A Circuit Design to Controlling the Pressure and Temperature Using Wireless Sensor Networks

Dr.B. Karthik, V. Srinivasan, Dr.S. Philomina, Dr.S. Arulselvi

Abstract: This paper to monitor the environment conditions of home. Different type of sensing material used to measure the environment conditions. If fire occurrence also measured by using fire sensor. LCD will display the current Fire sensor, Heat sensor, pressure sensor, passive infrared sensor values. A sensor values are converted into digital by analog to digital converter. Each sensor have some desire values if it reach that value or above that value the LED light is started glowing. Voice module will be also used in our project to indicate the danger situation of all sensor values. Those sensor values cross the threshold level then automatically that information will be passed to the user mobile.

Keywords: Circuit Design, Pressure and Temperature, Block Diagram, GSM.

INTRODUCTION

A new home technology developed by a research oriented programs. This type of home size is very small. The materials used in this home technology low quality. The materials are like plastic and glass. Because of the glass and plastic walls more heat will be generated. Conventional methods they are using more compact materials now a days every things changed by the environment. The Heat is increased by pollutions but we are using the glass and plastic material. So we need prevent heat and pressure and others disasters. This method have more sensors by sensing the heat and pressure. Using the sensor we can convert analog values to digital values by adding a analog to digital converter.
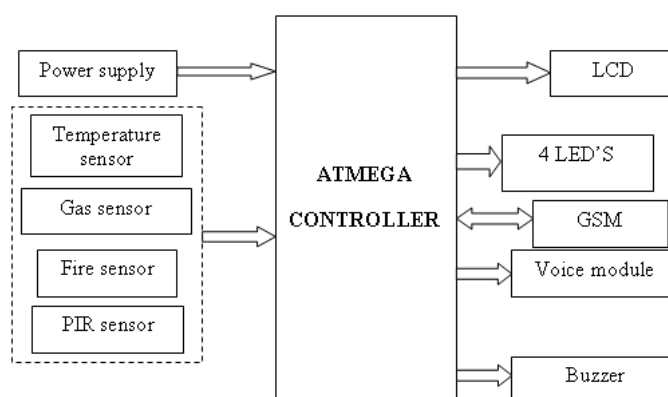
BLOCK DIAGRAM

Fig. 1: Block Diagram

This paper to monitor the environment by adding a sensors and get the data from the GSM modem to your mobile whenever any one of the sensors activated. The corresponding LEDs will be ON and gives alert by voice for respective sensor detection.

Dr.B. Karthik, Associate Professor, Department of Electronics and Communication Engineering, BIST, BIHER, Bharath Institute of Higher Education & Research, Selaiyur, Chennai. E-mail: karthik.ece@bharathuniv.ac.in

V. Srinivasan, Assistant Professor, Department of Electronics and Communication Engineering, BIST, BIHER, Bharath Institute of Higher Education & Research, Selaiyur, Chennai. E-mail: srinivasan.etc@bharathuniv.ac.in

Dr.S. Philomina, Associate Professor, Department of Electronics and Communication Engineering, BIST, BIHER, Bharath Institute of Higher Education & Research, Selaiyur, Chennai.

Dr.S. Arulselvi, Associate Professor, Department of Electronics and Communication Engineering, BIST, BIHER, Bharath Institute of Higher Education & Research, Selaiyur, Chennai.

The sensors we used in this project are fire sensor, temperature sensor (LM35), gas sensor (MQ-2) and PIR sensor. Fire and gas sensors will detect the over temperature and the fire accidents respectively. The gas sensor will detect the gas leakages and the PIR sensor detects the persons moment. All these sensors are connected to the ARDUINO UNO microcontroller. Fire, temperature, and gas sensors are connected to the internal ADC of the ARDUINO UNO. We are setting some threshold digital values for each of the Sensors to detect the activation of the sensors. If any of these sensors activates, the ARDUINO UNO microcontroller will sent the corresponding message to the pre-defined numbers.

Initially we are storing pre-defined mobile numbers, to which you want the reply message by sending an empty message to the GSM modem. Besides that message we ON the respective LED for each sensor detection and giving the voice alert. Initially we are storing the voices for each sensor in the voice IC apr33a3. Whenever one of the sensors detects, the corresponding voice will come out from the speaker.

The code was written in embedded C language and compiled using ARDUINO compiler to generate the hex file. The generated hex file was downloaded into the ARDUINO UNO microcontroller.
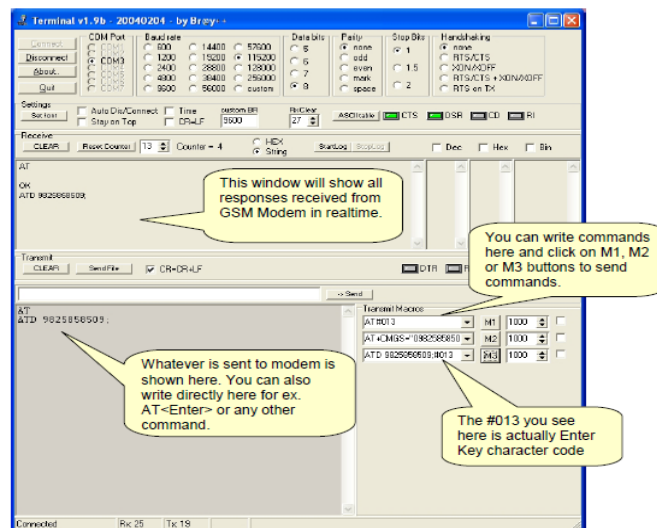
SIMULATION RESULTS

Fig: 2: Data send by the microcontroller through GSM

If you wish to use GSM modem with PC then connect serial cable to PC and power it on. Once we have connected with serial port. We have so many software's are available. Depends on the software procedure are changed.

