than one salient areas. Human eye can identify the salient regions of natural scene. There are many methods for saliency detection in 2D images. Here, a model for saliency detection in 3D images is proposed. A 3D image and its depth map are given as inputs. From these two inputs a 3D image is created and its saliency map is generated as the final output. 3d saliency detection models are useful for various multimedia applications. This model can effectively identify the salient regions in 3D images and enhances those regions in the final 3D saliency map.

Keywords — 3D image; saliency; saliency map

I. INTRODUCTION

In today's digital world, large amount of multimedia content are observed by human beings. From these, human visual system can extract most significant part and they give attention to only those parts. These parts are called salient regions. Nowadays, 3D multimedia applications are emerging day by day. As the 3D data increases, 3D saliency detection models are necessary for extracting the essence of 3D multimedia or 3D image. A 3D image gives 3 dimensional view of that image. 3D images will have a depth factor. When developing a model for 3D saliency detection, depth factor has a vital role. Humans use some tools for depth perception such as stereoscopic vision, accommodation, parallax, size familiarity and aerial perspective. In the proposed model, 3D image is generated by combining a 2d image with its depth map. Another way to generate a 3d image is by using a stereoscopic camera. It will give left and right view of an image. By viewing this left and right view through a 3D glass, a 3D image can be obtained. Creating a 3D image is a three phase process with phases tessellation, geometry and rendering.

II. RELATED WORK

There are many saliency detection models for 2D images and objects. Neil Bruce and John Tsotsos proposed a model based on the principle of maximizing information sampled from a scene[1]. Radhakrishna et al. presented a model to detect salient regions in an image using low level features of luminance and color[2]. Ming-Ming Cheng et al. proposed a salient region detection based on the simultaneous evaluation of global contrast differences and spatial weighted coherence scores[3].

Hengue Pan and Hui Jiang proposed a fast deep learning method that detects object saliency using convolutional network[4].

III. PROPOSED MODEL

In this proposed model, 2D image and its depth map are given as inputs. A depth map contains the depth information of each pixel. From the 2D image, 2D saliency map is computed. Using the depth information from the depth map, depth saliency map is computed. These two maps are combined using a fusion method to generate the final saliency map. Additional attention is given to middle regions because of the assumption that usually salient regions in an image will be in the middle region. The outline of the proposed model is given below. Here, the model is based on the concept of context-aware saliency, ie, detecting not only the salient regions but also the background region that contributes to the context of the image. And it follows some basic principles of human visual system:

- Low-level features
- High-level features
- Abolishing frequently occurring features.
- Visual organization rules

To enhance saliency map, additional attention is given to middle regions to enhance the saliency.

A. 2D Saliency Detection

2D image given as input is divided into patches. To detect the 2D saliency and to compute the 2D saliency map, normalized Euclidean distance is used as a measure. For a pixel to be salient it should be distinct from all other pixels. For that Euclidean distance between patches is calculated. Dissimilarity between patches is inversely proportional to patch distance. Salient pixels will be always together. Background pixels will have similar pixels both near and far away. So, if a pixel is salient then the similar pixels are near to the pixel otherwise non-salient. For this, multi-scale saliency enhancement is used. A pixel is represented in multiple scales and it is said to be salient if it is consistently distinct from all other pixels in multiple scales.

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CORMS: AN AUTOMATED RESTAURENT MANAGEMENT SYSTEM

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Abstract - Customer Oriented Restaurant Management System (CORMS) is a web application and an android version to restaurant management. It has all the features of the rapid involving science and its different attributes. Through a strategic design and customer orientation, CORMS technology is integrated and has been created to optimize the work force and streamline restaurant work flow. It can run on a tablet, and is both scalable and modular to meet the needs of any establishment. CORMS is an effort to bring technology into the dining menu of customers. CORMS offer robust features that not only help your restaurant to update the menu any time but also improve the overall dining experience. The tablet menu is to provide a user-friendly interface by offering smooth navigation and browsing through digital menu thus providing a delightful experience. The customers can order the food, through that tablet interface. Our project aims to not only improve the business of restaurants but also to incorporate the essence of science in dining menu. Our future-ready restaurant management software is designed to keep track of everything that goes inside the restaurant, and everything is permission based to avoid theft.

Key Words: CORMS; Restaurant Management System; android; digital

1. INTRODUCTION

Visiting a restaurant traditionally involves selecting a meal from a paper based menu and being waited on by the restaurant's waiter staffs. A busy restaurant or inattentive staff can leave customers waiting to have their orders taken, to refill their drinks or to receive their bill for a long time. If the restaurant is busy the customer is left there, where he occupy a table longer than they need. Any unnecessary waiting can reduce customer satisfaction and reliability and ultimately result in lost business. To reduce customer wait, prior management of time must be ensured. Sufficient staffs should be present during peak hours and that they are properly trained to provide excellent customer service. These staffing issues can lead to substantial costs for the business. Paper based menus are

problematic. The restaurant may have a large number of menu items which can make the menu appear overwhelming to go through it. As a result, customers may not see all the items they would have been interested in. When changes to the menu are required, such as price adjustments or quantity change or item updates, the costs and environmental concerns associated with reprinting and all need to be considered. Menu changes are often left to accumulate until enough are required to justify the costs of reprinting. Changes may be required frequently and a paper menu would quickly become outdate. Waiting until a reprint is done before implementing the changes in the restaurant may not be a sound business practice. Manually updating the menus instead of reprinting can lead to inconsistencies and this can give a bad impression to the customers. This may make the restaurant appear cheap and low quality. The project is designed and is building a restaurant management system that provides an interactive tablet based menu which replaces the paper menu entirely and removes much of the need to be waited on by the restaurant's waiter staff. This tablet based menu app also provides additional features designed to enhance the customer's overall experience. In the management side, it allows the restaurant's management to quickly make changes to the menu and provide a larger view of the restaurant at any given time. The restaurant menu and management system consists of the menu app, the management app, the web based site, the server and a database. Other apps, intended to be used by the restaurant's kitchen and wait staff were not developed for this project.

