

## An IoT Based Smart Home Service System

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**Abstract:**By the development of automation and technology,life is getting simpler and easier in every scenario.In present days the automatic systems are preferred more than manual systems. Internet of thing is a developing network of everyday object from mechanical to consumer goods that can share information and complete the tasks,though we are busy with other activities. Wireless home automation system uses computers or mobile devices for controlling the functions and features accordingly,which mean to save electric power and human energy.Smart home system is that, in which the various gadgets within the home are remotely controlled.In this project by using Internet of Things (IoT) we will control the home appliances. And also by using various sensors we can get the range of temperature, fire and gas which are sensed by controller and displays the values on lcd.After we get a message through GSM when the range of given values are increased.These ranges of values are stored in server also for future reference.

**Key Words:**GSM,SMS,LCD, LPG and IOT

### I.INTRODUCTION

The theory of home automation has been around since 1970's.As much as IoT helping in automating tasks, the benefits of IoT can be extended for build up the current safety standards. In this modernized world use of Home automation system has been increased due to numerous benefits in the terms of energy saving, safety, flexibility, and comfort, these significant new technologies offer.

This paper primarily focuses on the surveillance of homewhen the user is awayfrom the place.In this article we are going to give briefinformation on how to implement home safety when fire and gas get detected. The main purpose of this project is to monitor

temperature, liquid petroleum gas (LPG) leakage and fire detection. When LPG concentration in the air increases to certain levels, the Gas sensor will detect the leakage and, promptly alert the user by sending SMS to described mobile and alert the people at home by triggering the Buzzer alarm and display the message on the LCD. Similarly when the fire is detected it will send the sms and automatically the sprinkler motor will be on.

## **II. LITERATURE REVIEW**

Survey of various home automation systems shows that there are distinct kinds of automation techniques used in implementing this kind of system. The main aim of this project is to control and monitor over smart home. The entire system is connected to internet to direct and regulate the house equipment's from anywhere in the world. This project intended the most frequent issue experienced in our everyday activity regarding temperature getting increased, fire occurrence and gas leakage. This design consist a simple home automation having sensors for recognizing the conditions of the temperature and fire and gas.

## **III. EXISTING SYSTEM**

People usually are outside the home for many reasons like travelling and they want to control some devices from a far distance. For example they want to turn off the light and operate some electronic devices at room and get feedback about the temperature and total control on their home.

## **IV. PROPOSED SYSTEM**

In this proposed system by using various sensors we can get the range of temperature, fire and gas and also we can get a message using GSM when the range of given values are increased. And also these values are displayed on LCD. The data which has been loaded is updated in the web server which can be retrieved from anywhere in the world.

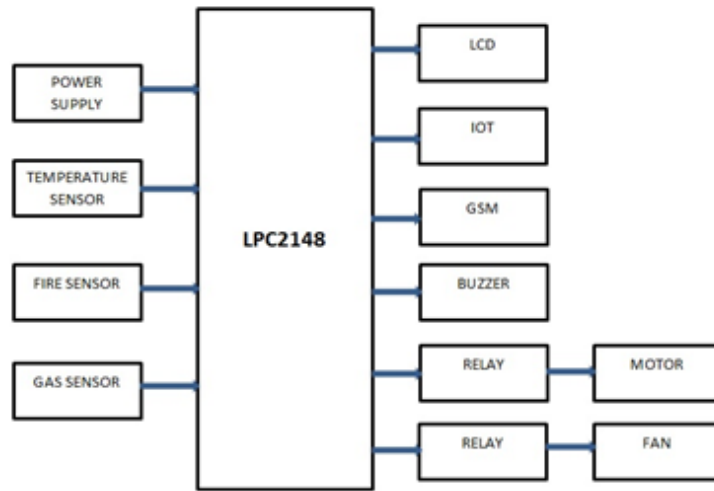


Figure.1.Block Diagram.

