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E-Mail :
editor.ijasem@gmail.com
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DESIGN OF CONCEALED ALARM SYSTEM BASED SECURITY SYSTEM FOR BANKS AND SHOPPING MALLS USING GSM

Akula Hari Vikas¹, Shanam Nikitha²,
Singireddy Sandhya³, Dr. K. Niranjana Reddy⁴

^{1,2,3} UG Student, Dept. of ECE, CMR Institute of Technology, Hyderabad

⁴ Associate Professor, Dept. of ECE,
CMR Institute of Technology, Hyderabad

ABSTRACT

Consider the characteristics of bank and other financial institutions. This paper aims for reforming the conventional alarm system by the concealed GSM monitor and wireless alarm systems and meanwhile, SMS and voice alarm can be sends to the outer by multi-regional remote control for FM networks. It can be receiving the alarm, then the monitoring center can achieve real-time on site monitoring it provides the more efficient information for the incident handling.

INTRODUCTION

The financial transactions of branches banks are often more concentrated, it also threat of robbery, therefore how to improve the real-time alarm and the security is the pressing problem. While the GSM (Global System for Mobile Communications) technology's development, has provided the very good solution to this problem. So the concealed GSM monitor and alarm system for bank counter arises at the historic moment. This alarm system triggers alarm

through the foot-button in a more concealed way. At the same time by multi-zone multi-directional remote control wireless FM network, messaging and voice alarms can be achieved. On receiving the alarm, monitoring center can monitor on-site voice in real-time, thus provide more efficient information for the incident handling. The alarm system described in this paper is mainly used in banks, residential quarters, warehouses, hospitals and so on. These areas require remote alarm or emergency situation alarm very much. Especially banks are prone criminal area of cases, sometimes bank staff cannot alarm timely or cannot alarm, so that the property of our country may fall into the pocket of criminals, and the life and health of bank staff's may be hurt by the criminals. But this system solves these problems very well, in the event of criminal cases, once step the foot-button to trigger alarm in the main control area, or use the remote control wireless FM network to transmit a trigger signal to the microcontroller in other monitoring area can both achieve alarm and

monitor of the criminal. This intellectualized GSM-based alarm system has the characteristics of diverse alarm way; easy concealment; and may realize alarm over mass, thus achieves the safeguard of the financial network security.

EXISTING SYSTEM

The safety locker is a convenient way provided by the financial institution or the bank to place the valuable belongings and documents of the user. This system operates using the concept of dual keys - one provided to the user and the other held by the branch head. The main aim of this dual key system is to efficiently operate the entire safety locker system under the control of one head of a branch allotted by that particular bank's central head office. The entire system hinges on the authenticity provided and assured by the branch head. There is lot of tedious process involved in the current system of operation of the safe deposit lockers. The manual allocation of responsibility to the branch head by central head office (in a daily basis) based on the availability and the on-spot branch head approval for operation of the safety lockers by the customer are some cumbersome process involved in the current system. The main intention behind the branch head on-spot approval is to manually authenticate

each individual before operation of the respective locker. The branch head is supposed to allow only the user of the locker to gain access to it. These intentions lead to the birth of the dual key system in the safety lockers of the bank. The lockers operating under these enforcement's are kept in a separate enclosure called the strong room. Access to this strong room lock is only with the branch head. So the branch head has to maintain a separate lock for each of the safety lockers inside the strong room and a lock for strong room. The access for these is manually determined by the central head office on the availability of head at each branch in daily basis.

PROPOSED SYSTEM

Compare to all other works proposed this proposed work uses voice module, MATLAB, Face recognition with live image authentication. In this work we are using ARM – 7 processor. It consists of 64 pins so that it can be connected with all other peripherals to it with a single processors. It can have voltages of 3.3V and 5V supply. The MATLAB coding is used to find the face recognition of a person so, we are using the OTP based information with the GSM module. The OTP has entered by user to verify if authorized person or not. The information will be stored in the

database. The LCD used is 16X2 select the identity modules with giving the AT command. The proposed work provide the high security.