2. MOTIVATION AND TECHNICAL RELAVANCE

The mobile market is growing in each year replacing the demand for traditional desktop applications. This makes software development for mobile devices an interesting and attractive industry to work in. The primary motivation for this project stems from the desire to learn and gain experience in android apps and web sites development as well as an interest in the design and development of distributed systems. The paper based menu system is very tiresome and need lots to wait by the

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Tuning characteristics of Co_3O_4 nanofiber mats developed for electrochemical sensing of glucose and H_2O_2

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ABSTRACT

Nano-crystalline Co_3O_4 nanofibrous mats were fabricated by calcining the precursor nanofibers obtained by electrospinning of a sol comprising of a unique polymeric binder poly(2-ethyl-2-oxazoline) and cobalt acetate tetrahydrate in water. The influence of the calcination temperature used for the synthesis of the oxide nanofibers from the xerogel fibers on various physico-chemical properties of the former was studied. The Co_3O_4 nanofibers obtained at 400 °C had the highest electrochemical sensitivity towards glucose and H_2O_2 . Further, the results prove that Co_3O_4 nanofibers can be used for the detection of glucose and H_2O_2 concurrently as the response times taken by these moieties are different. Therefore, one can differentiate the concentration of glucose and H_2O_2 by analyzing the signals obtained after the respective response time and this multiple sensitivity of Co_3O_4 can be applied in the field of biosensors.

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1. Introduction

In pursuit of fabrication of high aspect ratio oxide nanofibers, sol-gel electrospinning has gained remarkable attention. Combining electrospinning and sol-gel processing is the best strategy for the fabrication of oxide nanofibers for specific advanced applications. In a sol-gel assisted electrospinning process for the fabrication of oxide fibers, xerogel nanofibers from a metal salt and a polymer are prepared through electrospinning, which are calcined later above the degradation temperature of both the polymer and metal salt. The composite nanofibers are prepared from a sol of adequate viscosity containing the metal salt and a polymer in a suitable solvent. The interaction of metal salt with the polymer and the nature of degradation of polymer can influence the properties of the oxide fibers [1].

1-D nanomaterials are particularly important over nanoparticles in the field of sensing, since the continuous electron transport of the former can significantly improve their sensitivity, limit of detection, response, resolution etc. There are several oxide nanomaterials with different morphologies, which are prepared by different techniques and used for the fabrication of solid state sensors and electrochemical sensors. In both solid state sensors and electrochemical sensors, the role of nanomaterials is to receive the target analytes and convert their molecular information to a measurable signal [2]. Nanosized metal oxides, such as CuO [3], ZnO [4], TiO_2 [5], SnO_2 [6] and NiO [7] have gained importance in the electrochemical determination

of various analytes because of their electrocatalytic activity. The high aspect ratios, morphology and structure dictate sensitivity of oxide materials [8].

Among oxide nanomaterials, cobalt oxide with different size and morphology has been used in the non-enzymatic electrochemical detection of glucose. Cobalt oxide has a spinel structure with Co^{2+} ions in the tetrahedral voids and Co^{3+} in the octahedral ones. The presence of these two ions imparts multifunctionality to Co_3O_4 . Hence, it has been used in sensors [9,10], electrochromic devices [11,12], solar energy absorbents [13], supercapacitors [14,15], lithium-ion batteries [16,17], H_2 generation [18], heterogeneous catalysts [19–22], magnetic materials [23,24] and oxygen evolution and reduction [25]. Non-enzymatic sensing of oxides is promising than the enzyme-based sensors, since the cost of developing enzymes is very high and these enzymes degrade as the detection progresses make them suitable only for a single use. Also, the presence of other substances, in addition to the analyte can interfere with the response in enzymatic sensors. Oxide materials are comparatively cheaper and reusable and their electrochemical sensing is interesting because of their low detection limit, high selectivity and high sensitivity [26]. The sensing behavior of the oxides is enhanced at nanoscale dimensions, and the sensitivity is affected by the grain size, vacancies and surface area of the intended nanomaterial.

Glucose is a widely tested analyte in blood and urine. Frequent monitoring of glucose is essential in controlling diabetes mellitus and it has become a regular practice by millions of people suffering from this disorder [27]. A cheap and sensitive detection of glucose is thriving and it is crucial for the humankind. Immobilizing enzymes, such as glucose oxidase, on various substrates is an existing technique for the determination of glucose level in body fluids. This is a destructive

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Semi-Supervised Distributional Vector Generation Techniques for Text Classification

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Abstract

Text class has loved its privilege as a core studies area in text mining. Supervised, unsupervised are the 2 famous paradigms within the technique of type. Relatively novel method of classification is semi-supervised mastering which is midway among the supervised and unsupervised getting to know. With smaller schooling statistics units and taking the large without problems to be had unlabeled data, the procedure of studying in class is refined. There are versions in semi-supervised, transductive gaining knowledge of wherein the trained and untrained facts are given in advance the classifier is built, the goal is to expect the magnificence label of untrained data. The opposite version is inductive learning in which the labeled and unlabeled statistics is utilized in model constructing; goal of the version is to predict the unseen information magnificence label. The paper aims to using transductive getting to know to classifying the textual statistics with the aid of considering the phrases appearing in special parts of the record. The words performing inside the introductory and conclusion a part of the files may additionally play important function within the procedure of type, than the ones seemed in other parts. The approach employed could provide one of a kind weights to words primarily based on their presence in one-of-a-kind role of the document. Taking into consideration the above within the procedure of mapping the textual facts into numerical patterns editions of distributed vector generations are acquired. Taking into account large differences in the duration of the documents, distinct normalization techniques are employed which gave eights one-of-a-kind vectors. Non-parametric, most effective to put into effect ok-nearest neighbour algorithm is hired for free-go with the flow textual classification. The outcomes received conclude that semi-supervised textual class can be carried out without loss in category accuracy where restrained skilled records is to be had, as the accuracies of the gaining knowledge of model in supervised and emi-supervised coincide with each other.

