

ABSTRACT

Landslide is an event that shifts the soil. Landslides can occur when there is high rainfall or the vibration effects of an earthquake. Landslides are one of the natural disasters that can cause casualties, not only that landslides can also trigger damage to infrastructure including buildings, buildings and even damage other facilities and infrastructure such as bridges. Parameters that cause landslides are soil shift and soil slope and soil moisture that affect soil conditions. Therefore, it is necessary to create an early detection tool. To find out these parameters, an Internet of Things (IoT) based system is used which is connected to sensors.

This final project design and simulate a landslide early warning prototype using sensors, namely fiber optic cables, where events that occur on fiber optic cables will be read by the Optical Time Domain Reflectometer (OTDR). The event results read by the Optical Time Domain Reflectometer (OTDR) will be concluded manually on the Raspberry Pi to get a conclusion about the occurrence of landslides and IoT (Internet of Things) to facilitate monitoring of the tool.

Based on the results of the landslide simulation, it shows that the greater the sensor attenuation value, the greater the chance of landslides. The 45° slope has a large attenuation of 3.4468 dB with the cable positioning to the right (opposite the slope direction). The simulation status can be said to have occurred at an angle of 45° and 22.5° because landslides occurred at attenuation values above 3 dB.

Keywords: OTDR, Raspberry Pi, Internet of Things, Landslide.