LITERATURE SURVEY

Ma Shibao, Zhang Guoyu, Sun Xiangyan et al. Design of the system of wireless alarming based on GSM module[J]. then the Journal of the Changchun University of the Science and Technology.

GPS is one of the technologies that are used in a huge number of applications today. One of the applications is tracking your vehicle and keeps regular monitoring on them. This tracking system can inform you the location and route travelled by vehicle, and that information can be observed from any other remote location. It also includes the web application that provides you exact location of target. This system enables us to track target in any weather conditions. This system uses GPS and GSM technologies. The paper includes the hardware part which comprises of GPS, GSM, Atmega microcontroller MAX 232, 16x2 LCD and software part is used for interfacing all the required modules and a web application is also developed at the client side. Main objective is to design a system that can be easily installed and to provide platform for

further enhancement. In this urban life transportation is very common.

Chen Huie. Design and application of the wireless longdistance supervisor system based on GSM[J]. Science and Technology Information.

For a long time, paper-based notice boards have been widely used in the government and private organizations, school areas to share information among the customer. However, using traditional (paper-based) techniques is a wastage of paper and paper-ink and human power. As a result, it is a time-consuming method and also it is not cost-effective. Therefore, to mitigate the aforementioned drawback, in this paper the design and development of a smart wireless electronic notice board are presented. The system is designed using a GSM module, Bluetooth module, arduino microcontroller, LCD, Buzzer, and LED. The circuit diagram and its functionality has been validated using the Proteus simulator. Based on the distance, the user of the proposed system can select one of the two approaches, are GSM modem-based and Bluetooth module-based approaches. The simulation and the hardware implementation of the proposed system are successfully achieved. From the result it has been realized that the proposed system is only accessed by authenticated users, it is a cost-effective system and very easy to handle. Besides, the latency involved in using papers in displaying notices is avoided. Therefore, the proposed system has many upcoming applications, as it can be set up at educational institutions and organizations, public transport places like railways, bus stations, airports, at the roadside for

traffic control, and advertisements purpose. A notice board is a place where people can leave public messages to advertise things, announce events or provide updated information in any organization [1].

**Chang Yan, Yan Lili, Zhang Shibin.
Design of intelligent monitoring based on
GSM[J].then the Micro computers
Information,.**

To solve the inspection problems in cotton storage, as well as the need for environmental monitoring in the process of modern cotton bale storage, an intelligent inspection and temperature and humidity intelligent monitoring system based on RFID cotton bale was developed by adopting RFID (Radio Frequency Identification) technology, wireless temperature and humidity real-time monitoring technology and handheld terminal intelligent inspection technology. The system was composed of RFID positioning inspection module and temperature and humidity real-time monitoring and transmission module. The artificial neural network (ANN) based on the particle swarm optimization (PSO) algorithm was used to process the monitoring data of the system by Gaussian filtering, and an accurate classification model of RSSI and label position was established. The test results showed that:

Through the comparative analysis of the RFID indoor positioning algorithm, the positioning error of the PSO-ANN algorithm was small. In the actual cotton bale warehouse test, the relative error of positioning and monitoring for RFID cotton bale intelligent inspection and monitoring system was less than 6.7%, which effectively improved the working efficiency of inspection personnel and the security of cotton bale storage.

**Wu Bo, Liu Xing dong, Min.
Development of the GSMbased on the
general remote alarm controller[J]. then
the Computer Engineering and
Applications.**