Keywords: Distributional Vectors, KNN, Semi-Supervised, Text Classification, Transductive Learning

1. Introduction

Text type has loved as a core studies region in domain of text mining particularly after the generation of electronic textual information mills. Greater ever the fee of textual records technology has multiplied due to the usage of intra, internet utilization in enormous areas. The sole cause to shop the data is for evidence checking alone, so no effort is employed to save the information in categorized repository. Keeping in view of the future wishes of choice making, if the statistics is stored in categorized repositories, then navigation and use of it decision making becomes simpler. The most popular models for records

classification commonly are supervised and unsupervised as given in¹. Supervised type is a predictive version where the task is to educate a version based totally on training records, the education records is classified. The version constructed is used to assign a pre-defined elegance label to new facts as in¹³. Unsupervised mastering do not have education records, it corporations the given information into clusters primarily based at the similarity as in⁶. The statistics within the similar cluster are handled to belong to same magnificence. Semi-supervised is relative new process model which takes smaller education statistics units mixed with massive to be had unlabeled facts to categorise the records. Normally bag-of-words (bow)

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Phase Shift Controlled Full Bridge DC-DC Converter with less Circulating Loss

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Abstract: A novel soft switched full bridge DC-DC converter with phase shift control is projected to reduce the circulating loss on the primary side of the transformer and the voltage stress on the secondary side. Circulating loss in the primary and voltage spike across the rectifier diode are the disadvantages of the traditional converter. Core loss occurs because of the large output inductor used in the secondary side. In this paper we host a new procedure to overcome the above stated drawbacks. Without an auxiliary circuit, a single common active clamp branch is engaged for Zero Voltage Switching (ZVS) in all active switches, which decreases the circulating loss on the primary side and switching losses. Instead of an additional inductor, the leakage inductance of the transformer is utilized as the resonant inductor, which enhances the compactness and cost effectiveness of the converter. The current stresses on the rectifier diodes and the conduction losses are suppressed due to the resonance among the leakage inductance of the transformer and the rectifier capacitor. As a whole, this converter is conducive for high power and high voltage applications towards efficiency, cost and number of devices consumed.

Key words: Zero Voltage Switching (ZVS) · Zero Current Switching (ZCS) · PWM Converters · Phase Shifted Full Bridge Converter (PSFB) · DC-DC Converters

INTRODUCTION

Power electronics converters are frequently employed to vary the output power, torque and the speed of a DC machine. Usually the power electronic converters have an effect on both the power factor and the power efficiency. For low switching frequency of the converter, the power efficiency will be high where as the power factor of the converter is extremely low. A large passive filter is eventually needed as the order of main harmonics is low. High frequency operation is essential for design of a low cost and low weight converter. Selection of high switching frequency decreases the size of magnetic elements and other reactive components used in the converters, thereby reducing the dimension of the filter and increase the power factor. Because of its high efficiency and low electromagnetic interference, the PSFB DC-DC converter is preferred for power level higher than 500W. But the circulating loss in primary is high, for a conventional PSFB converter especially in high input current application. To lower the circulating loss, zero

voltage and zero current switching technique is employed. The leakage inductor of the transformer is used as resonant inductor, which will aid in achieving, zero voltage and zero current switching in the entire operating range.

As the diode is in series with the primary switch [1], the large primary current results in high conduction loss even though the circulating loss can be eliminated. With the insertion of an auxiliary inductor with three coupling windings on the primary side of the transformer [2], primary current is reset by input voltage source through the auxiliary coupling windings in the transformer. Because of high input current the conduction loss in auxiliary circuits is large and there is high voltage ringing across the rectifier diodes. The primary current in transformer can be reduced by using an active switch on the secondary side [3], [4]. Since the auxiliary switch should be driven in accordance with the driving logic of the primary switches, the control is complex. Active clamp ZVT is realized in [5] - [8]. It is necessary to use two main switches. Zero Current Transition (ZCT) is not implemented.

25

7(d)

Sustentation of Energy by a Contemporary Gsm Based Prepaid Energy Meter

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Abstract: Nowadays, due to the annihilation of renewable resources the conservation of energy is one of the typical problems faced by the developing countries. As a global scenario, there is a necessity of creating an instinct on human beings, for an efficient energy consumption in a feasible, modern, user-friendly way. Similarly, the loss of power due to power thefts and other illegal activities are higher. In this paper, we are proposing a new concept for sustentation of energy by GSM based prepaid energy matric system that will overcome the above issues. The proposed technology is suitable for all type of consumers like electricity distribution companies, private corporates, IT parks and housing colonies. The proposed piece of technology can be implemented for better energy management, conservation of energy and also to neglect the unnecessary hassles over incorrect billing. The automated billing system will track the real-time consumption and thus this paper proposes a substantial contribution towards energy conservation

Key words: Arduino · GSM module · Energy meter · Power Management

INTRODUCTION

In the existing system, usage of power can be measured either by using an electronic energy meter or by using an electro-mechanical meter. Commonly used energy meters are only capable for recording the usage in kWh units. The data thus recorded has to be processed by a meter reading corporate. In conventional method, the processing of recorded data (meter reading) is done by linking each power usage datum which is recorded to an account holder and then the amount owed by the consumer is determined by means of the specific tariffs, such as fixed and variable tariff, in use.

In the current system, power usage of the consumer (i.e. energy meter reading) is taken manually by moving to the consumer premises. This technique requires large man power resources and takes long duration to accomplish the task. Manual billing can be constrained and deferred due to bad weather conditions and the printed billing has a high probability of getting lost. In this context, we can generalize that both the process of conventional method and manual method is highly prone to error. As a remedy for these errors, Smart (Prepaid) Energy Meter has been proposed and considered as an innovative solution aimed at facilitating affordability and reducing the cost of

utilities. A single-phase microcontroller based energy meter is also a method of energy management, but it shows less reliability [1, 2]. Design and Execution of Low Cost Electronic Prepaid Energy Meter and the delinquent of overpricing and over billing and the distress actuality faced by the clients in disbursing the bills will be detached all together. It is electronic, it has no moving portions and the problem of steadiness, & accurateness due to temperature variations are solved [3, 4]. A prototypical of Wireless Automatic Meter Reading System is established, here the wireless communiqué is grounded on IEEE 802.15.4 (ZigBee) standard and safety is employ by ensuing the direct sequence spread spectrum protocol. Effective execution of WAMRS pattern is ready possible to employ in Oman for meter reading uses [6]. Wireless Smart Grid Design for Observing and Augmenting Electric Transmission comprises of smart controlling station, several smart wireless transformer sensor node, smart wireless consumer sensor node and smart transmission line sensor node. This design integrates active results for several glitches met by India's electricity supply system such as variable voltage levels practiced due to the fluctuating electrical ingestion, power robbery and transmission line fault. It is projected for a single-phase electric supply

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Renewable Power Centred Intelligent Power Supervision System for Households

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Abstract: The foremost problem correlated with Indian power grid system is disproportion of consumption of energy and power generation. The problem faced in this modern era is load shedding and power drop. Cuts lead to discomfort to the consumers. The proposed system comforts the consumers for an optimal use of energy. The system is installed in every homestead and with the help of photovoltaic system solar energy is stored for future use. The system analyses the user data utilization using smart meter. From the analysed data the system will foretell the user behaviour at that time and maintain battery power for use at the time of peak hours so that this will reduce the utilization from grid during peak hour. The system also maintains back power and uses it during power failure and will prioritize the devices for the utilization of stored power.

Key words: Renewable power · Smart meter · Powergrid · Battery management system · User consumption data

INTRODUCTION

Matching of supply and consumption of power is the central challenges faced by Indian power grid system. Traditional approaches of building enough generation and transmission capacity to meet peak load has resulted in substantial infrastructure that is idle for all but a few hours of a year.

In India, traditional method of power supply is following. But this method is fulfilling only the basic small local needs. The unbalancing of power generation and demands requires rethinking of traditional method in order to compensate for growth in power demands of India's power supply. Uses of electromechanical relays are not an effective method to find out line faults at distribution side. Detection of line faults is presently a time and man power consuming process.

Up to 2013 January 211.766 GW of electricity has been installed. Out of this 11.45% contributed by renewable power plant and rest is by non renewable power plant. This lack of instalment on renewable power leads to India to depend on foreigners for energy. And about 300 million Indians have no access to electricity as of December 2011. Many of rural areas of India are not electrified yet and already electrified areas are facing the lack of sufficient power. In 2012 power blackout put northern states in dark about 3 days [1][2]. Villages and cities may be isolated from grid during situations like

natural disasters, heavy cyclones etc. Problems in generating station also lead to power failure and isolation of places. So on integrating renewable energy to grid at distribution level or in each house we can meet the lack of power their by eliminate black outs up to a level Government agencies like KELTRON, ANERT are helping people to install the power generators at consumer side. But the main problem is that the proper use of generated power. So energy management technique is very essential and a system which will dynamically choose either power from grid or from renewable source. According to its availability. And the system automatically control the usage of power from according to the priority of devices which is set either by user or based on consumption and availability of power[3].

A non renewable energy resource comes from coal, oil etc. These will create pollutions and leads to global warming and also once the source of non-renewable energy gone out that can't be reproduce. Renewable energies such as wind, solar etc. will not produce any pollution. But the main problem is that the difficulty to integrate with the grid which leads to voltage level fluctuations, change in frequency, harmonics etc.[4]

Several studies and works has been done in the area of renewable energy integration with the grid and the energy management. This section describes some of the major works in this area. Real time pricing –based power scheduling scheme as demand response for residential

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Critical Investigation of Minimum Field Conductor for Overhead Transmission Lines

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Abstract: This paper explores the increase in power demand and the increased need for transmitting huge amount of power over a long distance. Large transmission line configurations with high voltage and current levels generates large value of electric and magnetic field stress, which affect the human being and the nearby objects located at ground surfaces. Apart from human effect, the electrostatic coupling and electromagnetic interference high voltage transmission lines have impact on plants and telecommunication equipments mainly operating in frequency range below UHF. The voltage level of high power transmission lines are 400KV, 230KV, 110KV, etc. This field can be minimized by re-designing the existing conductor by adding composite materials in it and comparison of EMF between existing and new conductors are being considered.

Key words: Epoxy · Nanomaterials · Dielectrics · Breakdown voltage · Resistivity, Liquid dielectrics · Tensile strength

INTRODUCTION

This paper presents an effect of the electric component of an Electro Magnetic Field (EMF) of 50 Hz, originating from over ground 110 kV power line, on humans in its immediate vicinity. In this project, the electric field, which penetrates the human body, was calculated with the assistance of a human model, comprising of blocks, which symbolize different human structures or body fragments (brain, digestive organs, lungs, etc.). Based on their electromagnetic features (magnetic and electric permittivity, conductivity) the spreading of the electric field adjoining the human beings will be specified, as well as the values of the field, which penetrates humans etc. This field can be minimized by re-designing the existing conductor by adding nano particles by means of coating in it. In addition, comparison of EMF between existing and new conductors are analyzed [1]. A detailed reviewing on the consequence of thermal aging on insulation dielectric strength is studied. Aging of the insulating samples was conducted at three different times and temperatures. The study exhibited that dielectric strength might not be considered as a parameter to realize the thermal index [2]. The recommend of comprehensive theoretical preparation connecting geometrical parameters

of the insulation and the maximum thermal voltage (MTV) is studied [3]. A relative life tests upon base and nanostructured epoxy resin models are performed. Specimens were subjected to ageing under surface discharge phenomena using CIGRE method II (standard electrode configuration). Extensive life of the nano composite materials are explained [4]. Cross-linking response under oxidant atmosphere is projected for illumination of electrical enhancements. Encouraging an improvement of the electrical and mechanical properties is sustained by FTIR chemical changes of PI during aging [5].

A comparison is made on the surface roughness produced by partial discharges and which is initiated by revelation to plasmas, between polyamide by and devoid of inorganic Nano fillers [6]. By examining the complex permittivity spectra, Nano filler stacking on the carrier transport and molecular motion in polyamide-6/mica Nano composites were conferred [7]. Polyester and polyesterimide mixtures for impregnation of electrical motors were improved by incorporating titanium dioxide, zinc oxide and fumed Nano silica [8]. The investigational outcomes on accelerated aging of enameled wires by means of Nano filler and without Nano filler in coating under partial discharge were compared [9].

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FPGA Implementation of WG Stream Cipher

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Abstract— Cryptography is the technique of providing security to a network. The term Cryptography is derived from two Greek words crypto means hiding and graphy means way of writing. The hiding of information is done through encryption algorithms. Cryptography is the fundamental of authentication process, it has two protocols namely, encryption and authentication protocols. In the encryption we have two types of ciphers, stream ciphers and block ciphers. In stream ciphers we send data in the form of bits or bytes. The example of stream ciphers are RC4 and WG stream ciphers respectively. These two are key generation algorithm. This paper deals with WG stream cipher. This is done using verilog programming and implemented in FPGA using Spartan 3 kit.

