

ABSTRACT

Landslide events that occurred in Indonesia resulted in material losses and fatalities. In the last 5 years, there were 3,924 landslides in Java. A land shift monitoring system is needed to reduce losses due to landslides. This system works based on monitoring changes in observed variables, such as ground displacement, temperature, humidity and so on.

This final project aims to design a soil shift monitoring system in a landslide prototype plant using a piezoelectric sensor and to know and observe changes in soil shift based on temperature variables. Data from the piezoelectric sensor and Dsb18b20 are sent from the Zigbee wireless module to the ESP8266 microcontroller and sent to Antares as a Cloud IT platform that can be accessed anywhere. The results of this thesis is the temperature sensor has an accuracy level of 99.27%, 99.48% and 99.72% on the temperature sensor 1, 2 and 3. This system can work well because it can read the pressure caused by ground shifting from 1481.48 to 122.469.1 N / m². But this system could not work properly when reading the pressure caused by a ground shift of more than 122,469.1 N / m². The data communication system runs quite well because the data can be sent to Antares with an average delay of 2.3 seconds

Keywords: *Landslide, Zigbee Module, Piezoelectric Sensor, Microcontroller, DS18B20, monitoring system*