SMART HOME

➢ ABSTRACT

Smart home technology come into picture by more than a decade to introduce the concept of Microcontroller and the various equipment attached to this in the house. The international smart home association states:smart home is desegregationist of technology and useful through microcontroller for a better quality of living. Many equipment that are used with micron roller can also be desegregated in smart home systems .In this paper we present the technology and equipment that can be desegregated or applied in smart home system

➢ INTRODUCTION

The paper illustrates the design and implementation of my "Smart Home project. The Smart Home consists of many modules in it. The Gas sensor module detects the gas leakage in kitchen. The gas sensor is sensitive to Methane and Butane gas. These Gases are found in aremarkable amount in LPG gas used in homes. The next module is the temperature sensor module which has LM 35 as the temperature sensor. As soon as there is a temperature rise due to presence fire, the temperature sensor detects it and converts the rise of temperature in terms of analog output. This analog output goes to the microcontroller. If the analog voltage is matched with its binary conversion saved in the memory of the microcontroller, the microcontroller commands the buzzer to ring and alert the residents that there is fire alert. The next module is the LDR module which detects the presence of darkness in room. If there is darkness in the room the circuit of the LDR module is opened and the signalgoes to the microcontroller to switch on the light bulbs. Another module called the DTMF module controls the door access of the house. The password controls the access to the door.

➢ PROBLEM DESCRIPTION

a. To detect fire and ring buzzer

b. To detect the gas and ring the buzzer.