**V.METHODOLOGY**

a)TEMPERATURE SENSOR:Temperature sensor essentially measures the heat/cold developed by an object for which it is connected.It then implements a proportional resistance current or voltage as output.The output of sensor which is converted to digital is easy to connect with microcontroller. LM35 is a well-knownlow cost temperature sensor which is directly calibrated in Degrees Celsius, meaning that the output voltage is directly proportional to Degrees Celsius readings.

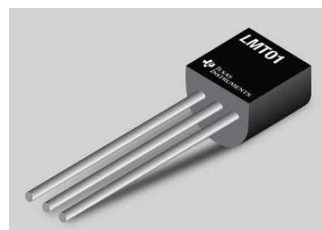


FIG 2: Temperature Sensor.

B) Fire Sensor:The fire sensor senses weak DC signal from the ac power sent to the ignitor through flame rectification in the polarity of power through a flame rectified DC.The fire sensor consists of IR sensor, comparator and LED. It can detect the flame or wavelength at 760 nm range of light.The lighter the test flame distance is, the greater the distance test.. It is connected to motor via microcontroller, so when the fire is detected the motor sprinkler will automatically ON and alerts by sending message to particular mobile.

C) Gas Sensor: The gas detector detects the presence of gases in an area as a part of safety system. It can detect H<sub>2</sub>, LPG, Smoke, Propane based on its fast response time. It identifies hazardous gas leaks by sensor. When is gas is detected it employs an alarm to alert people. MQ2 flammable gas sensor detects the concentrations of volatile gas in the air and provides analog voltage as output.



Fig .3: Gas Sensor.

d) GSM: Global system for mobile communication is a globally recognized standard for digital cellular communication. It is mainly developed for carrying voice traffic. In this 51 frame and 26 frame structure is used. The maximum data rate supported is 9.6 kbps. The GSM provides the communication between the microcontroller and user by means of message. It uses TDMA to split the frequency into time slots. In GSM network more than one mobile user can use the same frequency channel. GSM phones makes use of SIM card to identify the user account.