In this paper, a simulation-based method has been used to demonstrate reduction in mutual coupling between phased array elements of a dual-polarization phased array antenna. The antenna element used in this phased array has been designed as dual layer antenna to operate at 2.8 GHz and has been simulated in high-frequency structure simulator (HFSS). The two layers have two microstrip square patches and the top patch acts as a parasitic microstrip antenna. The mutual coupling reduction is achieved by two microstrip lines printed on a substrate over the antenna elements. For the design

analysis of mutual coupling and its reduction two of the antenna elements are placed adjacent to each other. The simulated results indicate that the mutual coupling is suppressed by 4-6 dB without affecting the cross-polarization levels. Dual polarization phased array radars operating in S-band are widely used in retrieving weather information accurately. However, these radars are constrained in the scan angle range. This limit is because of the scan blindness at wide scan angles from broadside direction [1]. The scan blindness is affected by mutual coupling between antenna which is characterized by scattering parameter between various ports. This in turn is related to active reflection coefficient of m th element, (Γ_m) that is a function of scan angle and mutual coupling between elements as in equation (1)
$$\Gamma_m(\theta) = \sum_{n=1}^N S_{mn} e^{-j(n-m)u} \quad (1)$$
 Where S_{mn} is the scattering parameter between m and n ports (represents coupling), $u = kd \sin \theta$, d is the inter-element spacing.

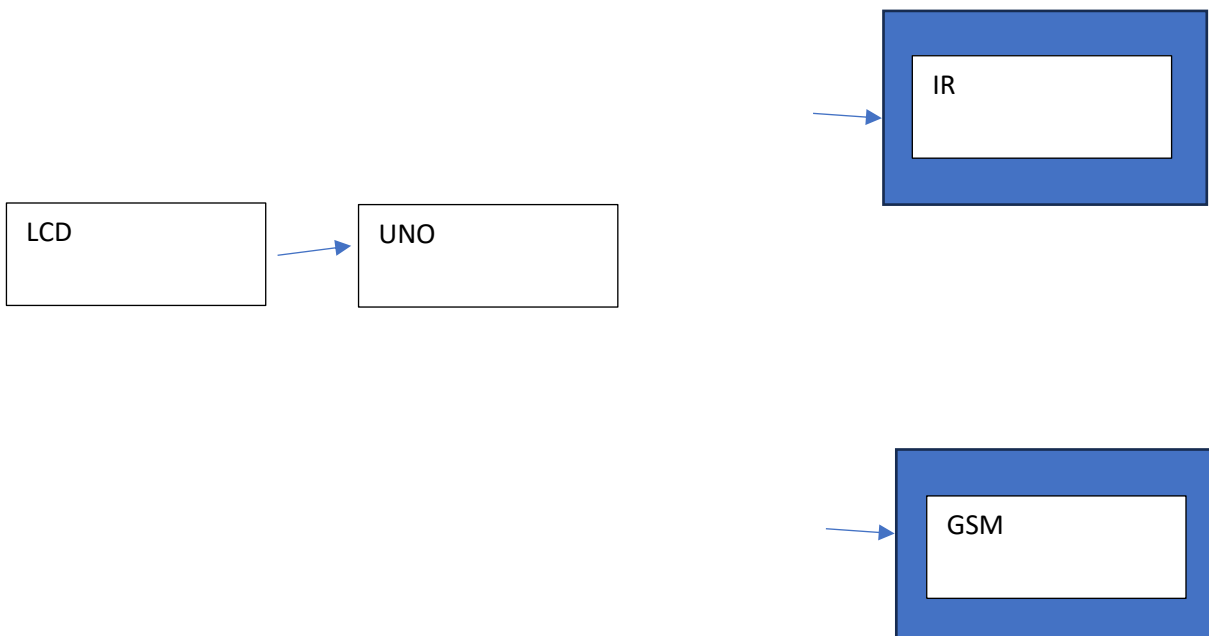
Wang Wenliang, Ji Wen chao. Design of monitor system of power supply for short message based on GSM [J]. Chinese Journal of Power Sources.

