



## International Journal of Innovative Research in Computer and Communication Engineering

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# Design of Arduino Based Flood Detection System Using Barometric Pressure Sensor

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**ABSTRACT:** This paper expresses the design of experimental verification and implementation of an Arduino-based flood detection system using a barometric pressure sensor. This system works with the help of tools such as storing the contact numbers. Based on the sensor request, the updates of height of water level would be sent via a text SMS. The Arduino is used to read the input coming from the sensor and calculates the height of water level, whereas the text SMS is sent to the user by using a Global System for Mobile communication (GSM Module).

**KEYWORDS:** Arduino UNO, Barometric pressure sensor (BMP180), GSM module (SIM900A), LCD display;

### I. INTRODUCTION

The main reason behind the occurrence of flood is the overflow of rivers, lakes or a heavy rainfall. The flood can occur at any time in any year. The occurrence of flood is very hazardous for living things. Because of the flood, so many people lose their homes, farms, etc. due to this, people have to face lots of problems. The local government has a unit through which it provides the information about flood to the computer. But this information does not reach to all the areas. Because of this reason, an Arduino-based flood detection system using a barometric pressure sensor is designed. In this system, if the water level is extended over the fixed level, then the barometric pressure will sense the water level and automatically send SMS to the associated residents. Now days, mobile phones have become too much popular as a communication device all over the world due to this reason, the SMS-based flood detection system is invented.

### II. RELATED WORK

In this paper, the author designed the early warning flood detection system for developing countries. In a developing country, the flooding caused due to natural disasters like earthquakes and hurricanes. The flooding results in loss of life and properties. If we warn the communities before the occurrence of flood, then the people will get sufficient time to overcome the problems which are caused after the occurrence of flood [1].

In a natural disaster, the flood is one of the common disasters. The flood occurs due to the main reasons like deforestation and in a coastal area, the increasing amount of population. The main objective behind this review is that to find out and describe the effect of flood event on lives in terms of displacement, mortality and injury [2].

In this paper, the author tells that the main purpose behind the development of a local real-time river flood monitoring and warning system. This system focuses only on the detection and early warning of flood [3].

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## III. PROPOSED BLOCK DIAGRAM

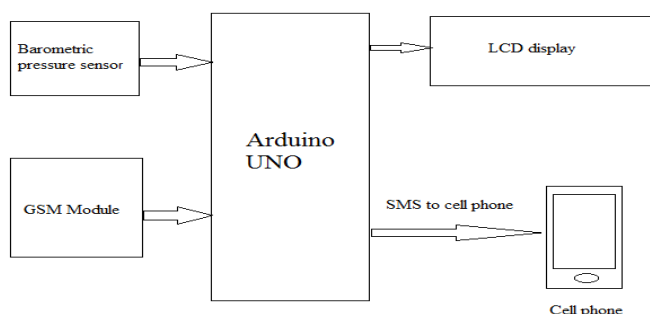


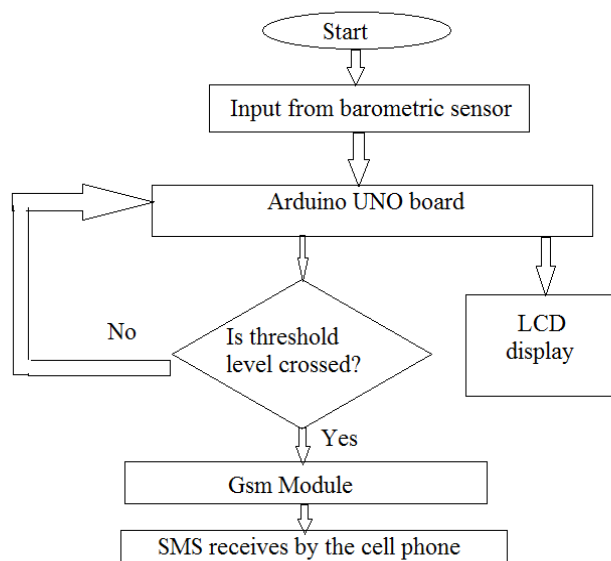
Fig.1. Block diagram of flood detection system

In the early flood detection system which is shown in above figure is a combination of arduino UNO, GSM module, barometric pressure sensor and LCD display. The barometric pressure sensor will sense the water pressure, temperature and give it to arduino board.

