

# Smart Phone Based Smart Home Security System

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**Abstract**— GSM based mobile networks has gained its importance in the recent times. GSM interfaced with efficient microcontrollers have resulted in successful implementation of various kinds of home automation systems. With the help of reliable software tools like IOT and Android ADK, here is an approach to make home security system smarter.

**Key words:** Security, IOT(Internet Of Things), Sensors, SST Microcontroller

photo captured can be sent to the user to anywhere in the world i.e. to user's cloud account (here Gmail) via a GSM. This is one of the greatest advantage of the system. In addition to this, the location of the home can be sent to the nearby police station, neighbor alert is made possible.

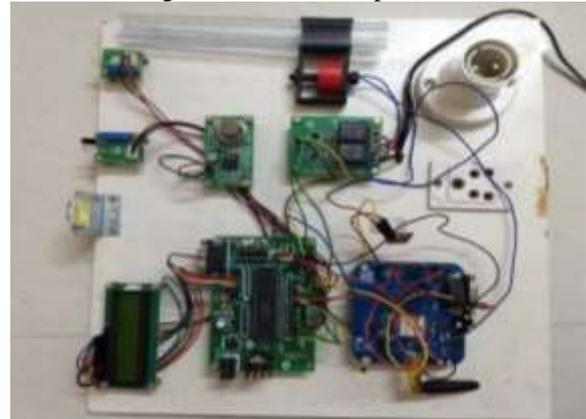


Fig. 3.1: Complete Model

## I. INTRODUCTION

This paper shows a lower cost and adaptable home control and observing framework utilizing an implanted chip and microcontrollers with Internet of things network for getting to and controlling gadgets and apparatuses remotely utilizing Smartphone application. To exhibit the plausibility and viability of this framework, gadgets, for example, light switches, control plug and sensors (intruder, gas, water spillage and fire) can be coordinated with the home control framework. Home robotization or Smart Home security framework can be depicted as presentation of innovation inside the home condition to give accommodation, solace, security and vitality productivity to its occupance. Adding knowledge to home condition can give expanded personal satisfaction. With the presentation of the Internet of Things (IOT), the exploration and execution of home robotization are getting better known.

## II. BLOCK DIAGRAM

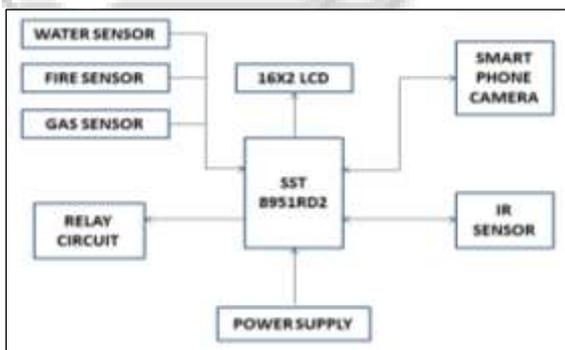


Fig. 2.1: Block Diagram

## III. WORKING

The 8051 MICROCONTROLLER is the mother board of the whole system. The system acts as a modern intruder alarm system and contains much updated technologies than the conventional ones. The input devices such as water sensor, fire sensor, gas sensor and intruder sensors gives out a signal to the microcontroller if any disturbance arises. The camera activates upon the sensor signal and captures the photo of the intruder. The AC appliances can also be managed by the relay circuit introduced in the system. The power supply of the house is given to the processor to control. This can make the devices or appliances to work as per the wish of the user. The

## IV. HARDWARE REQUIREMENTS

### A. SST MICROCONTROLLER

SST is a 8-bit 8051-Compatible Microcontroller (MCU) with Embedded SuperFlash Memory. It contains 1 KByte Internal RAM. It has Dual Block SuperFlash EEPROM – 64 KByte essential square + 8 KByte optional piece (128-Byte segment estimate for the two squares). It can bolster External Address Range up to 64 KByte of Program and Data Memory.



Fig. 4.1: SST Microcontroller

### B. MQ-2 SMOKE SENSOR

The MQ-2 Gas Sensor module identifies gas spillage in home and industry. They are delicate to a scope of gasses and are utilized inside at room temperature. Because of its quick reaction time and high affectability, estimations can be taken at the earliest opportunity. They are valuable in gas spillage discovery of LPG, propane, methane, liquor, Hydrogen and smoke.



Fig. 4.2: MQ-2 Smoke sensor

### C. IR SENSOR

IR Sensor module has incredible versatile ability of the surrounding light, having a couple of infrared transmitter and the recipient tube, the infrared radiating tube to emanate a specific recurrence, experiences an impediment recognition course (reflecting surface), infrared reflected back to the beneficiary tube accepting, after a comparator circuit preparing, the green LED illuminates, while the flag yield will yield computerized flag (a low-level flag), The identification scope of the sensor can be balanced by the potentiometer, with little obstruction, simple to collect, simple to utilize highlights, can be broadly utilized robot snag evasion, deterrent shirking auto mechanical production system tally and high contrast line following and numerous different events.



Fig. 4.3: IR sensor

### D. GSM MODULE – SIM800

SIM 800C Module is a total Quad-band GSM/GPRS arrangement in a SMT write, which can be implanted in the client applications. These modules are sub-arrangement of the Internet-of-everything equipment. SIM800C underpins Quad-band 850/900/1800/1900MHz, it can transmit Voice, SMS and information data with low power utilization. With modest size of 17.6\*15.7\*2.3mm, it can easily fit into thin and reduced requests of client plan.



