

Lab Monitoring and Device Control Using Atmega 328 Based wireless Network Sensor

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Abstract: The main objective of this project is to design an embedded based control warning system. In this project Wireless Sensor Nodes (WSN) technology is used with the help of microcontroller The Zigbee module is used to transmit the data With the help of GSM technology the data is collected in the mobile phone Here we have three sections. In the Sensor section it has humidity and temperature to monitor the Lab parameters. It has Zigbee module which will transmit the data to the intermediate section. In the intermediate section we have a Zigbee module and a GSM modem. The Zigbee module will receive the data from the Sensor section and analyses it. If the value gets abnormal it will send the message to the supervisor's mobile.

Keywords: lab monitoring, wireless communication, sensors, Real-time monitoring, security.

I. INTRODUCTION

A. Overview:

Here we have three sections. In the Sensor section it has humidity and temperature to monitor the Lab parameters. It has Zigbee module which will transmit the data to the intermediate section. In the intermediate section we have a Zigbee module and a GSM modem. The Zigbee module will receive the data from the Sensor section and analyses it. If the value gets abnormal it will send the message to the supervisor's mobile.

B. Advantages:

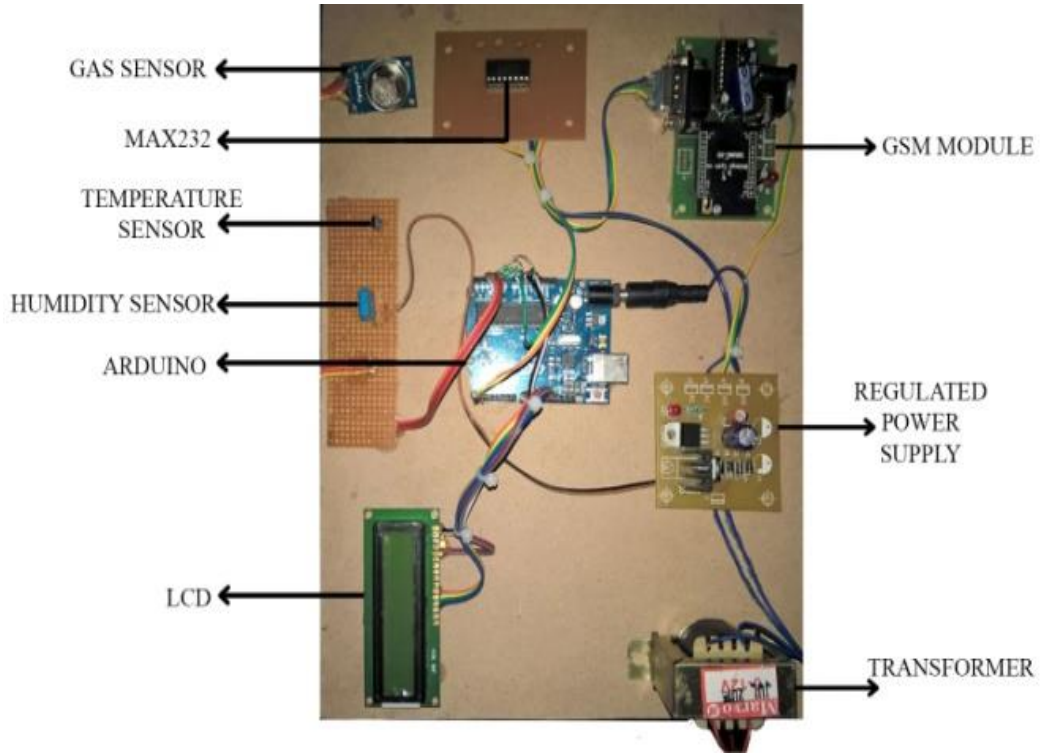
The proposed system comes with advantage of using wireless technology through which the system can be controlled from a remote distance

The major advantage of this design is Fast Response, Highly Reliable and longtime stability.

