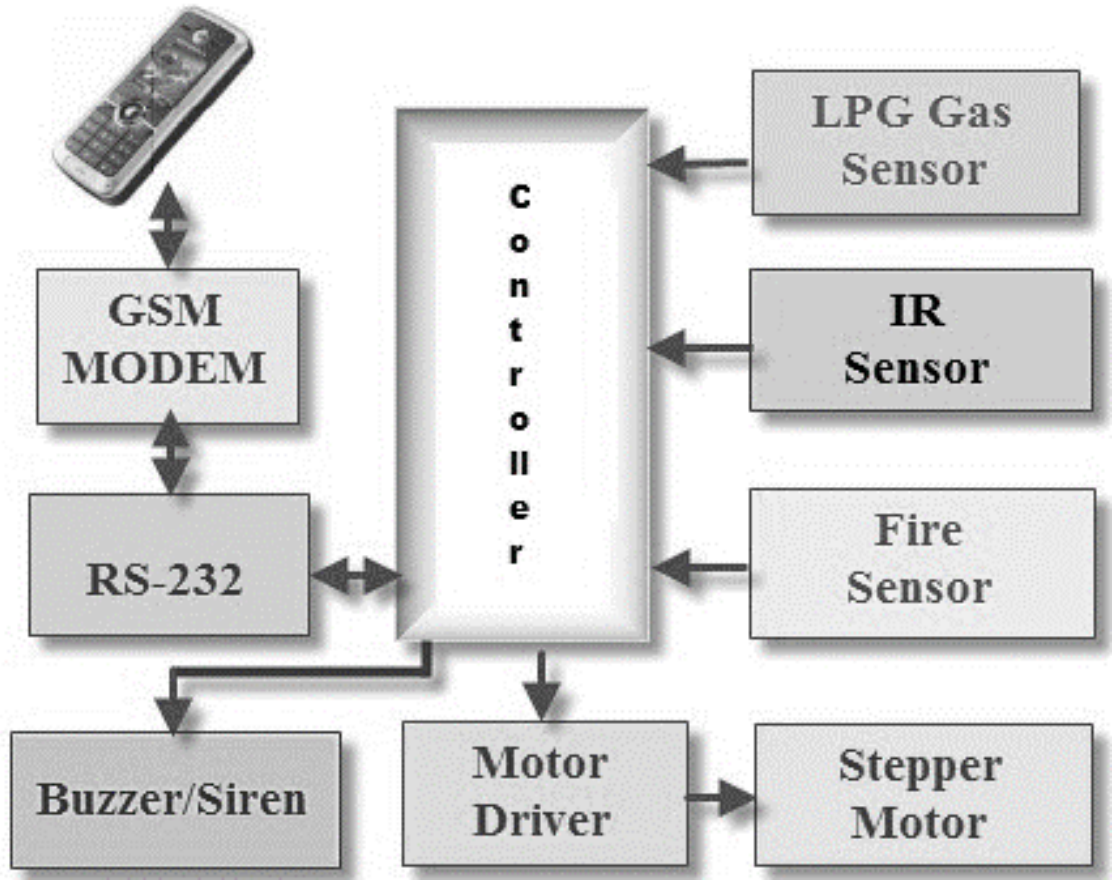
Home Security System

Introduction:

Security is a big challenge everywhere because thefts are increasing day by day owing to the unsafe and insecure security systems in homes, commercial complexes and industries. Several conventional technologies are available to keep home properties safe from intruders, but most common smart home security system work on Wireless sms automation. Such systems provide security from natural, incidental, intended, unintended, accidental and human made problems by continuously monitoring homes with different sensory systems like motion, smoke, gas, temperature, glass break or door break detectors and fire alarm systems. Home security or Home Automation can be achieved by adopting central controllers to control home devices or appliances that sense different variables using appropriate sensors. The main aspect of such a system is a Sensory system that collects the parameter information like temperature, fire, human presence, gas, etc., and sends the corresponding data to the microcontroller or any other processor. This controller is programmed such that when these parameters cross their prescribed limits, it sends the command signals to various final controlling devices like relays, motors and buzzer devices.

Block Diagram:



Sensory System: It consists of various sensors like IR sensors for detecting human presence to open or close the doors; LPG gas sensor to detect the gas leakage in kitchens and, a smoke detector to detect the presence of fire. It is also possible to add temperature sensor, camera and other sensing devices for improving the security of homes. These sensing values are sent to the microcontroller with intermediate circuitry like Analog to Digital Converter (ADC).

Microcontroller: This is the heart of the system wherein central processing of data takes place. Microcontroller collects the data or information from various sensors and compares it with appropriate prescribed limits. By receiving the sensor signals, it takes the corresponding course of action by sending commands to the output devices.

GSM Modem: GSM modem allows the computer to communicate over the mobile network through calls, SMS and MMS messages. It consists of a SIM card and operates over a subscription through a mobile network. It is a highly flexible plug-and-play device capable of connecting to a PC or any microcontroller's serial port through MAX232IC. This IC is used to convert the TTL logic levels of the microcontroller to a RS232 logic level for enabling serial communication.

Final Control Devices: These devices include buzzers and motors with driver ICs and LCDs display. Final control devices generate alarms of different kinds by using buzzers; doors and fire exhauster operations are controlled by using motors. All these devices act upon the commands directed from a microcontroller.