ENHANCED HOME SECURITY WITH E-MAIL AND SMS ALERTING SYSTEM

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Abstract

Security has becoming an important issue everywhere. Home security is becoming necessary nowadays as the possibilities of intrusion are increasing day by day. Safety from theft is the most important requirements of home security system for people. A traditional communications based security systems provides enhanced security as whenever a signal from sensor occurs, a text message is sent to a desired number to take necessary actions. This paper suggests two methods for home security system. The first system uses web camera. Whenever there is a person in front of the camera, it will identify and gives the commands to open the door through zigbee if the person is authorized, and security alert in terms of sound and SMS is delivered to the owner. The second method sends SMS to open or close the door.

Keywords: GSM (Global System for Mobile communications),LPC2148, Zigbee, SMS (Short Message Service)

1. Introduction

Smart Home can be also known as Automated Home or intelligent home which indicates the automation of daily tasks with electrical appliances used in homes. This could be the control of lights, fans, viewing of the house interiors for surveillance purposes or giving the alarm alteration or indication in case of gas leakage. Home security has changed a lot from the last century and will be changing in coming years . Security is an important aspect or feature in the smart home applications. The new and emerging concept of smart homes offers a comfortable, convenient, and safenvironment for oc cupants. Conventional security systems keep homeowners, and their property, safefrom intruders by giving the indication in terms of alarm. However, a smart home security system offers many more benefits.

This paper mainly focuses on the security of a home when the user is away from the place and biometric face detection system. Two systems are proposed, one is based on GSM technology and other uses web camera to detect the intruder. The first security system uses a web camera, installed in house premises, which is operated by softwareinstalled on the PC and it uses Internet for communication. The camera detects motion of any intruder in front of the camera dimensions or camera range. The software communicates to the intended user via Internet network and at the same time it gives sound alert. The second security system is SMS based and uses GSM technology to send the SMS to the owner. Theproposed system is aimed at the security of Homeagainst Intruders and Fire. In any of the above caseshappens
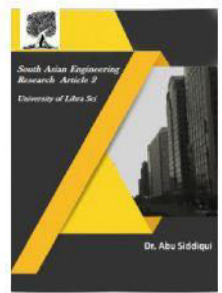
while the ownersare out of their home then the device sends SMS to the

2. Proposed System

A model of smart home is prepared using ARM7 microcontroller. strength to test the prototype of developed system. It consists of various devices like ARM7,ZIGBEE,LCD, GSM…and etc.

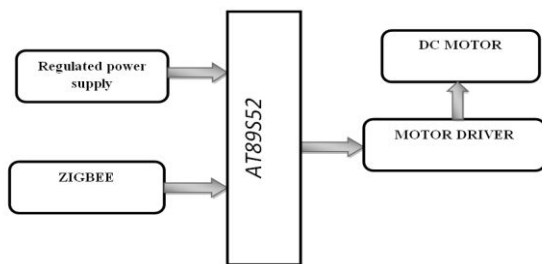And the proposed system block diagram is as shown below.
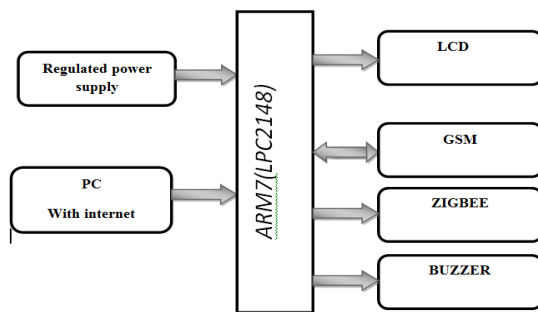
2.1 BlockDiagram:

Fig1 Door section

Fig2 Master node section

2.2 WORKING:

The proposed system consists of two sections one is door section and master node section. Here the master section will identify the person by recognizing the face with the help of PC and software application, and it will also send the corresponding information to e-mail along with attached photo. The software application also provide the authentication information to the

ARM7 through UART, which will process and enable the buzzer, GSM and Zigbee modules correspondingly.

In the door section the zigbee module receives the information from master node and control the door motor through 89S52 microcontroller. If it gets the authorized signal then it will open and close the door with predefined interval. It will do nothing for unauthorized signal.