The GSM module is used to send the message to the user by receiving the values from arduino board. The arduino board will receive the input from barometric pressure sensor and calculates the water level and temperature. This calculated water level and temperature is given to the GSM module and to the LCD display.

The LCD display will display the pressure and temperature values. The data received by the GSM module from arduino board will send to the cell phone through the SMS.

## IV. FLOWCHART

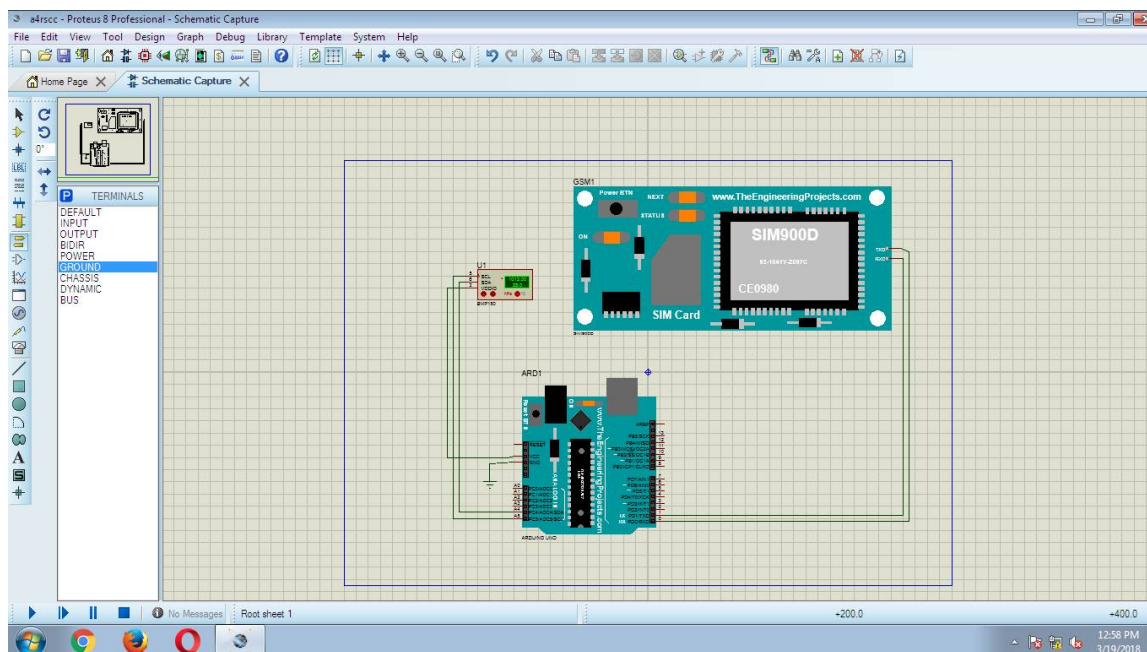


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## V.RESULT

At the end the flood monitoring system is complete and it works as per the planning. This monitoring system is designed to reduce the traffic problems in flood areas. It informs user before the occurrence of flood due to this the user will be able to find out the alternate solutions against the losses caused because of the occurrence of flood. This system is helpful to reduce the traffic jams on the roads. The pressure sensor detects all the levels of floods, displays the pressure values on LCD display and according to the measured water levels SMS is send to the user.

## VI.CONCLUSION

This paper represents the design and implementation of flood detection system by using barometric pressure sensor. The designed monitoring system successfully sends the message to the receiver when water crosses the threshold level. The designed monitoring system is cheaper, reliable and fast that's why this monitoring system is helpful to prevent the damage of properties and loss of lives.

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