Keywords—WG, LFSR, IV, GF

1. Introduction

In this section we discuss the importance of securing valuable information in our day to day life. We introduce cryptography and terms that should be familiar. Types of ciphers used to encrypt our data. And also a brief description about basic types of attacks that are possible on our ciphers. The requirements of information security within an organization have undergone two major changes in the last several decades. Before the widespread use of data processing equipment, the security of information felt to be valuable to an organization was provided primarily by physical and administrative means. An example of the former is the use of rugged filing cabinets with a combination lock for storing sensitive documents. An example of the latter is personnel screening procedures used during the hiring process. Network security measures are needed to protect data during their transmission. In fact, the term network security is somewhat misleading, because virtually all business, government, and academic organizations interconnect their data processing equipment with a collection of interconnected networks. Such a collection is often referred to as an internet and the term **internet security** is used. If both sender and receiver use the same key, the system is referred to as symmetric, single-key, secret-key, or conventional encryption. If the sender and receiver use different keys, the system is referred to as asymmetric, two-key, or public-key encryption.

A. Stream ciphers:

In stream cipher the plaintext is converted to cipher text by **one bit at a time**. It generates arbitrarily long stream of key

material (bits) known as keystream. The generation of keystream output is based up on the internal state which is usually hidden inside the cipher and changes frequently as cipher operates. During encryption the keystream is XOR'ed (exclusive-or operation) with each plaintext one bit at a time. Some of the examples of stream ciphers are Welch-Gong (WG) cipher, RC4, grain, trivium, A5/1 and so on.

B. Block ciphers:

Block cipher operates on the **fixed length blocks** (i.e. group of bits) of plaintext or ciphertext. The encryption operation is an unvarying transformation, which is controlled by using the secret key. For example, a block cipher might take 128-bit block of plaintext as an input and generate 128-bit block of ciphertext. Examples of block ciphers are Data Encryption Standard (DES), Advanced Encryption Standard (AES) and so on.

2. LITERATURE SURVEY

Welch-Gong (WG) stream cipher is a cryptographically secure stream cipher. The keystream necessary for generating the WG stream cipher is generated using Welch-Gong keystream generator. The architecture is designed in such a way to reduce the computational complexity by reducing the number of multipliers. Stream ciphers are more preferred for communication since they can be built using simple devices and also more immune to error propagation. Synchronous stream ciphers consist of a keystream generator which produces a sequence of binary digits. The generated sequence is called as keystream. The keystream is added to the plain-text digits to produce the cipher-text. A secret key K is used to initialize the key-stream generator and each secret key corresponds to a generator output sequence. A Welch-Gong (WG) $(29, 11)^3$ stream cipher consists of a WG key-stream generator which produces a long pseudo-random key-stream. The keystream is XOR'ed with the plain-text to produce the cipher text. The WG keystream generators use Welch-Gong (WG) transformations as the filtering functions. The WG transformations have very large Algebraic Normal Forms (ANFs) and can be implemented in optimal normal basis form. WG stream cipher is a stream cipher designed on the basis of WG transformations to produce keystream bits with good balance property, ideal tuple distribution, large linear complexity etc. Hence it has a potential to be adopted in practical application. The direct design using optimal normal basis (ONB) [7] reduced the

Ear Cavity Biometric Recognition

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Abstract: With the increasing concerns on security breach and transaction fraud, highly reliable and convenient personal verification and identification technologies are more and more requisite in our social activities and national services. Biometrics, in which the distinctive physiological and behavioural characteristics are used to recognize the identity of an individual, are gaining ever-growing popularity in an extensive array of governmental, military, forensic, and commercial security applications. Here, the resonance of sound is determined by the shape of human ear cavities to distinguish individuals. This system works measuring the acoustic characteristics determined by the shape of the ear. This is unique to individuals. It uses an earphone with a built-in microphone. This collects earphone-generated sounds as they resonate with ear cavities. It is then processed and an average of multiple signals is obtained. Average frequency domain spectrum for a single person is stored in the database. To compare similarity between signals we use the cross correlation. In Matrix Laboratory (MATLAB) the similarities between the signals are compared. Then for the identification the database is correlated with the currently recorded sound for matching.

Index Terms: Ear cavity, biometric, matching, MATLAB

I. Introduction

In everyday and social activities reliable personal recognition techniques play a critical role. Authorized users should be allowed for entrance with high accuracy while unauthorized users should be denied, in access control. People not only should identify whether the identity of a person is whom he/she claimed to be, but also should avoid the occurrence that one person claims to be another person to receive the welfare benefit twice, in welfare benefit disbursement. Biometrics in which the distinctive physiological and behavioral characteristics are used to recognize the identity of an individual. These are gaining ever-growing popularity in an extensive array of governmental, military, forensic, and commercial security applications.

From when fingerprint has been used for forensic, the beginning of biometrics can be traced back to centuries ago. Automated biometrics, however, has only 40 years of history. The FBI began to put more effort in developing automated fingerprint acquisition and identification systems, in the early 1960's. With the advances in hardware, sensor, pattern recognition, signal and image processing technologies, a number of biometric technologies, such as face, iris, retina, voice, signature, hand geometry, keystroke, ear, and palm print recognition, have been developed, and novel biometrics such as dental, odour, and skin reflectance, have also been investigated to overcome some of the limitations of current biometric recognition technologies. The four major modules in biometric system include: data acquisition, feature extraction, matching, and system database. Here, feature extraction and matching are two of the most challenging problems of biometric recognition research. And this has attracted researchers from different backgrounds like biometrics, computer vision, pattern recognition, signal processing, and neural networks. The ear cavity biometric recognition instantaneously measures (within approximately one second) acoustic characteristics determined by the shape of the ear, which is unique to each person, using an earphone with a built-in microphone to collect earphone-generated sounds as they resonate with ear cavities. This unique method of extracting features is useful for distinguishing individuals based on acoustic characteristics and enables rapid and highly accurate recognition with accuracy greater than 99 percentage. Biometrics is currently being used in areas such as computer desktops, networks, banking, immigration, law enforcement, telecommunication networks and monitoring the time and attendance of staff.