3. HARDWARE DESCRIPTION

(a). Power Supply Unit:

When working with electronics, you always need one basic thing: Power. In every electronic circuit power supply is required. The proper working of each and every component, it is important to supply the exact amount of voltage and current. If the power exceeds its limit, it can be fatal. The +5 volt power supply is based on the commercial 7805 voltage regulator IC. This IC produces a steady +5 volt output, accurate to within 5% (0.25 volt). It also contains current-limiting circuitry and thermal overload protection, so that the IC won't be damaged in case of excessive load current; it will reduce its output voltage instead. LM1117 regulator is used to get 3.3v.

GSM Module:

GSM modem is connected with the ARM-7 microcontroller. This allows the computer to use the GSM modem to communicate over the mobile network. These GSM modems are most frequently used to provide mobile Internet connectivity, many of them can also be used for sending and receiving SMS and MMS messages. GSM modem must support an "extended AT command set" for sending/receiving SMS messages. GSM modems are a cost effective solution for
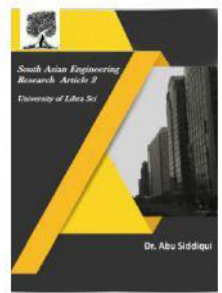
receiving SMS messages, because the sender is paying for the message delivery. SIM 300 is designed for global market and it is a tri-band GSM engine. It works on frequencies EGSM 900 MHz, DCS 1800 MHz and PCS 1900 MHz. SIM800 features GPRS multi-slot class 10/ class 8 (optional) and supports the GPRS coding schemes. This GSM modem is a highly flexible plug and play quad band GSM modem, interface to RS232, it supports features like voice, data, SMS, GPRS.

4. SOFTWAREREQUIREMENT

KEIL uVISION4

Here we are using the keil uVision software as
i. Editor to write/modify the code
ii.Compiler
iii.Debugger

PROTEUS PROFESSIONAL

Here we are using the proteus professional software to
i. Schematic design
ii. Layout design
iii. Circuit simulation

Flash Mazic is used to dump the hex file into the ARM7 microcontroller.

5. RESULT AND ANALYSYS

The proposed system was fully developed and tested to demonstrate its feasibility and effectiveness. The screenshots of the smart home app developed has been presented in Figure bellow.

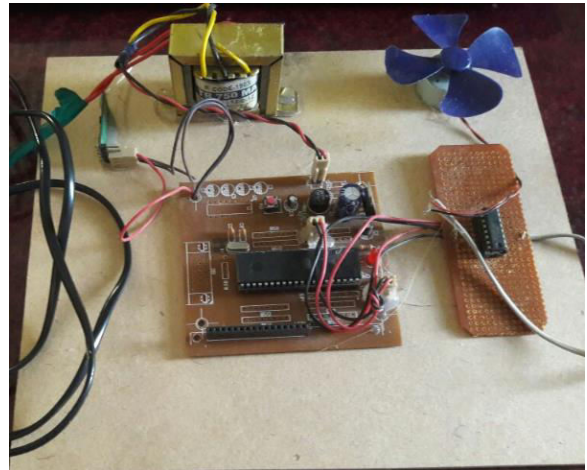(replace with your kit photos and screenshots)

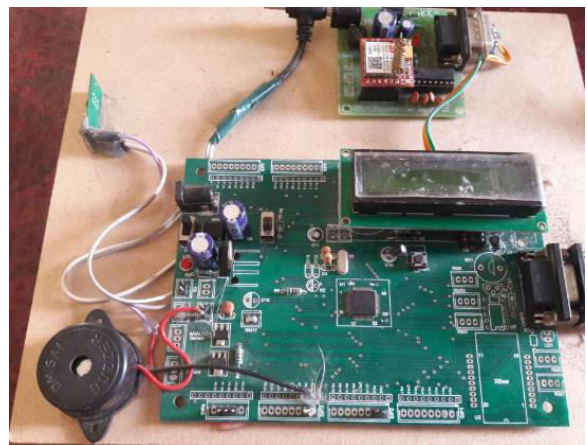Fig3. Prototype of door section

Fig4. Prototype of master node section

6. CONCLUSSION AND FUTURE ENHANCEMENT

The GSM based home security system has been designed and tested with the mobile network. The user can get alerts anywhere through the GSM technology thus making the system location independent. A flexible way to control and explore the services of the mobile. The communication of home is only through the SMS which has been tested with the mobile networks and is working on any mobile

network.The web camera based security system is very easy, user friendly and software has many features.

Further the system will be upgraded to IOT, to provide more performance, and to provide high datarates.

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