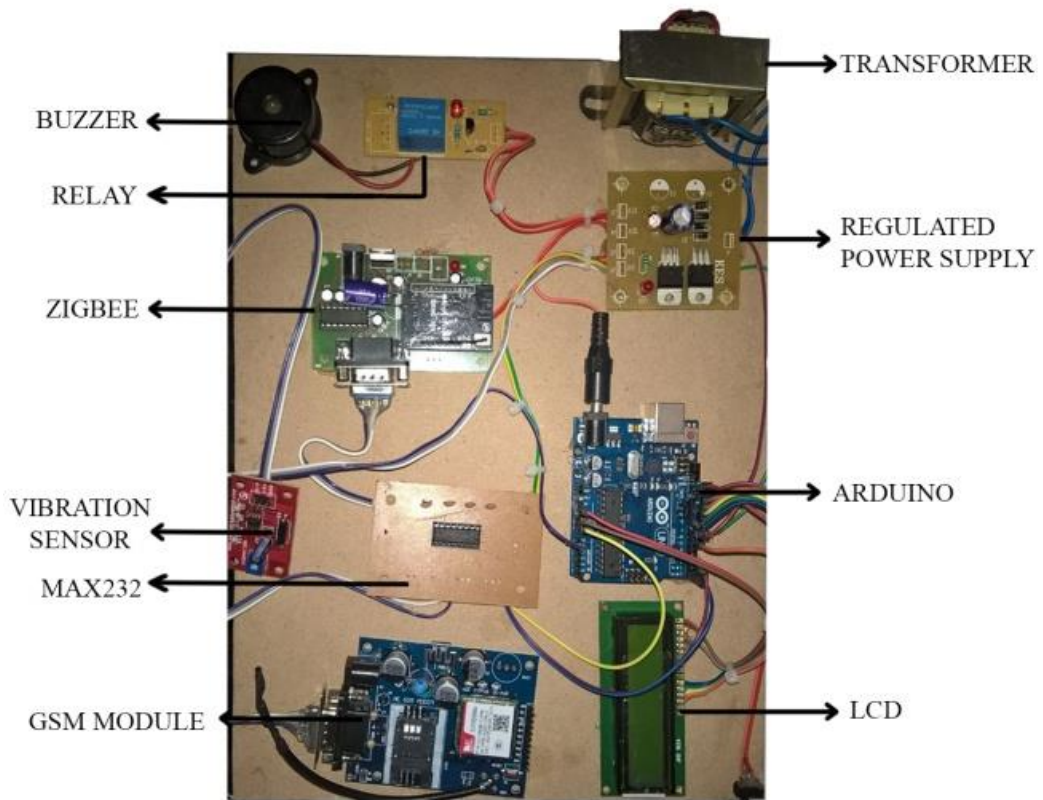
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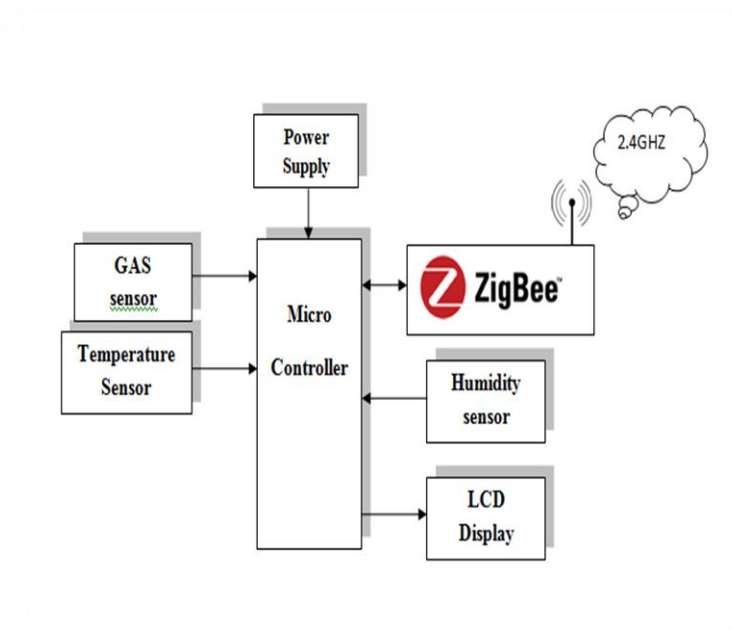
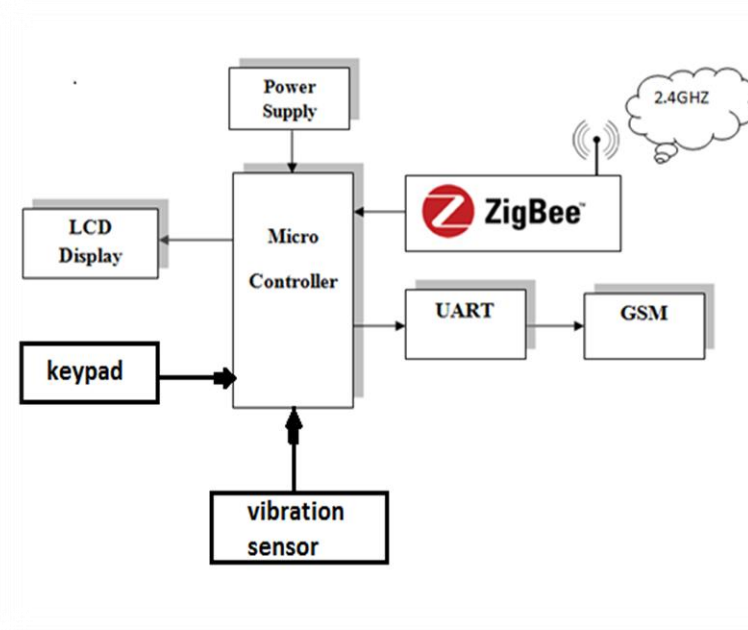
II. PROPOSE SYSTEM FEATURES