II. Literature Survey

This section contains some earlier works for authentication using ear biometrics and audio pattern matching. Different algorithms are used in papers discussed below. These algorithms have low accuracy and efficiency and they take more time to process, and thus less portable. Paper [1] shows, a number of variations of the external ear has been studied extensively for auralization and hearing aids, the acoustic characteristics of the headphones is not as well known. The effects of outer ear physical dimensions, particularly to sound

Adding Remote Controller Functionality To Any Stereo

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Abstract. Use of stereo has become common in our lives. They are used in cars, TVs, music players etc. And it is essential at least to control their volumes. Suppose there is a stereo amplifier which functions pretty well but it does not have a remote. It would be very annoying if its volume cannot be controlled. So this project is useful as it creates a device which makes use of any existing remote to control the volume. For controlling the volume, we use a volume controller IC. The electronic volume controller IC PT2258 is a digital potentiometer which can be controlled using I2C protocols. It is used to control the attenuation for every combination possible from 0 to -79 dB/step. Universal IR receiver is used to decode the IR codes and the data will be transferred to the Arduino which in turn communicates with the IC PT2258 and controls the volume. The device also consists of two buttons, which are used to synchronize the IR code of the existing remote with the device. So the user will be able to use the device easily.

Keywords:

1. INTRODUCTION

The device designed is used to control the stereo which doesn't come up with a remote controller or a device which is so old that the remote controller is not available in the market. It will help the users to control the volume of any stereo with any remote they have got with them. So to be precise we can add up a remote controllable system to a normal computer speaker or any speaker that are readily available in the market which doesn't come with remote and we need to control the volume of the same using a remote controller.

The device makes use of an Arduino, IC PT2258 which is a digital potentiometer, Universal IR receiver, two switches and 4 audio jacks (2 for input and 2 for output). The Universal IR receiver receives the code and is given to the Arduino. Arduino takes the value and controls the IC PT2258. The volume is controlled by making attenuation in the channels. Thus the output of the device will be attenuated signal of the input.

The same device can also be made using a pulse detector and an analog potentiometer IC, but the problem is that, we need to provide a predefined remote controller along with the device. Else we have to redesign the pulse detector each time the user needs to use any different remote controllers. On using an Arduino, the predefined IR codes can be changed simply by pressing the switch in the device. By pressing the switch new IR values will be written to the device.

The main application of this device is that in a stereo, which does not come with any remote or whose remote is lost or damaged but they work fine manually, can be controlled with any available remote

2. LITERATURE SURVEY

2.1 Humble Volume Control Circuit

The humble volume control circuit can use to control the volume. Volume controls are usually implemented with a potentiometer configured as a voltage divider. The signal goes to lug 1, the output is connected to the wiper (lug 2) and the lug 3 is connected to ground. If we turn the pot shaft, more or less of the signal voltage is sent to either to ground (quieter) or to the output through the wiper (louder). This simple approach works well, but we are concerned with stereo, which has that pesky concept of two independent channels. But your standard pot only is a "single-gang" device; it only has one set of lugs.

There are many issues with dual gang pots. Potentiometers are not exact devices. Their tolerance ratings aren't terribly high, usually in the range of 10percentage-20percentage. That means that you can grab two 10K ohm pots of the exact same part and manufacturer and expect one pot to max out at 8k and the other at 12k. This really isn't a big deal for most applications circuits are designed with part tolerances in mind.

Stereo input volume control with those variances. Each "gang" of the pot could be off by as much as 20 percentages, and matching of both gangs with a given shaft position could be way off also. Make sense in an empirical way. The result is that by using a cheap dual-gang pot as a volume control you are actually building in an unintentional balance control also. You can never really be sure if the left and right levels being reproduced are what they were when recorded. The problem is these variances can become quite pronounced when you are dealing a stereo volume control. But in our project attenuation is properly controlled by IC PT228 by different attenuation steps so that balance control problem is minor

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Virtual Keyboard

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Abstract—This paper presents a virtual keyboard technology based on ultrasonic sound technique. Virtual Keyboard can be defined as touch typing device which enhances and enables the communications through virtual interface technology. It doesn't have a physical appearance like conventional keyboard. Instead it uses a laser projection module to display the layout of keyboard. It is actually a key-in device, which can be implemented in space saving situations and as well as in hostile environments as the utilization of conventional keyboard is limited there. When system is powered ultrasonic sensor continuously emits signals, which then used to identifying the characters. The corresponding character will then displayed using arduino and Bluetooth module.

Keywords: Virtual Keyboard, ultrasonic sensor, Arduino UNO and Bluetooth module

I. INTRODUCTION

Virtual Keyboard has no physical appearance. Although other forms of Virtual Keyboards exist; they provide solutions using specialized devices such as 3D cameras. Due to this, a practical implementation of such keyboards is not feasible. The utilization of virtual keyboard appears in space saving situations or requirement in soft programmability of systems or keys to avoiding mechanical failures or in movement situations where usability of conventional keyboard is limited utilization of virtual keyboards in space situations are enormous. These kind of keyboards are utilized in hostile environment. Virtual keyboards find their position in transport environments. Example rail, plane or automotive. Various type of virtual keyboard are available in the market, such as laser projected, on screen type and one which operates on the basis of image processing.

A virtual keyboard can be defined as a touch typing device that enhances and enables communication through virtually interfaced sensing areas. The sensing area can be realized with sensors, finger tracing methods, or using touch pad. In this paper we will develop a virtual keyboard that can be projected on any surface. This system mainly uses ultrasonic sensors to operate the system. It has both hardware part as well as software part. The hardware equipment is mainly consists of ultrasonic sensors, arduino, Bluetooth module, and display. These are utilized for establishing the overall connections. For getting an accurate and precise readings the connection should be made properly. The coding is also needed for arduino in order to

get accurate reading from ultrasonic sensor. We have to record the readings observed from sensor to make a dimensional layout for developing a virtual keyboard. The distance is measured using ultrasonic sound sensors and will sense/detect the word typed by the user. This device is very reliable and easy to operate by the user as well to develop also.

Here we are designing something new which will help the user to reduce effort while doing work. Projection keyboard is nothing but the image of keyboard is projected from projector and ultrasonic sensors are placed at bottom of device. If someone place his/her finger on the image, with the help ultrasonic sensor it is able to calculate the distance towards the character present. Using this keyboard users are able to do their work sitting conveniently. To make the keyboard touch sensitive, one has to touch any portion of the projection keyboard then it will display the result. For example, suppose if we placed finger on a character 'q', the software should able to recognize the input given is 'q'. This will done by calculating the distance towards hand or finger and according to that device will understood what to display.

For the efficient performance of the system we use a small projector to project the layout of the keyboard. Projector will project the image of the keyboard. Humans are able to adjust the brightness of keyboard. We need multiple ultrasonic sensors for efficient detection of characters. Using the signals obtained from ultrasonic sensor microcontroller will calculate the distance and identifies which word is pressed. The device placed here is highly efficient since it uses sound waves which are not harmful to humans. As sound waves are independent of temperature

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Wireless Health Monitoring System for Detection of ECG, EMG and EEG

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Abstract: In the field of human health care, health monitoring system has a great significant role. The health monitoring contributes a wide variety of applications such as hospital, home care unit, sports training and emergency monitoring system. In this work, a wireless biosignal system is designed for health monitoring which integrates both the extracting and monitoring of the biosignal such as ECG, EEG and EMG. The developed integrating system is used for wireless monitoring of patient's biopotential changes of the heart, neuronal activity of the brain and muscles of the body. Dry electrodes, biosignal amplifier and filters are used for the development of this wireless system. The system also allows the continuous monitoring and graphical representation of the health condition of patient on a computer screen, even if the physician is away from the patient. The successful implementation of this wireless system is help to overcome the limitations of wired health monitoring system. Obviously it is a solution to bridging the gap between the doctor and the patients and best to be used on rural areas. Ultimate goal of this paper is to implement a low cost, high efficient wireless system for health monitoring.

Keywords: ECG, EEG, EMG, biosignal, biopotential.

I. INTRODUCTION

Different signals are generated by human body. Such signals are called biosignals. Biosignals can be defined as any signal in living being that can be continually measured and monitored. It may be electric and non electric signal. This bioelectric signal can be formed in certain cells of the body due to differences in concentration of certain chemical ions such as sodium, chloride and potassium ions. Biosignals can be measured using sensors such as electrodes that are skin surface transducers. The transducers are a device which converts the one form of physical signal into electric signal. The signal can be processed in electric circuits, that are bio electrodes, which are commonly used for measuring biosignals. In this proposed method, electrodes made up of silver-silver chloride metal is used.

Among the biosignal measuring devices well known devices are electrocardiogram (ECG), electroencephalogram (EEG) and electromyogram (EMG). These signals are mainly used for application like disease diagnosis. ECG signals are bipolar low frequency signal. The normal range of ECG signal is 0.05-100Hz having its amplitude range from 10 microvolt to 5 millivolt. 1mv is typical value for ECG amplitude. For EEG signal at low frequency 0.5-100Hz, 1-100 microvolt peak to peak is voltage range at cranial surface. ECG signal voltage is 100 times greater than EEG signal. So EEG signal requires input preamplifier with high gain. The information about frequency and voltage of signals from different measuring devices helps in diagnosis of the disease corresponding to the body part. Among them ECG is for diagnosing heart related diseases and disorders such as sudden cardiac

arrest, cardiovascular diseases and so on. EEG measures biopotential generated by neuronal activity of brain. It is very complex than ECG.

In the medical field, evolution of technology is extremely fast passed. Separate devices are present for measuring ECG, EEG and EMG. In this proposed methodology aim is to develop a low cost biosignal acquisition system which is affordable for the people of developing and under developed country. In previous papers, separate devices were used for ECG, EEG, and EMG. This paper presents a biosignal acquisition system, which is portable, battery powered and also includes wireless facility. Biosignal is transferred by Bluetooth serial communication and it gives wireless connectivity up to 9 meter, which consumes low power.

II. LITERATURE SURVEY

Several studies are focusing on the patient health monitoring to improve the health care system in the medical field. Many inspiring designs can be found in the health monitoring system literature.

Koji Morikawa et al, have reported a compact health monitoring EEG system with active electrodes for daily health monitoring [10]. In this paper, to reduce noise from impedance changes caused due to body motion and to prevent noise from power line interference, real-time impedance monitoring and active electrodes are used. The authors have developed the EEG ASICs for the system. So the complete system has a low noise and is packaged in a compact enclosure (38mm x 38mm x 15mm).

Smart Card Based Public Distribution System

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Abstract: Ration card has a very important role in every home and is used for various field such as family members details, to get gas connection, it act as address proof for various purposes etc. All the people having a ration card to buy the various materials (sugar, rice, kerosene, etc) from the ration shops. But in this system having two draw backs, first one is the inaccuracy in the weight of the materials due to human mistakes and secondly, if not buy the materials at the end of the month, they will sale to others without any intimation to the government and customers. In this paper, proposed a Smart Card Based Public Distribution System using RFID (Radio Frequency Identification) technology instead of ration cards. To get the materials in ration shops we need to show the RFID tag into the RFID reader, then controller check the customer details in the card. After verification, these systems show the amount details. Then customer needs to enter the required materials by using keypad. After receiving materials the controller send the SMS to customer. This system provides the materials automatically without the help of humans.

Keywords: RFID Tag, RFID Reader, Keypad

1. Introduction

Public distribution system is a government based chain of shops that works for the distribution of basic commodities to the needy sections of the society at very cheap prices. Rice, kerosene, sugar, etc are the major commodities distributed by the public distribution system. The conventional system has frequently been criticized for instances of corruption and black marketing.

In this paper, we proposed a concept on automatic ration materials distribution based on RFID technology to avoid the drawbacks of present PDS. The RFID card is act as ration card. Smart card is very easy to carry and to use and to use. The smart card normally contains details of a family, family head photo, card number and mobile number of family members.

