FLOOD MONITORING AND EARLY WARNING SYSTEM

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Objective:

To detect and access flood related risks and hazards. Its aims to provide advance notice to communities and authorities, enabling them to take proactive measures such as evacuation and disaster preparedness, ultimately minimizing loss of life and property damage. Additionally, these system helps in monitoring the flood's progression and assessing its potential impact on affected areas.

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IOT-based Flood Monitoring and Alert Systems:

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The system further would alert the resident by sending an SMS as an outcome. If the sea level rises by 4 inches by 2030, it could be a reason for dangerous flooding that could be affecting many parts of the world. There is an emphasis on the usage of the GSM module since there is an increment trend in the usage of mobile users have been positive. This makes it easier for the system to alert authorized people when in an emergency.

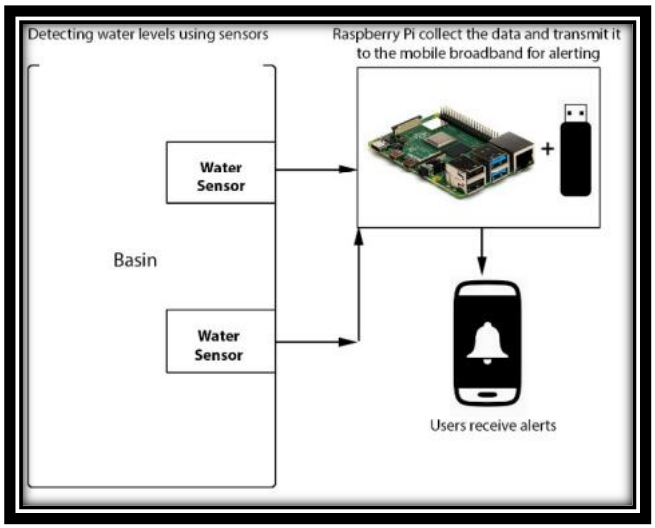
The water sensor, SEN113104 model, and USB 3G modem Huawei mobile broadband E173 was set up along with a jumper cable to connect with Raspberry Pi. The sensors were placed at different heights and the water height increased; they triggered data to the Raspberry Pi. This system calculates the time and speed with which the water level rises.

IoT-based flood alters system is shown in Figure. The performance testing shows that the performance is evaluated using delay in time.

→The first type of test was carried out with 30 series of data captured manually and automatically using the system. The results verify the system has been accurate in fetching the data using sensors.

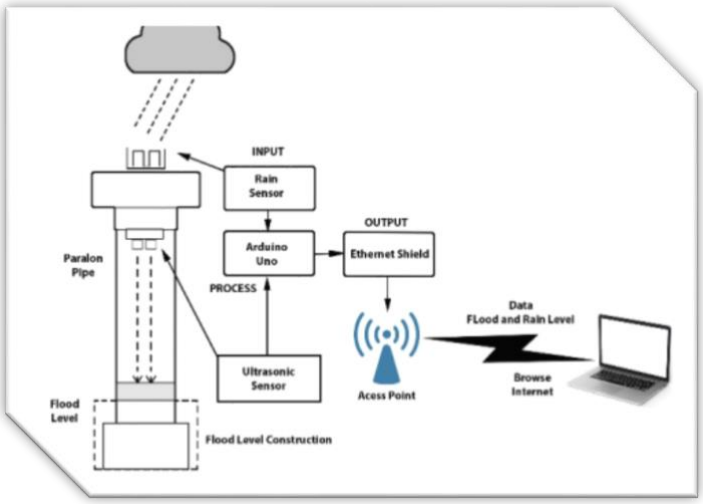
→The second test was to identify the delay time in sending SMS to alert authorities in case of emergency

→The third test was to identify the range of water increment which summarized the findings. The system highlights the importance of using sensors that can help gather relevant data helping authorities in Malaysia to take necessary measures.



Another system was designed for monitoring information related to floods. This was based on IoT which helps users to identify flood activity by reviewing weather conditions and inundation levels.

The ultrasonic sensor HC-SR04 and another type of rain sensor were used to gather information related to flood altitude. It uses an Arduino Uno microcontroller to generate web-based data. The wireless router, TL-MR3020 is connected to the controller and linked with the gathered data and is shared with the users. This system was developed to address the situation of floods in Indonesia. The Ultrasonic and rain sensors are part of the input section whereas, the Arduino Uno Microcontroller is part of the process. An IoT-based flood information monitoring system is shown in The Ethernet shields and the wireless access points constitute the output section which is well integrated. Both sensors are placed upper side of the system with a cork float inside which will reflect an echo signal which sensor acknowledges through its trigger. The rain sensors will detect rain conditions and the water height is checked in the pipe. The Arduino Uno Microcontroller receives the data from sensors that are saved in the web server. The early warning system is a web-based system that users can access which includes web flood information.



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