Transmitter:



Receiver:



Transmitter:**Receiver:****III. SENSOR****Gas Sensor:**

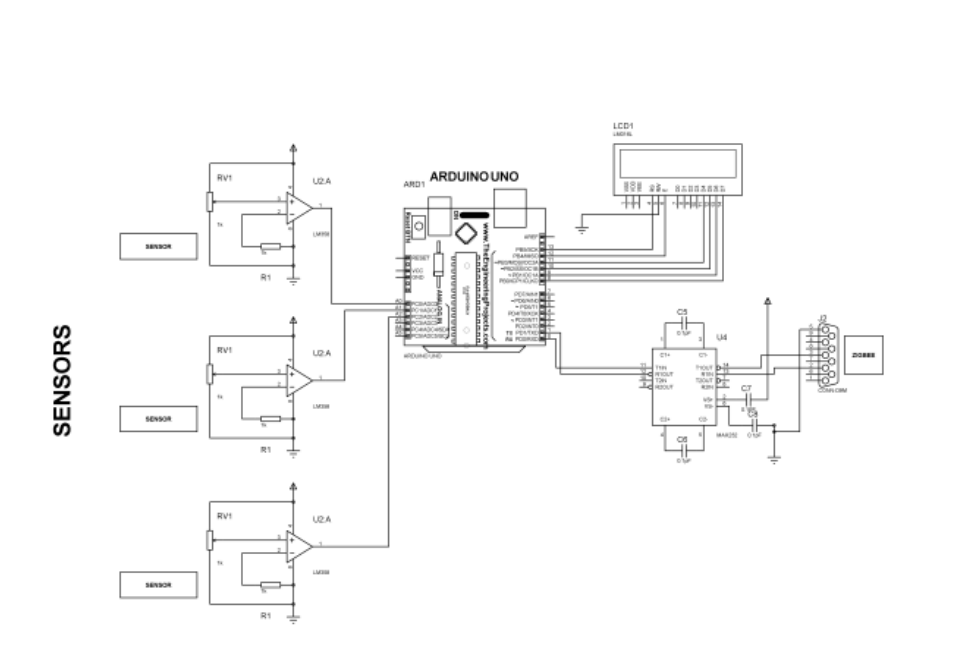
- Gas Sensor module is useful for gas leakage detecting(in home and industry).
- It can detect LPG, i-butane, methane, alcohol, Hydrogen, smoke and so on.
- Measurements can be taken as soon as possible based on its fast response time.
- Also the sensitivity can be adjusted as we needed.

Humidity Sensor:

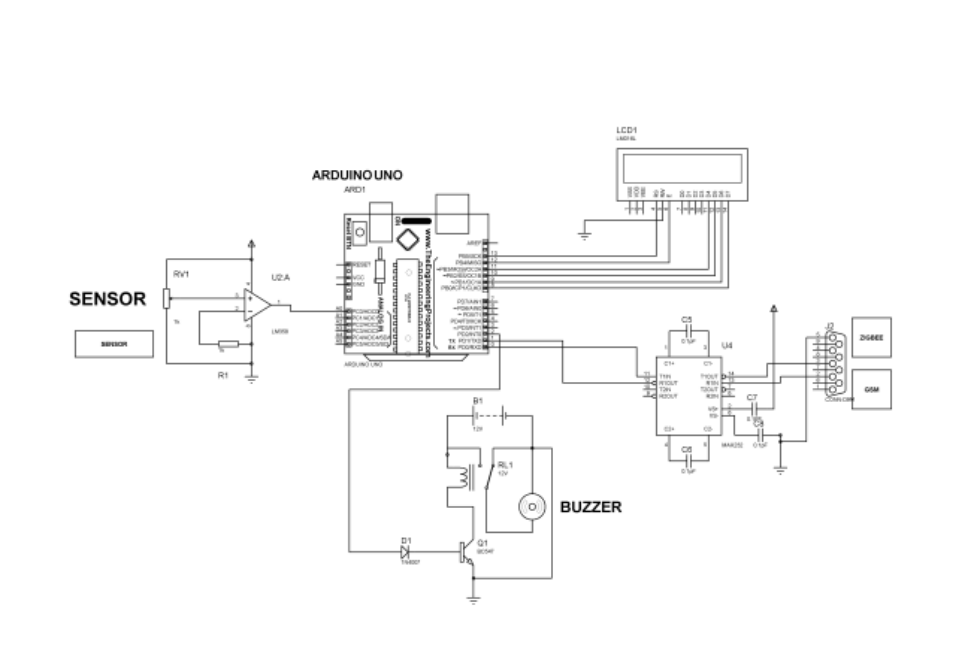
- A humidity sensor senses, measures and regularly reports the relative humidity in the air.
- It measures both moisture and air temperature. Relative humidity, expressed as a percent, is the ratio of actual moisture in the air to the highest amount of moisture air at that temperature can hold.
- The warmer the air is, the more moisture it can hold, so relative humidity changes with fluctuations in temperature.

IV. SCHAMETIC

Transmitter:



Receiver:

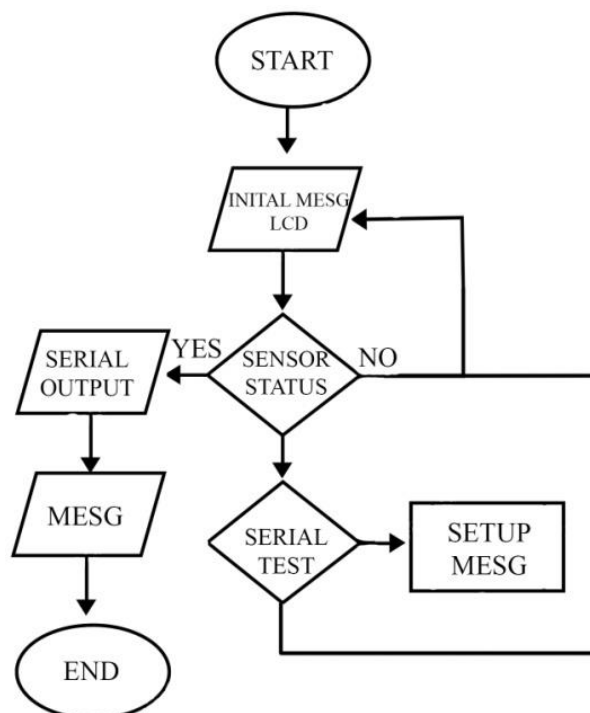


V. SOFTWARE

You'll need to download the Arduino Software package for your operating system. The code you write for your Arduino are known as **sketches**. They are written in C++. Every sketch needs two void type functions, setup() and loop(). A void type function doesn't return any value.

If you notice on the top edge of the board there's two black rectangles with several squares in. These are called **headers**. Headers make it easy to connect components to the theArduino. Where they connect to the board is called **pins**. Knowing what pin something is connected to is essential for programming an Arduino.

VI. FLOW CHART



VII. CONCLUSION

The main objective of this project is to design an embedded based control warning system. In this project Wireless Sensor Nodes (WSN) technology is used with the help of microcontroller. The Zigbee module is used to transmit the data. With the help of GSM technology the data is collected in the mobile phone. Here we have three sections. In the Sensor section it has humidity and temperature to monitor the Lab parameters. It has Zigbee module which will transmit the data to the intermediate section. In the intermediate section we have a Zigbee module and a GSM modem. The Zigbee module will receive the data from the Sensor section and analyses it. If the value gets abnormal it will send the message to the supervisor's mobile.

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