Fig. 4.5: GSM Module

### E. FIRE SENSOR

This Flame Sensor can be utilized to distinguish fire source or other light wellsprings of the wave length in the scope of

760nm - 1100 nm. It depends on the YG1006 sensor which is a rapid and high touchy NPN silicon phototransistor. Because of its dark epoxy, the sensor is delicate to infrared radiation. Sensor can be an extraordinary expansion in a putting out fires robot, it can be utilized as a robot eyes to discover the fire source. At the point when the sensor identifies fire the Signal LED will illuminate and the DO stick goes LOW.

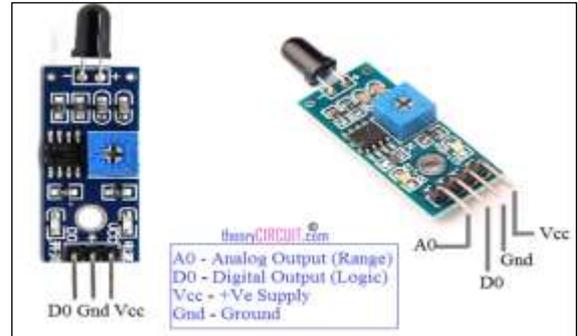


Fig. 4.6: Fire Sensor

### F. WATER LEVEL INDICATOR

A Water Level Indicator might be characterized as a framework by which we can get the data of any water repository. The water level pointer is utilized to gauge water levels in standpipes and wells. The pointer comprises of a test, a link with laser-stamped graduations, and a link reel. The administrator brings down the test into the standpipe or well. At the point when the test contacts the surface of the water, the LED lights up and the beeper sounds. The administrator at that point peruses the profundity to-water estimation from graduations on the link.



Fig. 4.7: Water Level Indicator

## V. SOFTWARE SPECIFICATIONS

### A. Android Studio

Android studio is the authority coordinated advancement environment (IDE) for Google's Android working framework. It is based on JetBrains' IntelliJ IDEA programming and composed particularly for Android development.



Fig. 5.1: Android Studio

### B. KEIL IDE

The Keil C51 C Compiler for the 8051 microcontroller is the most surely understood 8051 C compiler on the planet. The C51 Compiler empowers you to form 8051 microcontroller applications in C that, once accumulated, have the capability and speed of low level registering develop. Vernacular developments in the C51 Compiler give you full access to all assets of 8051.

## VI. RESULTS



Fig. 6.1: IOT Application

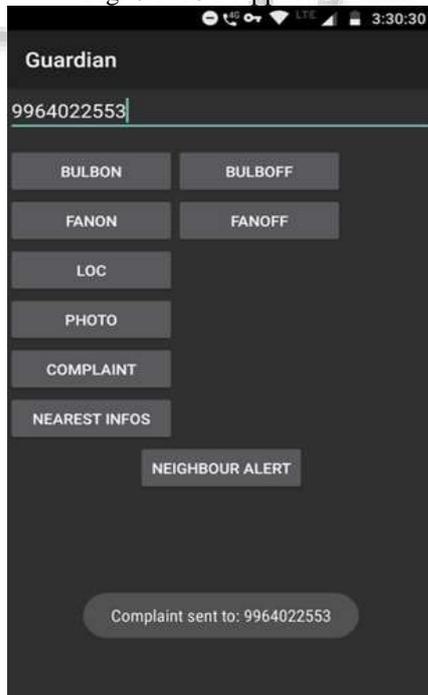


Fig. 6.2: Guardian Application

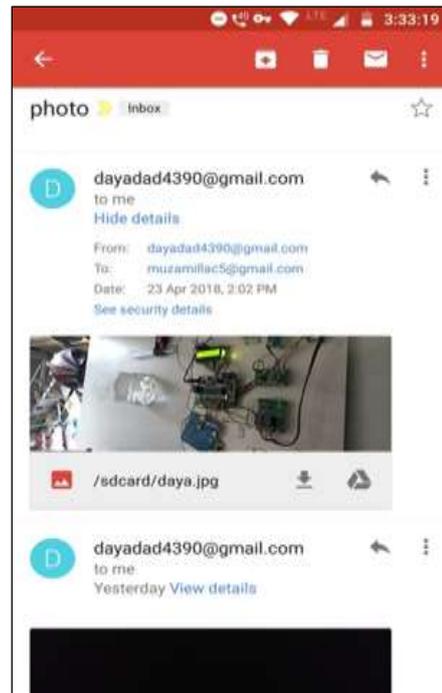


Fig. 6.3: Mail sent to the owner.

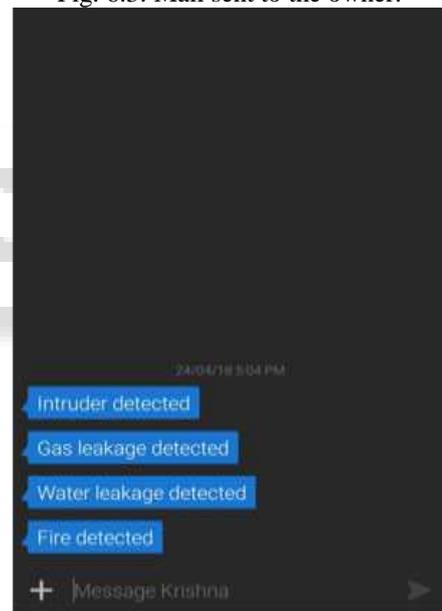


Fig. 6.4: Messages received by the owner

## VII. ADVANTAGES

- Feasible, Reliable, Economical, Efficient.
- Low cost, Flexible, high speed.
- Easy installation.

## VIII. CONCLUSION

An automated home can be a simple grouping of controls, or it can be heavily automated where any appliance that is plugged into electrical power is smartly controlled using IOT. Costs mainly include equipment, components, furniture, and custom installation.

Smart home security system is expected to be feasible, reliable, economical and efficient. Usage of IOT functionality makes it easy in handling the home security.

This will be essential because of the wide range of technical knowledge that homeowners have.

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