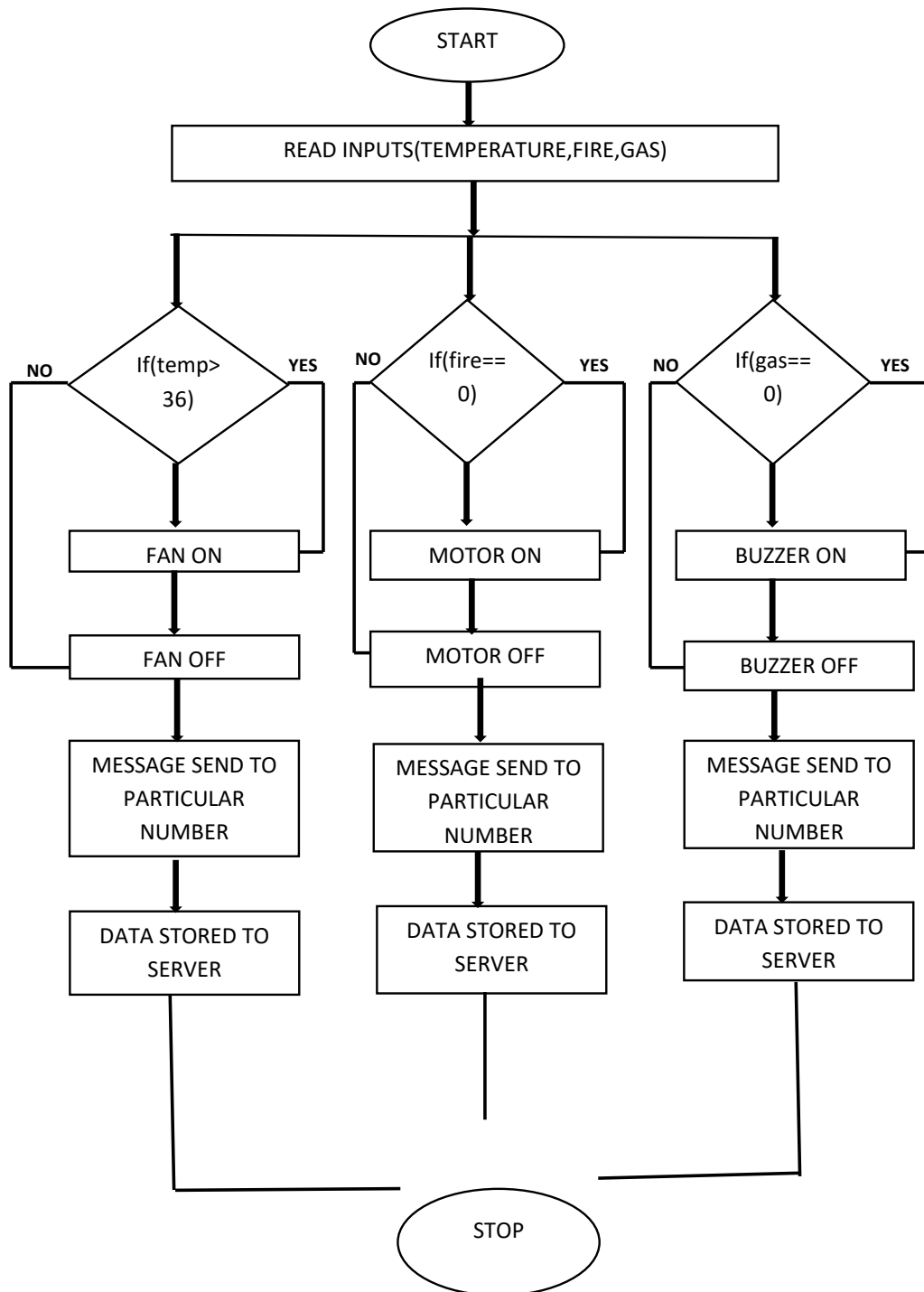
FIG .4: GSM

e) WI-FI: The series of this module is ESP8266EX. This allows all the electronic gadgets to exchange data wirelessly over the computer network. It is a highly integrated and designed for the needs of a newly connected world. It offers an exhaustive networking wi-fi, which allows neither to host the application nor to offload all the wi-fi network functions from the other application processor. It is an integrated TCP/IP protocol stack. It supports Bluetooth co-existence interface