c. To ensure password protected door security system

d. To turn on lights only when they are needed at nigh

➢ PROJECT SPECIFICATIONS

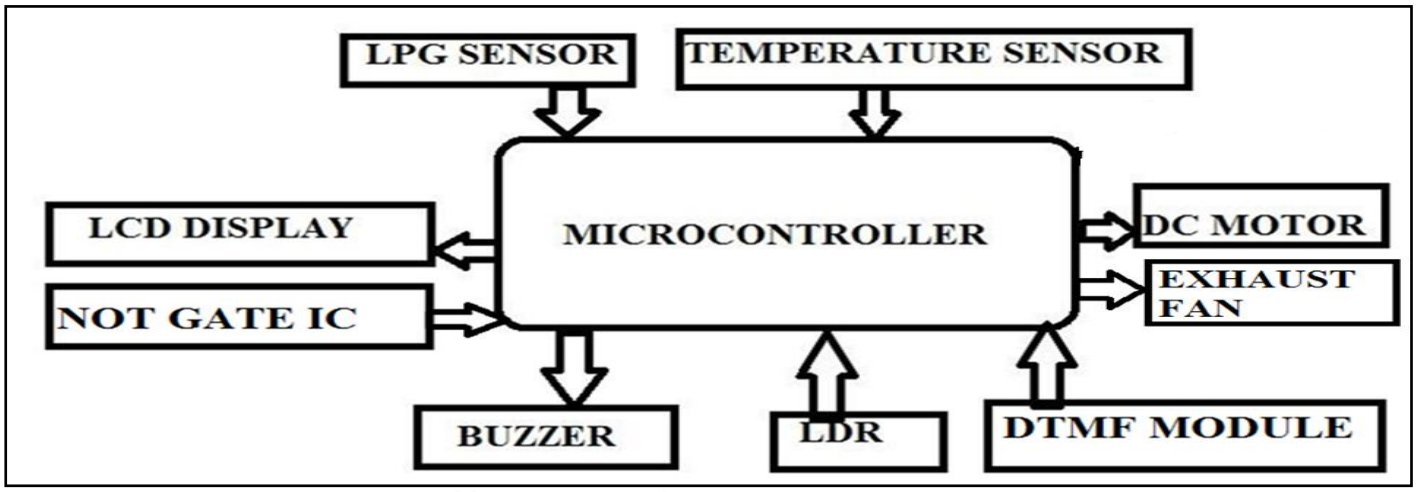
Overall specifications

The entire process is defined as follows

Diagram showing the input and output module

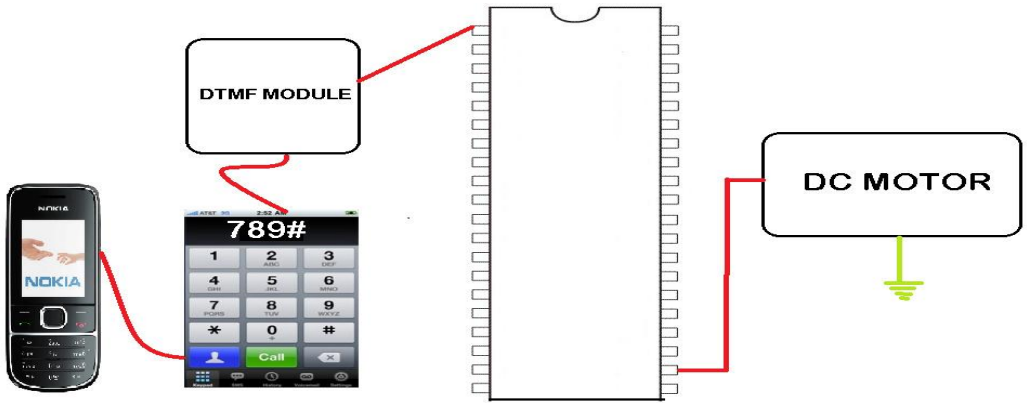
THE TEMPERATURE SYSTEM

The fire alarm system consists of a temperature sensor that is connected to the microcontroller.When the temperature goes above the threshold temperature the alarm is blown which confirms that there is a fire alert which should be immediately taken care of The



temperature sensor used here is LM-35 heat sensing IC

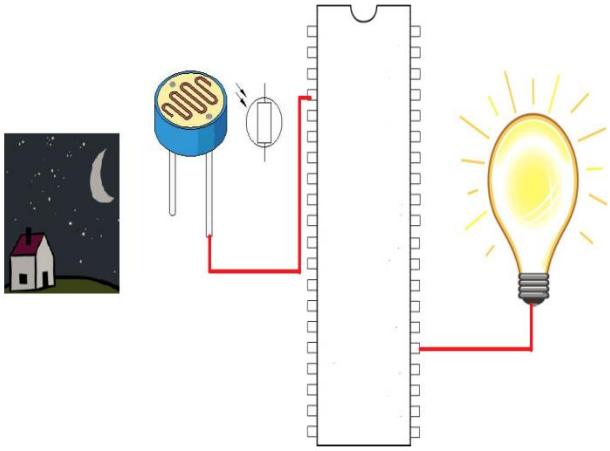
THE DOOR SECURITY SYSTEM

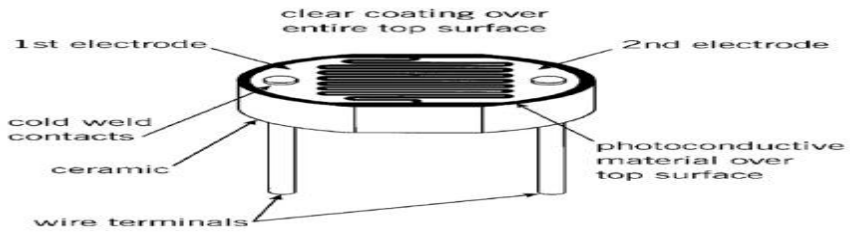


- The door security system consists of a DTMF module which is connected to a mobile phone permanently.
- The user has a mobile phone through which he enters the predefined password which is coded in the microcontroller program.

- The user calls on the mobile phone that is connected to the DTMF module.
- As soon as the user calls the call is automatically received at the other end. The user now enters the code number.
- The frequency beep corresponding to each number is received by the DTMF module which sends the signals to MCU.
- If the code is correct the signal is sent from the MCU and the DC motor opens the door knob

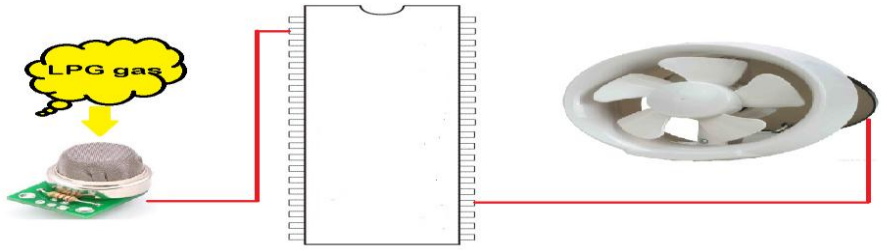
LIGHT CONTROLLING SYSTEM





- The LDR module consists of the Light Dependent Resistor.
- As soon as the intensity of light decreases the LDR increases its resistance ie, makes it open circuit.At open circuit the output is high, correspondingly the controller switches on the home lights

