Project 3: Flood Monitoring System

PROJECT PHASE-1

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PHASE 1: PROJECT DEFINITION & DESIGN THINKING

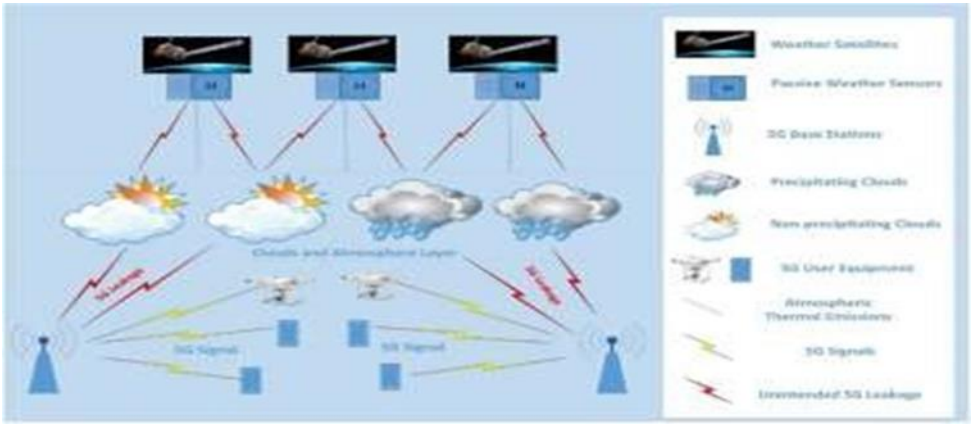
PROJECT DEFINITION

AIM OF THE PROJECT:

Flood occurs when water overflows from the river, lake or from heavy rainfall and it can happen at any time of the year. Flooding can be very dangerous, when floods happen in an area that people live, the water carries along objects like houses, cars, furniture and even people. It can wipe away property, trees and many more heavy items. For years, flooded roads have been a problem in Metro Mumbai. It causes heavy flow of traffic. Both motorists and commuters are getting stuck in a flooded areas and getting lost in finding possible routes justto go to their destinations.

When traffic happened, people's money, time and effort are wasted. Through the local government unit flood control has been extending their efforts to inform the commuters regarding the situation in flooded areas during rainy season, still the dissemination of information to the locals are not enough. For this reason, the "Arduino Flood Detector System" is been develop, to help the road user to avoid this problem happened.

It was invented based on problem faced by motorists and commuters when flood occurred. This will avoid the traffic jam because the users have a time to find a possible routes before they are going to be stuck at the flood area. The system will function when the admin activates the system and when water along the road detected by distance over ultrasonic sensor. When the flood occurs, the ultrasonic sensor will sent signal to the microprocessor circuit and the sense water level will be display in the user interface and it will automatically send a Short Message Service (SMS) to those recognized residents and it will continue update until the water level detected returns to normal.



. ***Fig.1***: IoT System for Weather Monitoring

The process repeats as the water level continuous to rise. The idea of an SMS based warning system was proposed because mobile phones have become a popular communication device among people all over the world. All mobile phone is able to communicate because it comprises of a GSM. This system used to detect the current water level of flood around the road and will give real-time information to the motorists or commuters that has still not passing through the flooded areas to avoid problem.

DESIGN THINKING

RELATED WORKS ;

[1] A novel architecture for the transceiver is proposed in order to increase the service range of IEEE802.11ah, which is necessary for the long-range IoT communication of emergency messages in emergency situations. Experimental results show that the presented architecture is suitable for the long-range IoT communication of emergency alert messages.

[2] Wireless sensor network system could remotely monitor the real time data of water condition in the identified areas. To monitor the water conditions such as water level, flow and precipitation level, wireless sensor network system is developed.

[3] GRAB, designed for robust data delivery in face of unreliable nodes and failable wireless link. GRAB forwards data along band of interleaved mesh.

[4] In Wireless Sensor Networks (WSN) the user requirements are often desired to be evolvable, whether driven by changes of the monitored parameters or WSN properties of configuration, structure, communication capacities, node density and energy among many others.

[5] The Functionality is supported by the reflective and component-based Grid Kit middleware, which provides support for both WSN and Grid application domains.

[6] A Distributed system is proposed using water level monitoring sensors named Shonabondhu. The sensing nodes are distributed all across the country and the servers that collect data from sensors are spread around various regions. The servers use a function of rainfall and current water level that indicate a particular gradientto that sensors.

[7] Proposed cooperative monitoring algorithm based on node location information. Basically, IoT is a part from WSN but sometimes there are have a problem on connectivity end to end device because there are varieties of devices used in the network architecture. A consistent design system is needed to implement, where the main application requirements for low cost, fast deployment of large numbers of sensors, and reliable and long unattended service are considered at all level.

[8] The system must be able to handle the variety of data types, providing interoperability among all the components. This is because of the various environment of the IoT device give a different perspective in term of information processing, communication capabilities, and data transferring that coming from the devices. The communication device is imp Frtant in the system example using of ZigBee network protocol.