

# INTELLIGENT INTRUDER MONITORING AND ALARMING SYSTEM BASED ON SENSOR AND GSM TECHNOLOGY

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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, leaking of raw gas and fire are the most important requirements of home security system for people. A traditional home security system gives the signals in terms of alarm. However, the GSM (Global System for Mobile 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 motion in front of the camera, it gives security alert in terms of sound and a mail is delivered to the owner. The second method sends SMS which uses GSM module.

## I. 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 safe environment for occupants. Conventional security systems keep homeowners, and their property, safe from 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. 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 software installed 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. The proposed system is aimed at the security of Home against Intruders and Fire.

## II. Hardware system

**Micro controller:** This section forms the control unit of the whole project. This section basically consists of a Microcontroller with its associated circuitry like Crystal with capacitors, Reset circuitry, Pull up

resistors (if needed) and so on. The Microcontroller forms the heart of the project because it controls the devices being interfaced and communicates with the devices according to the program being written.

**ARM7TDMI:** ARM is the abbreviation of Advanced RISC Machines, it is the name of a class of processors, and is the name of a kind technology too. The RISC instruction set, and related decode mechanism are much simpler than those of Complex Instruction Set Computer (CISC) designs.

**Liquid-crystal display (LCD)** is a flat panel display, electronic visual display that uses the light modulation properties of liquid crystals. Liquid crystals do not emit light directly. LCDs are available to display arbitrary images or fixed images which can be displayed or hidden, such as preset words, digits, and 7-segment displays as in a digital clock.

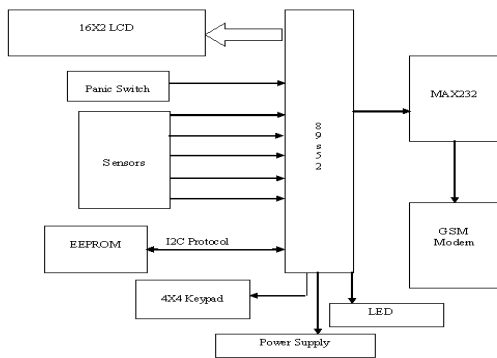


Fig: Block diagram

### III. System hardware requirements

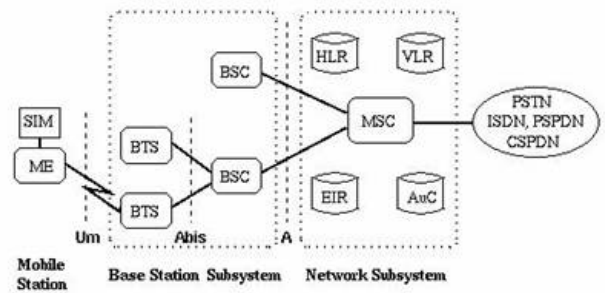
#### GSM:

Global System for Mobile Communication (GSM) is a set of ETSI standards specifying the infrastructure for a digital cellular service.

The network is structured into a number of discrete sections:

- Base Station Subsystem – the base stations and their controllers explained
- Network and Switching Subsystem – the part of the network most similar to a fixed network, sometimes just called the "core network"
- GPRS Core Network – the optional part which allows packet-based Internet connections
- Operations support system (OSS) – network maintenance

SM was intended to be a secure wireless system. It has considered the user authentication using a pre-shared key and challenge-response, and over-the-air encryption. However, GSM is vulnerable to different class of attacks, each of them aiming a different part of the network.



SIM Subscriber Identity Module	BSC Base Station Controller	MSC Mobile services Switching Center
ME Mobile Equipment	HLR Home Location Register	EIR Equipment Identity Register
BTS Base Transceiver Station	VLR Visitor Location Register	AuC Authentication Center

#### GSM architecture

#### Max 232:

MAX232 converts from RS232 voltage levels to TTL voltage levels, and vice versa. One advantage of the MAX232 chip is that it uses a +5V power source

which, is the same as the source voltage for the 8051. In the other words, with a single +5V power supply we can power both the 8051 and MAX232, with no need for the power supplies. The MAX232 has two sets of line drivers for transferring and receiving data. The line drivers used for TXD are called T1 and T2, while the line drivers for RXD are designated as R1 and R2. In many applications only one of each is used.

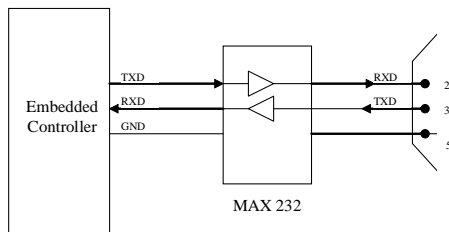


Fig: Communication via Max 232

**EEPROM: EEPROM** (also written **E<sup>2</sup>PROM** and pronounced e-e-prom or simply e-squared), which stands for **E**lectrically **E**rasable **P**rogrammable **R**ead-**O**nly **M**emory, is a type of non-volatile memory used in computers and other electronic devices to store small amounts of data that must be saved when power is removed, e.g., calibration tables or device configuration.

#### IV. CONCLUSION

In this project work, we have studied and implemented a complete working model using a Microcontroller. The programming and interfacing of microcontroller has been mastered during the implementation. This work includes the study of GSM modem using sensors.

The biggest advantage of using this project is , whatever the sensor is activated we will be getting

the acknowledgement from GSM modem to our mobile numbers which are stored in EEPROM and GSM network operators have roaming facilities, user can often continue to use there mobile phones when they travel to other countries etc..

#### V. REFERENCES

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