ABSTRACT

Weather is the air condition of a place in a short time, which includes conditions of temperature, humidity, and barometric pressure as its main component. Weather factors become difficult to predict. This final project will design a wireless sensor networks for weather forecast systems using fuzzy logic. The main parameters used are temperature, humidity and barometric pressure.

By using WSN, weather elements at some place can be monitored directly. The system consists of three sensor nodes and a node as a coordinator node. Sensor node consists of a microcontroller ATMega8535, HP03 and HH10D, used to measure the three parameters of the weather. Coordinator node uses atmega32 to collect and process data. Each node will be distributed and communicated wirelessly using RF modules xbee.

The output of this system has been able to show the results of measurements of temperature ($^{\circ}$C), humidity (%), and barometric pressure (mb) in real time and to be able to predict the weather conditions of a region on a regular basis in the coming days. Forecasting system using fuzzy logic is able to produce weather forecasts with accuracy of 72%.

Keywords : weather forecast, WSN, fuzzy logic, xbee, microcontroller