

Design and Implementation of SMS based Home Security System

Santhosh Aitha
M.Tech,
(VLSI & Embedded Systems),
Siddhartha Institute of
Engineering and Technology.

R.Vyshnavi, M.Tech (DECS)
Assistant Professor,
Siddhartha Institute of
Engineering and Technology.

Dr.Dasari Subba Rao, Ph.D
HOD,
Department of ECE,
Siddhartha Institute of
Engineering and Technology.

Abstract:

GSM – Global System for Mobile Communication is used as a media which is used to monitor and control the function load from anywhere by sending a message. It has its own deterministic character. Thereby, here GSM is used to monitor and control the functionality of Project.

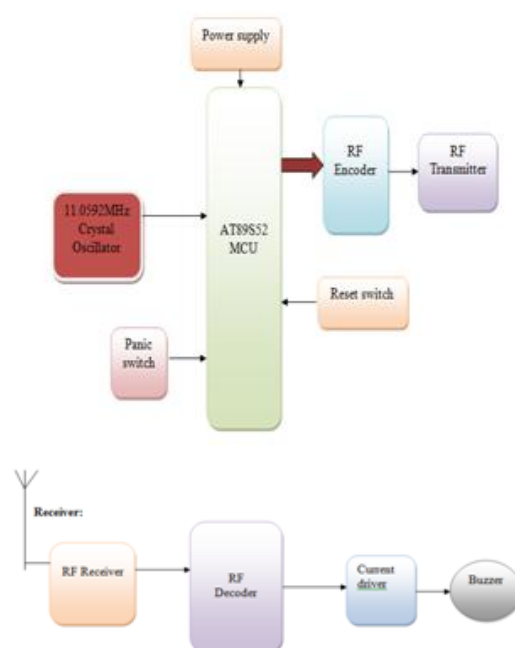
Hence no need to waste time by manual operation and transportation. Hence it is considered as highly efficient communication through the mobile which will be useful in Home security which would be controlled from anywhere else. It is also highly economic and less expensive; hence GSM is preferred most for this mode of controlling.

Existing System:

Safety is the primary concern. Here we are using a simple solution to reduce threats at home by employing a simple system at the place where we want safety. This can be implemented either at home, offices and also at some industries. This can be implemented easily with low cost.

A panic switch is interfaced to controller to intimate the dangerous situation immediately. This project uses AT89S52 MCU as its controller. At that fire station we will communicate through RF and gives the buzzer alert to indicate that there is something at the other place(transmitter side) and immediately their help is required.

BLOCK DIAGRAM: Transmitter



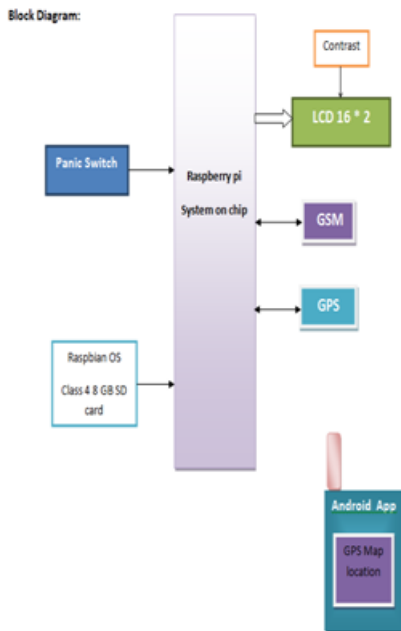
Draw Backs:

RF communication can be implemented with shorter distance only.

Proposed System:

In this application we are maintaining a switch. In the worst situation when we press switch at that time with location place will be sent to the android mobile which is enrolled in the memory. It should get a message like help needed. We are using LCD to display on the screen while sending message like (message sending to cell *****). GPS gives only the longitude and latitude values but by using Android application in the mobile we can easily get the location name from where the message has been sent.

The controller takes the switch as its input i.e when some threat has occurred one need to press that switch and the controller makes the GSM module to message to the pre-stored number. In this way the concerned person will know the location and they will be able to save the candidate. With a wide range of serial communications interfaces, they are also very well suited for communication gateways, protocol converters and embedded soft modems as well as many other general-purpose applications. Here we are using Raspberry pi as master for entire system.



Hardware module used in this project

RASPBERRY-PI

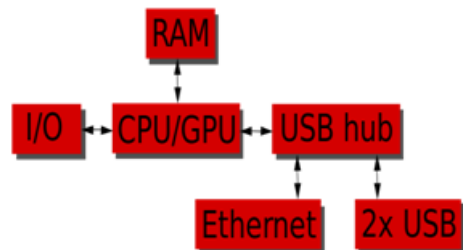


The Raspberry Pi has a Broadcom system on a chip (SoC).