FIG .5:WI-FI MODULE

VI.FLOW CHART



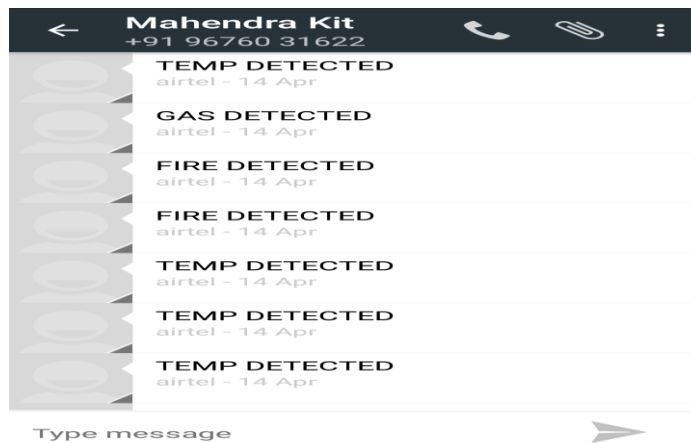
### VII. RESULTS

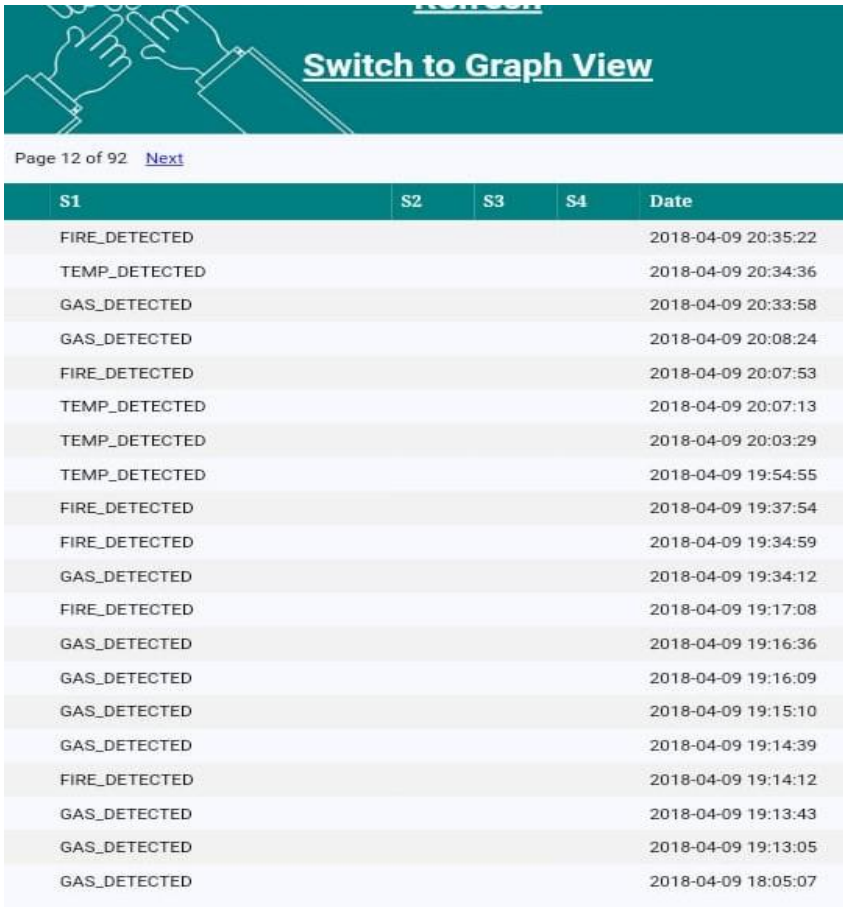
The overall system was designed and tested under the controlled environments,by including LPG, FIRE and TEMPERATURE.The output voltage of the gas, fire and temperature sensors canalso be adjusted through potentiometer. When the ranges exceeds a certain limits the information is sent to the particular mobile phone over GSM and displays values on LCD and also when the temperature is detected the fan will be automatically ON and when the fire is detected the motor sprinkler will be ON. When the gas is detected the buzzer will be automatically ON.

#### LCD OUTPUT



#### GSM OUTPUT



**DATABASE OUTPUT**


S1	S2	S3	S4	Date
FIRE_DETECTED				2018-04-09 20:35:22
TEMP_DETECTED				2018-04-09 20:34:36
GAS_DETECTED				2018-04-09 20:33:58
GAS_DETECTED				2018-04-09 20:08:24
FIRE_DETECTED				2018-04-09 20:07:53
TEMP_DETECTED				2018-04-09 20:07:13
TEMP_DETECTED				2018-04-09 20:03:29
TEMP_DETECTED				2018-04-09 19:54:55
FIRE_DETECTED				2018-04-09 19:37:54
FIRE_DETECTED				2018-04-09 19:34:59
GAS_DETECTED				2018-04-09 19:34:12
FIRE_DETECTED				2018-04-09 19:17:08
GAS_DETECTED				2018-04-09 19:16:36
GAS_DETECTED				2018-04-09 19:16:09
GAS_DETECTED				2018-04-09 19:15:10
GAS_DETECTED				2018-04-09 19:14:39
FIRE_DETECTED				2018-04-09 19:14:12
GAS_DETECTED				2018-04-09 19:13:43
GAS_DETECTED				2018-04-09 19:13:05
GAS_DETECTED				2018-04-09 18:05:07

**CONCLUSION**

In this paper we use IOT technology for the enhancement of safety standards. By using a WI-FI module the interfacing is done between transducers and the sensor network on a single chip solution wirelessly. We have used the IOT technology for Gas Leakage Detector, fire detection and increase of temperature, which have alerting techniques for involving and sending text message to the particular mobile phone and taking safety measures.

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