ABSTRACT

Drainage system is a system that regulates the disposal of water masses in a natural or artificial from the surface or the subsurface from somewhere covering water conditions, water flows and rain as its main components. Danger condition factor a difficult thing for predictions. On this final assignment will be on the design of wireless sensor network system for approximate condition of danger by using fuzzy logic. Main Paramter is the height of the water, intensity of the water flow and rain.

By using WSN, monitoring of drainage system at one location can be monitored directly. The system consists of two sensor node and a node as the node Coordinator. Sensor node device consisting of arduino, sensor Rain, Water Flow and HC-SR04 can be utilized to measure the third parameter. The device at the Coordinator node consists of the data processing as ardunio, lcd shows data and information module 2G as a hazard information on remotely.

The result of this system is capable of displaying measurement results in the form of water height (cm), the intensity of the water flow (l/min) and or no rain System using Fuzzy logic estimation experiment 30 times produces an estimate of the hazard with the accuracy of 87%. Maximum range between the sensor node with the node Coordinator 95 meters with the ideal distance 40 meters which are capable of producing interarrival delay 243.8 ms and throughput value of 100 bits/s. The results of the condition of the hazard will be sent via short messages with module 2G average delivery delay 9,924 seconds. Power consumption when the maximum condition with 2 sensors on the sensor node of 1.35 Watts and at node Coordinator of 1,215 Watts. 9V battery on the system can survive ± 5 hours.

Keywords: Drainage System, WSN, Fuzzy logic, XBee