THE GAS DECTECTION SYSTEM



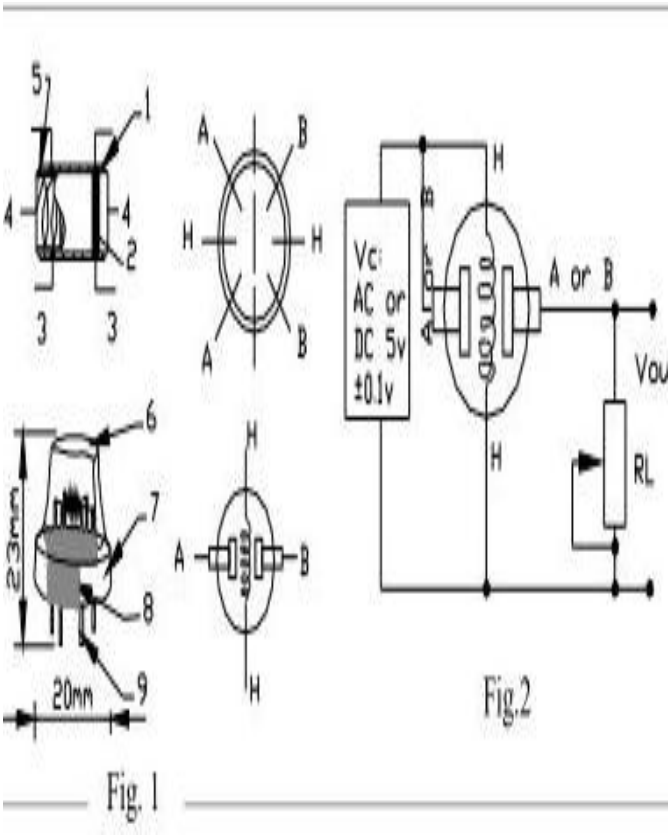


Fig. 1 Fig.2

- If the concentration of the LPG gas exceeds thethreshold value that is stored in the program fed in the controller, the gas sensor detects the gas and sends the signal to the microcontroller.
- The microcontroller switches on the alarm and the exhaust fan immediately so that the hazardous gas in blown off the kitchen.

CONCLUSION & FUTURE SCOPE

In conventional common home due to lack of technological support, several disasters may occur due to human errors or carelessness. The world has gone through a phase of numerous fire hazards often by gas leakage therefore there is a need to provide such a technical support to the society so that somehow these fatal hazards can be avoided.

Now a days burgling has been a serious problem, a security solution is always required. The conventional manual alarm systems are not that efficient therefore an automatic system for the purpose has to be developed. In India there are still several rural areas that are running out of electricity supply, hence it is obvious that the generation is less than the demand of power. Therefore it's our moral duty conserve the power for our future generation. This project SMART HOME serves all the above very needs. As far as the future scope of the project is concerned for a fire alarm system a wireless or wired connectivity can be provided between homes and the fire brigade stations. The system has to be enabled with GPS so that the fire brigade workers can easily locate the sufferers. To locate the exact suffered area ZigBee can also be a useful technology. Futuristic scopes in gas leakage detection system may be that the power supply of the claimed home can be cut prior to any electrical execution. Some artificial intelligence may also be added that would monitor the situation and take corresponding action. In case of LDR cloudy weather may create a problem due to low intensity of light falling on LDR. To overcome such problems the system can be provided with internet connectivity so that it can monitor daily weather updates and thereby taking decisions on the basis of whether the weather is sunny or cloudy, differently. DTMF technology turns out to be a restriction as it operates with a mobile handset that may suffer through several problems of network charging and others. Therefore using RF instead of DTMF may be proved more beneficial for the purpose. More futuristic scopes may be using finger print, face and voice command recognition

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