https://www.youtube.com/watch?v=QV0DjfatCkk

IoT Flood Detection and Alerting system using NodeMCU

Flood is an unavoidable natural disaster in all over the world, causing heavy flow of water and also severe damage to properties and lives. For this reason, we need to create a flood detection system to monitor rising water residential areas. Generally, flooding cannot be stopped and unavoidable, but early detection or warning system can be used to reduce losses faced by the citizen and government. For this reason, we need to create flood level sensing devices which will detect the water level in dam. This can be achieved through the emerging technology Internet of Things which we can monitor floods in abnormal conditions and take necessary action like open the dam gates using blynkAPP.

The project makes a use of NodeMCU module which has as inbuilt wi-fi and it is a main controlling device of the whole project. By using ultrasonic sensor, we can measure the distance of surface water. DC motor along with motor driver works as a dam gate. IOT technology to monitor the water level into the Blynk APP. The status of the project will display on LCD. Indication of different water levels using LEDs.

This system is integrated to the microcontroller board. SR04 Ultrasonic Sensor, LEDs, Buzzer is interfaced to the NodeMCU module. NodeMCU monitor the data from Ultrasonic sensor. Ultrasonic sensor is used to measure the water level in dam and it is indicated by the LEDs as well as monitor the water level on LCD display. Also, it will upload the water level into the blynk mobile application. So, user can access this device with his credential by using smart mobile and based on that user will control the dame gate from blynk mobile application. This system will activate the buzzer if the water level is high. This system can also predict the possibility of flooding before flooding takes place.

The main objectives of the project are:

- The main objective of this project is to detect the rising water level in a river/ lake from a reasonable distance and monitoring this water level into the blynk mobile application through Internet. And also open the dame gets manually and gives the warning through buzzer if the flood level is high.

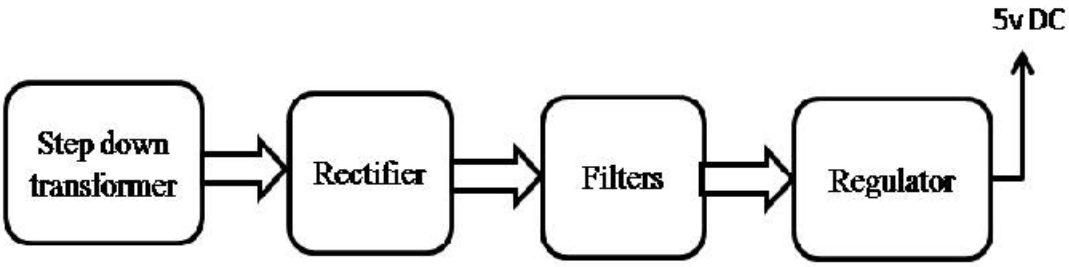
The major building blocks of this project are:

1. Adapter Power Supply.
2. SR04 Ultrasonic sensor.
3. NodeMCU.
4. LCD display.
5. LEDs.
6. DC MOTOR along with driver.

Software's used:

1. Embedded C programming.
2. Arduino IDE studio for dumping code into Micro controller.
3. Express SCH for Circuit design.
4. Blynk APP.

Regulated Power Supply:



Block Diagram: