Home Security System for Controlling Theft using android ADK

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Abstract:- **In today's environmentTheft is one of the most common and illegal behaviors. The fear of Theft always agitate many people. When traditional security systems are become less safe, one can need the help of electronic security systems. Security systems can include motion sensors and infrared sensors that will find any kind of obstacle in home and notify the user. This project deals with the design and development of an embedded design, which will be used to prevent/control the theft. The development model will be based on embedded system with GSM technology. The main idea of this project is to protect our home through Android Mobile. An unauthorized movement in the home is detected by PIR Sensor. A buzzer in this system will give a warning system. This project is to provide a reliable security to home.**

Keywords: Embedded System, GSM Modem, Android Mobile, PIR Sensor

1. INTRODUCTION

Now a day's security is used in all the fields. Home security has also attained more rapid changes, but the costs of all existing security systems are so high and it is not affordable for all the users.

This project is aimed to give the best and low cost security solution to the home. In this we have incorporated the GSM technology and Android platform to design a user friendly and more secure home security system. The concept of giving password through android mobile is generally used to provide reliable security tohome [1] .The GSM modem is being used in our project as it has a better coverage in both indoor and outdoor environment. GSM technology is a leading 2G technology is available in all countries and it is the low cost communication [2].

The cost of implementing this security system for controlling theft is cost effective and safe system. The user interface for the system is so simple and can easily understand by the all people [3]. The mainprocesses of the system take place through our mobile phones so there will not be any hardware system is not required.

2. LITERATURE REVIEW

Deepali Javale, Mohd. Mohsin, Shreerang Nandanwar, Mayur Shingate [1]Home automation and security systems are used to help old aged and physically challenged people who can able to control home appliances and alert them in a problematic situations. This paper gives the design of home automation and security system using Android ADK. The idea of this system is based on Android ADK (Accessory Development Kit) at home. Electronic appliances in home is connected to the ADK and link is established between the ADK and Android mobile.

Huiping Huang, Shide Xiao, XiangyinMeng, Ying Xiong[2] The remote home security alarm system with low-power consumption is developed by applying WSN and GSM technology. The system is used to detect the theft, leakage of gas and fire, and send alert message remotely. The System includes the single chip C5081F310,RF transceivers chip CC1100 as well as the GSM module.

Prof.(Dr.) KhannaSamratVivekanandOmprakash[3] The paper is to examine a money-making solution that will control home appliances remotely and it also enable home security against theft in the absence of home owner. The system uses wireless link such asBluetooth, zigbee, Infrared and Wi-Fi access to the system for security.

V.Sathya Narayanan, S.Gayathri[4]The project give the intelligent, home automation system (IHAM).It is developed by using PIC microcontroller with the ZigBee technology to control the household appliance. The home automation system is used to control electrical appliances in a home or office using voice commands with the help of speech recognition chip HM2007. The proposed system provides the overall framework of hardware and software designof the system and describes the ways to implement it.

Rajesh Banala, D.Upender[5]To implement a real-time surveillance to the home security, the inventive remote monitoring system was developed.Home security system is based on ZigBee technology and GSM / GPRS network. The system can send irregular images and alert messages through MMS and SMS; receive remote instruction, and remote monitoring of home appliances. The intelligent remote monitoring system can be

responsible and needed for providing reliable home security.

Nikhil Agarwal and Subramanya G Nayak.[6]The paper proposes a micro-controller based automated Home Security System. The door lock system is password protected.It has LED based resistive screen input panel which process by detecting difference in light intensity. It captured by the photo diode which is surrounded by red LEDs. The LCD display is a 16X2 size. IR sensors are used to detect any disturbance while monitoring the windows and doors. It also contains Fire alarm system uses LM35 temperature sensor which senses sudden increase in temperature and on alarm.