Features

- System Memory – 1GB LPDDR2
- Storage – micro SD card slot (push release type)
- Video & Audio Output – HDMI and AV via 3.5mm jack.
- Connectivity – 10/100M Ethernet
- USB – 4x USB 2.0 ports, 1x micro USB for power
- Expansion
2x20 pin header for GPIOs
Camera header
Display header
- Power – 5V via micro USB port.
- Dimensions – 85 x 56 mm

Basic Hardware of Raspberry-PI



OS used in Raspberry pi is Linux



Coding will be done in python/C language

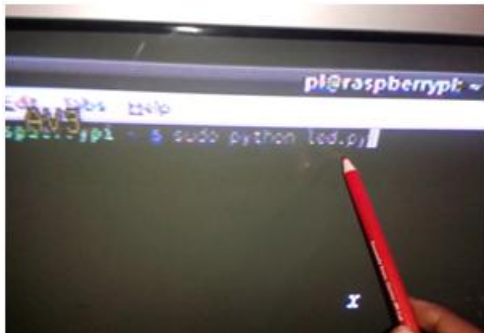
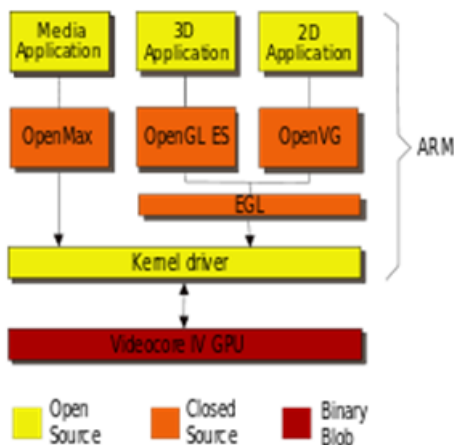


Diagram of API-Connection



GSM:

MODEM SPECIFICATIONS:

The SIM300 is a complete Tri-band GSM solution in a compact plug-in module. Featuring an industry-standard interface, the SIM300 delivers GSM/GPRS900/1800/1900Mhz performance for voice, SMS, data and Fax in a small form factor and with low power consumption. The leading features of SIM300 make it deal fir virtually unlimited application, such as WLL applications (Fixed Cellular Terminal), M2M application, handheld devices and much more.

1. Tri-band GSM/GPRS module with a size of 40x33x2.85
2. Customized MMI and keypad/LCD support
3. An embedded powerful TCP/IP protocol stack
4. Based upon mature and field proven platform, backed up by our support service, from definition to design and production.



GPS:

A GPS receiver calculates its position by precisely timing the signals sent by the GPS satellites high above the Earth. Each satellite continually transmits messages which include.

- the time the message was transmitted
- precise orbital information (the ephemeris)
- The general system health and rough orbits of all GPS satellites (the almanac).

Advantages:

- Sophisticated security
- Monitors all hazards and threats
- Alert message to mobile phone for remote information
- Mobile number can be changed at any time

Applications:

- Automotives and transport vehicles
- Security, Remote monitoring, Transportation and logistics

Conclusion:

In this project work, we have studied and implemented a complete working model using a Raspberry pi. The programming and interfacing of microcontroller has been mastered during the implementation. This work includes the study of GSM and GPS modems. The biggest advantage of using this project is, whenever the switch is pressed we will be getting the location from GSM modem to our mobile numbers so that one can save the person who is in threat.

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BIOGRAPHY:



SanthoshhAitha

Is a M.Tech (VLSI & Embedded systems) student in Department of Electronics and Communication from Siddhartha Institute of Engineering and Technology, Ibrahimpatnam, Hyderabad. His interests of field in Embedded systems communication systems.



R.Vyshnavi

Is an Assistant Professor. Bachelor of Technology in Electronics and Communications Engineering from KITE Women’s College of Professional Engineering Sciences, under JNTUH Master of Technology in Digital electronics and Communications System(DECS) from Siddhartha Institute of Engineering and Technology, Ibrahimpatnam, JNTUH and has 1yr teaching experience. Presented a paper in National Level Student Technical Symposium and an

International Journal of Advanced Technology and Innovative Research.



Dr. D SubbaRao

Is a proficient Ph.D person in the research area of Image Processing from Vel-Tech University, Chennai along with initial degrees of Bachelor of Technology in Electronics and Communication Engineering (ECE) from Dr. S G I E T, Markapur and Master of Technology in Embedded Systems from SRM University, Chennai. He has 13 years of teaching experience and has published 12 Papers in International Journals, 2 Papers in National Journals and has been noted under 4 International Conferences. He has a fellowship of The Institution of Electronics and Telecommunication Engineers (IETE) along with a Life time membership of Indian Society for Technical Education (ISTE). He is currently bounded as an Associate Professor and is being chaired as Head of the Department for Electronics and Communication Engineering discipline at Siddhartha Institute of Engineering and Technology, Ibrahimpatnam, Hyderabad.