Interfacing MAX232 with Controller

Microcontroller unit connect the personal computer through cable now the modem get contact with the microcontroller unit.
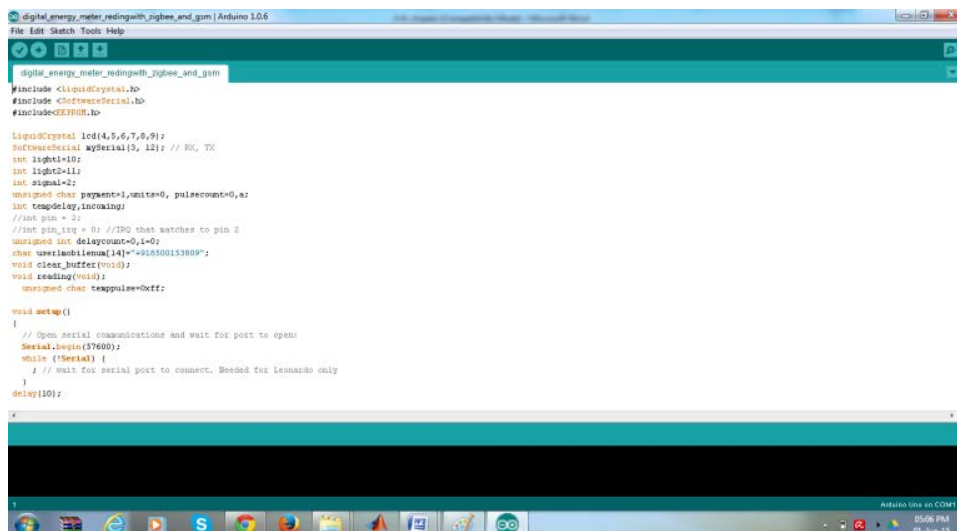

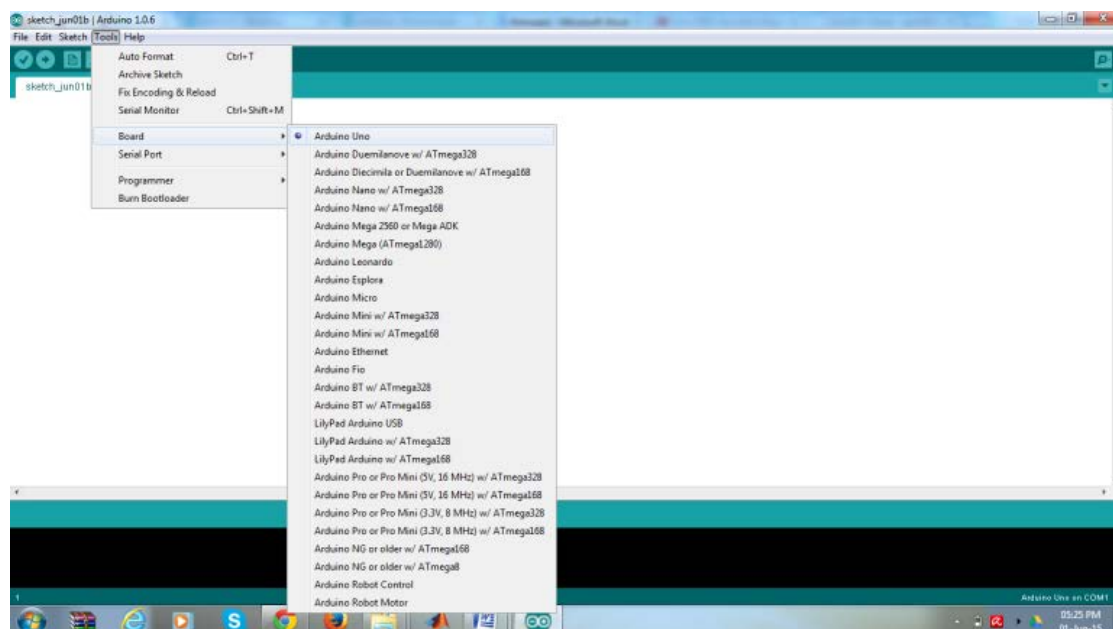Fig.3: Source code written in arduino compiler

Fig. 4: Selecting an Arduino Uno

HARDWARE OUTPUTS

The implementation of realization of **"Design of green house monitoring using sensor network based on Ardunio"** is implemented. The contact between the personal computer and the micro controller unit was checked and its working good. The whole circuit was implemented on the microcontroller board by using or cad software. After implementing its executed and verify by the simulation software. Once the verification is done the data sending through GSM modem and the communication between the PC and micro controller unit was verified successfully.

CONCLUSION

The results of this circuit continuously monitor by the microcontroller unit and heat sensor pressure sensors data will be verified with original data. A sensor values are converted into digital by analog to digital converter. Each sensor has some desire values if it reach that value or above that value the LED light is started glowing. Voice module will be also used in our project to indicate the danger situation of all sensor values. Those sensor values cross the threshold level then automatically that information will be passed to the user mobile.

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