GOVERNMENT COLLEGE OF ENGINEERING

ERODE

B.E Electronics and Communication Engineering

FLOOD MONITORING AND EARLY WARNING SYSTEM BLOT IOT

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INTRODUCTION:

A flood monitoring and early warning project aims to mitigate the impact of floods by implementing a comprehensive system. It focuses only on the water level detection and early warning system (via website and/or SMS) that alerts concern agencies and individuals for a potential flood event. The study aims in helping citizens to be prepared and knowledgeable whenever there is a flood.

HARDWARE SETUP:

Get a NodeMCU ESP8266 board. Connect various sensors such as water level sensors, rain gauges, and possibly temperature and humidity sensors. Ensure you have a stable power source, as this system may need to operate continuously.

SENSOR DATA COLLECTION:

Write code for your NodeMCU ESP8266 to collect data from the sensors. These sensors continuously collect data related to weather conditions, water levels, and soil moisture. After analsying all the datas, the sensor would help us

with messages and even e-mails to alert us and also help us to take some safety measures to overcome the problems arise due to flood.

DATA PROCESSING:

Use a microcontroller to process the data from the sensors. Implement algorithms to analyze the data for flood risk factors, such as rising water levels or heavy rainfall.

CONNECTIVITY:

Ensure your NodeMCU is connected to Wi-Fi so that it can transmit data to a central server or platform. For doing the practical demonstration. First connect the USB cable type-B to the Laptop's USB slot for power supply. Also simultaneously run the python program (i. e Main.py). Firstly the ultrasonic sensor will sense the water level in distance . Also the sensed water level will be displayed on Lcd display(In Percentage) along with zone/area the water level is present.
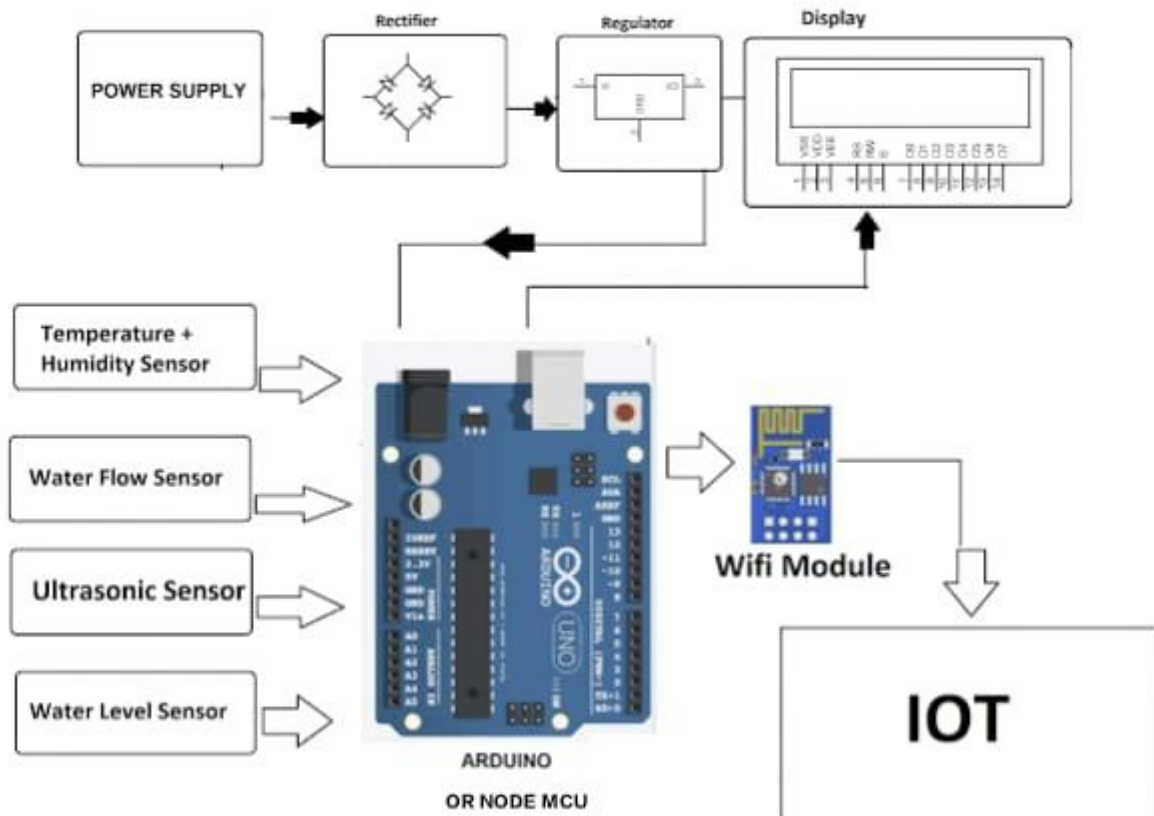
EARLY WARNING SYSTEM:

Develop algorithms that trigger alerts based on predetermined criteria. For example, if the water level rises above a certain threshold or if heavy rainfall is detected.Alerts can be sent via SMS, email, or push notifications to relevant authorities or residents in the affected area.

TESTING AND CALIBRATION:

When water level is at Min/Normal level. That resembles 'Green Alert'. This means that water is at normal position and no sign about flood condition. Also green led will glow and it will also show green alert in Lcd display with water level. Also green led will glow and it will also show green alert in Lcd display with water level. When water level crosses the Max Level. That resembles 'Red Alert'. This means that water level has crossed the 80% and flood situation has occured at that place. Also Sms and Email is send to registered user with proper message and current temperature of that place.

BLOCK DIAGRAM:

CONCLUSION:

By integrating sensor data collection into flood monitoring and early warning systems, it is possible to provide timely and accurate information to help mitigate the impact of floods and protect lives and property.