PES UNIVERSITY

A Project Report

On

IoT based FLOOD DETECTION SYSTEM

COMPUTER SCIENCE AND ENGINEERING DEPARTMENT

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I. ABSTACT

Since we are now currently present in an era of Computing Technology, it is essential for everyone and everything to be connected to the internet. IOT is a technology that brings us more and more close to this goal. Our project comprises of smart water monitoring system which is a small prototype for flood detection and avoidance system. This report explains the working and the workflow of all the components present inside our project. The model gives a warning after the water level rises to a particular height. Since it is a small scaled prototype for flood detection and avoidance system, the working of this model is good. This model can be used to greatly reduce the casualties in a devastating event of flood.

II. 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 hazards for live things. Because of the flood so many people are lost their homes, farms 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 is not reach to all the areas. Because of the reason arduino based flood detection system using barometric pressure sensor is designed. In this system if water level is extended over the fixed level then barometric pressure will sense the water level and automatically sends SMS to the associated residents. Now days the mobile phones are become too much popular as a communication device all over the world due to this reason the SMS based flood detection system is invented.

III. HARDWARE IMPLEMENTATION

Different hardware used in our projects are:

i) Arduino Uno.

The Arduino Uno is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and developed by Arduino.cc. The board is equipped with sets of digital and analog input/output pins that may be interfaced to various expansion boards and other circuits.

ii) Water-level sensor.

Water Level sensors are used to detect the level of water that can flow. It is an electronic device that is designed to detect the presence of water for purposes such as to provide an alert in time to allow the prevention of water leakage.

iii) LED.

A light-emitting diode is a semiconductor light source that emits light when current flows through it.

iv) Breadboard.

A thin plastic board used to hold electronic components (transistors, resistors, chips, etc.) that are wired together. Used to develop prototypes of electronic circuits

v) Jumper wires.

A jump wire is an electrical wire, or group of them in a cable, with a connector or pin at each end, which is normally used to interconnect the components of a breadboard or other prototype or test circuit, internally or with other equipment or components, without soldering.

IV. SOFTWARE IMPLEMENTATION

i) Arduino IDE.

The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. This software can be used with any Arduino board.

V. LINK

Code and Video demonstration video upload on the google drive.

https://drive.google.com/drive/folders/1bGYsN8OLyz67wvOPgnfsnldeyQrPqUlY ?usp=sharing

VI. WORKING

1) After setting up the connection, upload the code onto the arduino board using Arduino IDE.

2) Open the serial monitor and observe the values. Consider there is no rise in water level, and the water level sensor value will be zero and the led will not glow.

3) When the water level rises, accordingly the water level sensor value increases and to alert us the led will glow. So that we can take precautions

VII. CONCLUSION

Disasters, as the name suggests, brings about great havoc on lives and property indiscriminately across the globe. Developing countries, however, experience much worse destruction than the developed ones and are as well as less equipped to deal with the aftereffects of these calamities. Foreknowledge of the disaster could thus help all, especially the developing countries by providing time to secure property and evacuate. Developing early warning systems may be complicated, with many facets to the system requirements and many additional intricacies, when within a developing country. This paper has tried to propose a potential and economic solution to the problem of floods. Floods cannot be predicted easily, but we are trying to develop a system which tries to detect flood and give early intimation to nearby people. The IoT based flood detection and alert system may prove to save the lives of people by reducing the human quick out during emergency situations. Development of a wireless sensor network has been successfully carried out, with considerations on area of deployment and efficiency. So far, we have built a micro-model through a prototype; the sensors utilized were fundamental in obtaining the required data necessary for monitoring and detecting flood events, and a live feed has also been actualized for end users. The proposed system can later be used to provide solutions to real-life challenges, thereby bringing relief to people in communities ravaged by persistent flood occurrences.

VIII. FUTURE SCOPE

Future work would be focused more on increasing sensors on this system to fetch more data especially with regard to Water Control and by also integrating GPS, WIFI module in this system to enhance this Water Detection IoT Technology.

IX. REFERENCES

1) Elizabeth Goodman, Martin Charlier, Ann Light & Alfred Lui "Designing the Internet of Things by Claire Rowland", google books, published in 2015.

2) "Flood Detection and Water Monitoring System Using IOT" by Minakshi Roy July 2020.

3) https://www.youtube.com/watch?v=EsHXXlLhVkk&list=WL&index=3