3. EXISTING METHODS

Now there are three main methods used for providing security to home. They are remote monitoring, surveillance system and GSM technology. But the cost of manufacturing these systems are quite high when compared to the proposed system. In this scenario surveillance systems are that much secure like proposed system, because it is easily damaged by the theft.

Existing systems are cost effective and they are not that much secure comparing to this proposed system. Many existing systems are based on Wireless Sensor Network and remote monitoring. These systems are not affordable for all the people in the society.

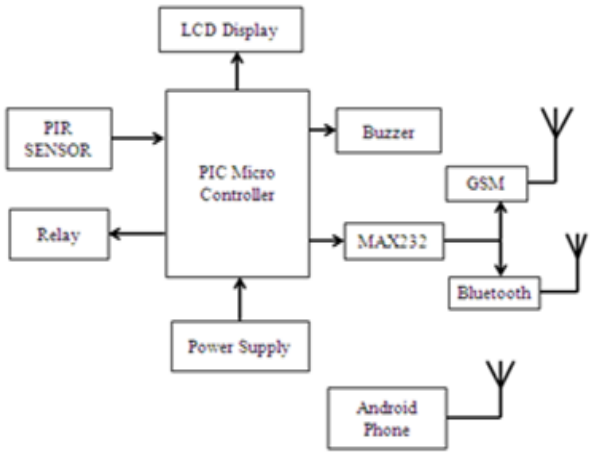

Fig1.Security System Block Diagram

4. METHODOLOGY

To make the system more secure a password is given by the user to the device through Android Mobile. The user can lock and unlock the Home through Mobile. Once the password is used, the device automatically generates the new password and sends it to the owner of to the home. The system is operated based on two conditions.

1. LOCK CONDITION

During Lock condition PIR sensor is switched “ON” and finds the unauthorized movement present inside the home. PIR sensor is Operated based on Infrared light.If any disturbance happens the sensor will detect it and the device will act based on the condition given in the program .It sends the alertmessage to user through GSM modem. A buzzer is attached to the device to alert the neighborhood people.

2. UNLOCK CONDITION

If we are trying to open the door the first step is to turn “ON” our mobile Bluetoothconnection and paired with the security system inside the home.

To unlock the door the correct password is given through the mobile phone. The device and Android Mobile Communicates through Bluetooth connection. In
This condition PIR sensor is in “OFF” condition.

The LCD display is used in this system to know the status of the security locking system of the home .It act as the interface between the user and the locking system.

4.1. FLOW OF OPERATION

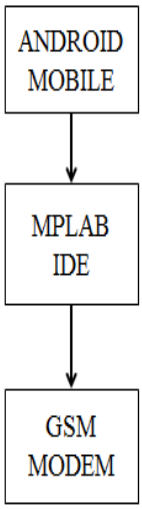

Fig2.Flow of operation

1.The Android mobile is the interface between the home owner and the security system.

2.The MPLAB IDE is the medium or the software that control all the hardware components of the security system like PIR sensor,Buzzer and GSM modem.

3. GSM modem is the communication medium to alert the users about the theft.

4.2. MPLAB IDE

MPLAB is a free integrated development environment for the development of embedded applications on PIC and dsPIC microcontrollers. It is developed by Microchip Technology.It is called an Integrated Development Environment, or IDE. It provides a single integrated "environment" to develop code for embedded microcontrollers.MPLAB IDE runs on a PC and contains all the components needed to design and deploy embedded systems applications. Once the codehas no errors, it needs to be tested.A software program that simulates the execution of the microcontroller.

