

ABSTRACT

The number of active volcanoes in Indonesia has the potential to cause a natural disaster in the form of an eruption, with the threat of the need for a system or tool that can observe and provide information in the form of volcanic activity.

The system used to observe volcanic activity adopts the Wireless Sensor Network (WSN) system. WSN is an embedded system equipment which contains one or more sensors and is equipped with communication system equipment. The tool consists of Remote Terminal Unit (RTU) modules to detect the symptoms of volcanic crater temperature activity that will communicate with the Master Terminal Unit (MTU) module, then the MTU module provides information to the public in the form of volcanic status display. As well as the DHT22 sensor is used as a measurement of temperature and humidity of the air around the volcanic crater and ATMEGA328 microcontroller as the core of the data processing brain.

With the results of testing tools that show high accuracy and have an average percentage value of 0.32% error. Likewise, the ability to transmit prototype data through radio frequency signals can reach a considerable distance of 57.9 meters. With the knowledge of volcanic activity information, the protection of the community against volcanic disasters can be maximized and by using this method the observation process can be more efficient.

Keywords: *DHT22, ATMEGA328, Observing, Volcano, WSN.*