nothing to worry about. The Raspberry pi displays the value of temperature, humidity and the distance between the sensor and the river in its local terminal too.

The values of the sensors are obtained repeatedly in the certain interval of time. So the real time values of the sensors are obtained. The values obtained are uploaded to the local server of the Raspberry Pi using the MySQLdb. The data obtained in MySQLdb from the Raspberry pi are date and time, temperature, humidity, distance of ultrasonic sensor and river and the remarks regarding the flood. The date and time is auto incremented since it doesn't require any sensor input data. The values of temperature and the humidity changes corresponding to the changes in the environmental temperature and humidity and gets updated in the database table. The main role here is of the ultrasonic sensor. The value of the ultrasonic sensor is updated repeatedly in certain interval of time and shows the distance. If the value of the distance is less than the threshold value then the warning message regarding flood will be displayed in the remarks and if the value of the distance is greater than the threshold value then remarks will display default message. The data in the database table are updated automatically every 6 seconds.

Now, the main motive of the system to alert the people about the coming flood is done by the web API. The data from the database is linked to the web API. What the web API does is, it continuously keeps on reading the value of sensors from the data base. And when the value of distance becomes less than the threshold value the web API indicates it so by changing the color the trigger used there. The contact or phone number of the residents are also uploaded in the web API so, it quickly informs the local people about flood by sending the warning SMS to the people whose numbers are registered in it.

APPLICATION:

The early flood detection and avoidance system has following applications:

- Early information about flood.
- Gives the real time temperature and humidity data along with level of water.
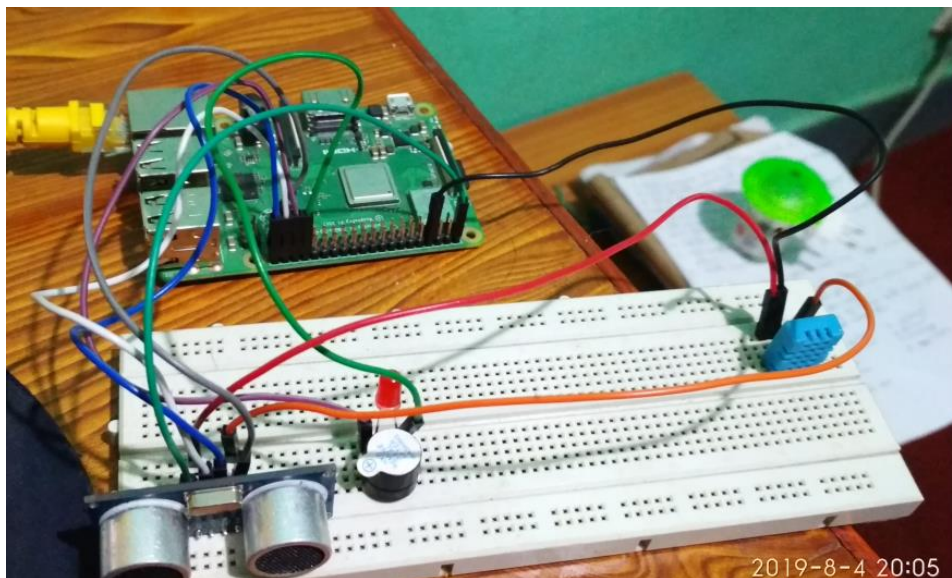
Every complex embedded system needs a microcontroller or a microprocessor. This project uses a Raspberry Pi because it was the best fit for the needs of the project. The main goal of this project is to automate and digitize the attendance system. For this, the system needs to save the attendance data in such a way that it will be available and can be analyzed easily. For this, Raspberry pi was the most reasonable microprocessor. Also, the system needed to have a RTOS for users to be able to operate it easily. The design of such RTOS is difficult in other microcontrollers due to the programming language limitation. In Pi, one can use any language as per the need of the project.
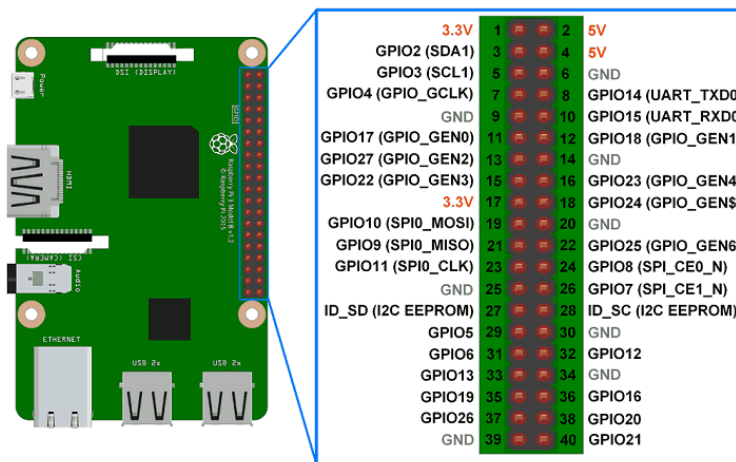
The DHT11 temperature and humidity sensor is a nice little module that provides digital temperature and humidity readings. It's really easy to set up, and only requires one wire for the data signal. These sensors are popular for use in remote weather stations, soil monitors, and home automation systems. Programming the DHT11 and connecting it to a Raspberry Pi is pretty simple too. In this tutorial, I'll show you how to connect the DHT11 to the Raspberry Pi and output the humidity and temperature readings to an SSH terminal or to an LCD. Then I'll give you some example programs for programming it with either C or Python.
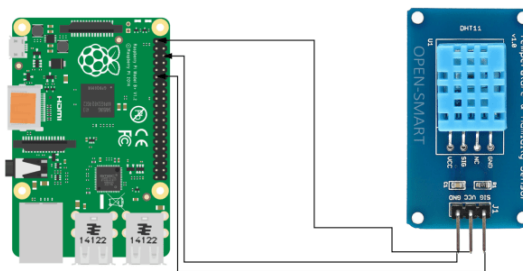
A buzzer or beeper is an audio signaling device, which may be mechanical, electromechanical, or piezoelectric (piezo for short). Typical uses of buzzers and beepers include alarm devices, timers, and confirmation of user input such as a mouse click or key stroke.

- The water flow sensor can be used to determine the discharge of water which also aids on early detection of flood.

- The system can be implemented in various places and the data of one system can be used to alert the other interconnected system so that the system become more feasible, fast and effective.

- The web API can be made more advanced to handle the overall data of the different connected system.

- Along with SMS the people can be alerted through phone calls, android app, web pages etc.