When the person comes to ration shop, they can swipe the card and confirm their identity. In the proposed system smart card is provided to all ration card holders. In this card contain all the details of consumer including thumb impression. The user entered the ration shop and they swipe the card. After validation process was successful they are allowed to purchase products. The lists of bought products are send to their registered mobile number. In this there is no kind of misuse are done. Whenever validation process will be success then only the list of products will displayed. In addition to that the total amount of available quantity as well as the total amount of stock sell is also displayed. After each transaction the count will be reduced. After each transaction the details of the materials allowed is updated. When the accountant updates the goods details in particular shop they are updated in local system. Then the goods are transferred to that shop. The shop keeper cannot able to change any details. It is more user friendly to uneducated people also. These kinds of process can reduce robberies in ration shop. And also can reduce illegal entries in data base.

The main aim of this system is to reduce the illegal entries in ration shop is by providing a smart card. Errors such as inaccurate weight can be avoided. It helps to maintain the

data properly.

2. Literature Review

Evolution of public distribution of basic commodities in India had its origin in the rationing system introduced by the British during the World War II. The system was started in 1939 in Bombay and gradually extended to other cities and towns. By the end of 1943, 13 cities had been brought under the coverage of rationing and approximately 771 cities or towns were covered in 1946. Some rural areas, suffering from chronic shortage were also covered. Since there PDS is following the same pattern. There are only little modification is happening in the field of PDS.

One of the proposed concepts of automation of ration shop is based on finger print module[2]. In the proposed system smart card is provided to all ration card holders. In this card contain all the details of consumer including thumb impression. The user entered the ration shop and they swipe the card and also verify the thumb impression. After validation process was successful they are allowed to purchase products.

The another proposed concept is to replace the manual work in public distribution system. The ration distribution system is automated by using PLC, which is similar to ATM machine[3]. This automated ration system replaces the conventional ration system by using smart card. In addition, the finger print detector is placed in the system in order to check the correct user access. If the user is correct, then the input can be given in the touch screen. When the products are obtained from the automated ration shop, amount is taken from the bank account of the particular person. The embedded controller is pre- programmed in such a way to perform the similar operations. In this automated ration shop the government control transactions that occur in ration shop. In order to involve government, the proposed ration shop system is connected to the government database through GSM module, which further sends the up-to-date information to the government and the consumer. For the efficient operation and economic constraints of the system, the power supply unit is alternate to solar power system.

Drowsiness Detection and Rescue System

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Abstract: The Drowsy Detection and Rescue System that has been developed using a disruptive approach. The system is essentially developed to detect drivers drowsiness at night time driving. The system utilize a infra-red night vision camera that points directly towards the driver's face and monitors the driver's eyes in order to detect fatigue. In such a case an alarm is issued when fatigue is detected, to alert the driver. If the eyes are found to be closed for a certain number of consecutive frames then the driver is alerted with a warning signal. The vehicle is automatically parked to the left side of the street if drowsiness of the driver is detected.

Keywords: vehicle, camera, alarm

1. Introduction

Driver fatigue is a important factor in a large number of vehicle accidents. The development of technologies for detecting or preventing drowsiness at the wheel is a major trouble in the field of accident avoidance systems. By monitoring the eyes, it is believed that the symptoms of driver fatigue can be detected early enough to avoid a car accident.

Detection of fatigue involves a sequence of images of a face, and the observation of eye movements and blink patterns. The eye detection algorithm as well as the drowsy detection procedure has been implemented using a self developed algorithm. The system is developed using image processing fundamentals. The system is focused on accurately determining the open or closed state of the eyes. Depending on the state of the eyes it can be said whether the driver is alert or not. The images of the drivers face are acquired from the infra-red night vision camera. The infrared camera illuminates the drivers face at night time. The images obtained are converted to binary images first & then clusters on those images are found out. If dozing is detected, reduce the speed of the vehicle and parks the vehicle to the left side.

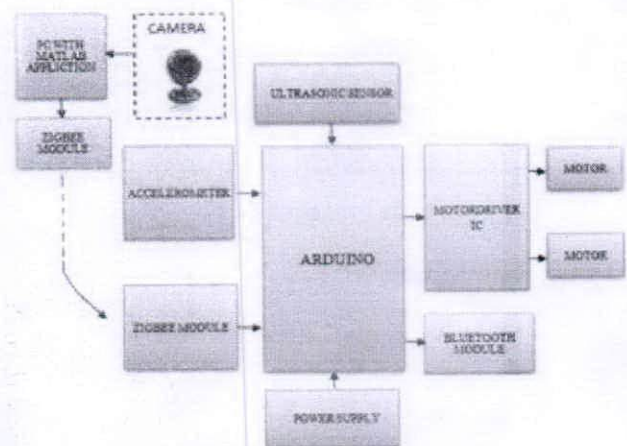
2. Literature Review

- 1) Describes the driver fatigue detection methodology using steering grip force, which detects the driver's alertness by monitoring the drivers grip force on the steering wheel. This system is not effective if the driver doesn't firmly hold on the steering wheel, leading large number of frequent false alarms.
- 2) Presents the project psycar which is aimed to study the feasibility analysis on a car control system by psychophysical parameters. They used multivariate statistics methods for evaluating the correlations between the physiological parameters acquired (eeg, galvanic skin response or resistance, peripheral temperature and heart rate variability). But this system is invasive since all the sensors to monitor the above parameters need to be in contact with the body. this will not give assurance that the driver will wear the device while driving but the proposed system is non-invasive.

- 3) Developed the eeg based system with fuzzy neural network for determining driver drowsiness.
- 4) Implemented the wireless oxygen saturation using wristband pulse oximeter, for real-time monitoring from a remote health-care centre will function only if the driver wears the system that requires driver's cooperation. Real time automated multiplexer sensor system [5] uses an intelligent steering wheel sensor network consisting of multiple embedded ir sensors to monitor the pulse rate of the driver and analyzes the alertness of the driver

The proposed system uses night vision cameras to monitor drive's eyes and if eyes are closed for more than normal time then controls the wheel of vehicle. This system is used to prevent the accidents by wheel control. Proposed system also parks the vehicle to the left side in the driver's drowsiness condition.

3. Block Diagram



Camera

The camera is used as a eye blink detector with the help of computer. A webcam is a video camera that feeds or streams its image in real time to or through a computer to computernetwork. When "captured" by the computer, the video stream may be saved viewed or sent on to other network via systems such as the internet and email as an attachment. When send to a remote location, the video stream may be saved viewed or on send over the internet.