

ABSTRACT

Landslides are one of the natural disasters that often occur in Indonesia causing many casualties. This happens because Indonesia has high rainfall and many mountainous areas which is a plateau. In this final project, a centralized landslide monitoring system will be created which is able to provide a solution to obtain real-time data from locations prone to landslides by using LoRa as LPWAN access and ANTARES platform to store and display data obtained from sensors used. These sensors consist of a vibrating sensor, a soil moisture sensor, a rotary encoder and an accelerometer/gyroscope sensor which will be integrated with a microcontroller and then connected to the LoRa *gateway* which will later be monitored by the user through the website.

Measurements were made to determine the performance of the system designed. In this final project, the research focuses on measuring the quality of data transmission paths that are performed so that data communication is optimal which checked by testing the parameters of RSSI, SNR, *packet loss*, delay, and throughput which tested at the *gateway* side. This test are done by sending data 30 times, and the distance tested is 0 km, 1 km, 1.5 km, and 2 km. These test are performed on all spreading factors, namely SF 7 to SF 12. In this study, SF 12 gives the best result when used for distances 0KM – 2KM, giving an average RSSI value of -100.81 dBm, SNR value of -7.56 dB, 3.63-second delay, 15% packet loss, and throughput 185, 691 bits/sekon.

Keywords: LoRa, LPWAN, Landslides, RSSI, SNR.