Fig3.MPLAB IDE Project Wizard

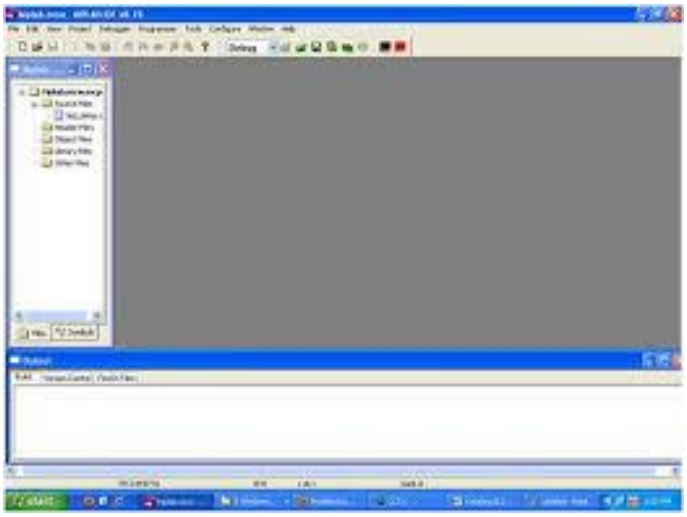

Fig4.New project

Fig5.Selecting the Device

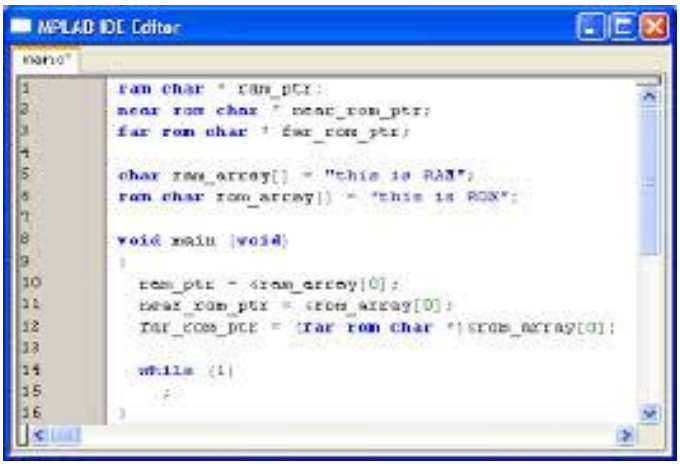

Fig6.MPLAB IDE Editor

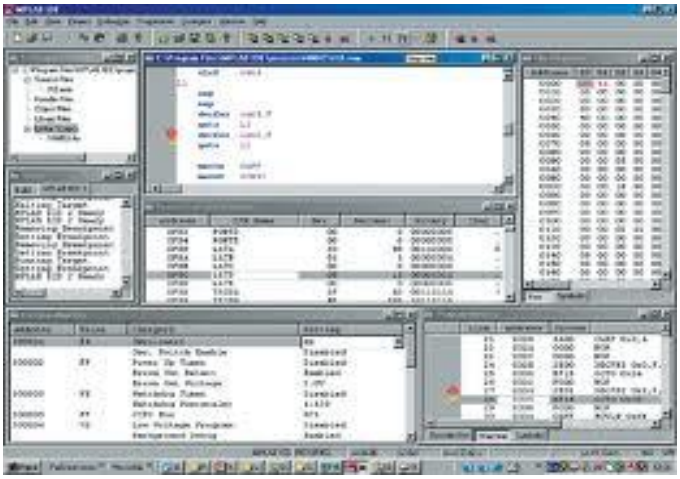

Fig7.Debugging Wizard

4.3. GSM SECURITY SYSTEM

GSM was designed with a moderate level of security. It has broad network coverage. The system was designed to authenticate the subscriber using a pre-shared key and challenge-response. The transmission between the subscriber and the base station can be encrypted. The progress of UMTS introduces anoptional USIM, that uses a longer validation key to give greater security, as well as interactively authenticating the network and the user - whereas GSM only authenticatestheuser to the network .The communication through the GSM technology is more secure as it usesencryption technique to send the alert message.

5. CONCLUSION

This is an ongoing project.By implementing this home security system in real time, we can control the theft easily and it will give a more security system to home at a affordable price. This system is user friendly to the user and the environment. It can be easily used by any person.

6. REFERENCES

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