To prevent the frequent occurrence of transmission line galloping accidents, many scholars have carried out studies. However,

there are still many difficulties that have not been solved. To address the issues that have arisen during the installation of the monitoring system, a new installation technique for the galloping monitoring terminal structure has been developed, and structural design and transmission line impact have been taken into account. A method combining Kalman and Mahony complementary filtering has been shown to solve the problem of wire twisting when galloping is taken into account. The displacement is derived by double-integrating the acceleration, although the trend term has a significant impact on the integration result. To handle the trend term issue and other error effects, a method combining the least-squares method, the adaptive smoothing method, and the time-frequency domain hybrid integration approach is used. Finally, the monitoring terminal's structural design is simulated and evaluated, and the measured amplitude is assessed on a galloping standard test bench. The difference between the measured amplitude and the laboratory standard value is less than 10%, meeting the engineering design criteria. And the galloping trajectory is identical to the test bench trajectory, which is critical for user end monitoring. With the state's development of transmission line building size, the region covered by the power grid has grown in recent years, and the terrain traversed has become more complicated. Furthermore, because of the frequent occurrence of adverse weather, transmission line galloping accidents [1] are widespread. The galloping issue not only costs grid operators a lot of money, but also affects the satisfaction of microgrid operators and prosumers [2]. Transmission line galloping is characterized by the self-excited oscillation of

low frequency (about 0.1–3 Hz) [3] and large amplitude (about 5–300 times of conductor line diameter). This phenomenon will result in significant accidents [4], such as tower falling, wire breakage, line fittings breaking, and line power failure tripping, which would severely disrupt the power grid's functioning and result in incalculable economic loss. The eccentric icing phenomena of the conductor is what causes the transmission line to gallop.

Block diagram



ARUDINO:

The Arduino is a family of microcontroller boards to simplify electronic design, prototyping and experimenting for artists, hackers, hobbyists, but also many professionals. People use it as brains for their robots, to build new digital music instruments, or to build a system that lets your house plants tweet you when they're dry. Arduinos (we use the standard Arduino Uno) are built around an ATmega microcontroller — essentially a complete computer with CPU, RAM, Flash memory, and input/output pins, all on a single chip. Unlike, say, a Raspberry Pi, it's designed to attach all kinds of sensors, LEDs, small motors and speakers, servos, etc. directly to these pins, which can read in or output digital or analog voltages between 0 and 5 volts. The Arduino connects to your computer via USB, where you program it in a simple language (C/C++, similar to Java) from inside the free Arduino IDE by uploading your compiled code to the board. Once programmed, the Arduino can run with the USB link back to your computer, or stand-alone without it — no keyboard or screen needed, just power.

IR SENSOR

An [infrared sensor](#) is an electronic device, that emits in order to sense some aspects of

the surroundings. An IR sensor can measure the heat of an object as well as detects the motion. These types of sensors measure only infrared radiation, rather than emitting it that is called a [passive IR sensor](#). Usually, in the infrared spectrum, all the objects radiate some form of thermal radiation. These types of radiations are invisible to our eyes, that can be detected by an infrared sensor. The emitter is simply an IR LED ([Light Emitting Diode](#)) and the detector is simply an IR photodiode that is sensitive to IR light of the same wavelength as that emitted by the IR LED. When IR light falls on the photodiode, the resistances and the output voltages will change in proportion to the magnitude of the IR light received.

Gas Analyzers

IR sensors are used in gas analyzers which use absorption characteristics of gases in the IR region. Two types of methods are used to measure the density of gas such as dispersive and non dispersive.



GSM (Global System for Mobile communications)

GSM (Global System for Mobile communications) is a cellular network, which means that mobile phones connect to it by searching for cells in the immediate vicinity. GSM networks operate in four different frequency ranges. Most GSM networks operate in the 900 MHz or 1800 MHz bands. Some countries in the Americas use the 850 MHz and 1900 MHz bands because the 900 and 1800 MHz frequency bands were already allocated. The rarer 400 and 450 MHz frequency bands are assigned in some countries, where these frequencies were previously used for first-generation systems.

CONCLUSION

Along with the wireless communication technology's unceasing progress, the use of mobile network operators to offer remote monitoring and data transmission has been widely used in various fields. Especially the GSM data transmission plan based on MCU such as the GSM alarm system, automatic meter reading system and soon has gained more and more people's attention. This article introduced the concealed GSM monitor and alarm system for bank counter, which has the characteristics of easy installation, alarm security and quickly, adapted to the needs of the market well.

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