

ABSTRACT

Massive fiber optic network damage will take a longer time during maintenance. The Network Management System performs a variety of tasks including data collection and collection, customer service, and other interrelated tasks. The Network Management System only checks the customer network individually, therefore the author provides detection and handling of the total time, provides information on damaged cables, finds out which cable segments are disrupted and the last is user satisfaction by creating a damage detection system using a 1: 4 splitter. .

In this final project, it has been proposed the use of detection sensors with applications made using the Android Studio application which is connected to NodeMCU and firebase as a real-time database. The cable check process occurs when it is Off, assuming the system is detected as Active and running well during the initiation process.

The test results and analysis show that the LDR sensor can provide a large change in resistance to changes in light levels so that the detector can work up to a maximum range of 10 km. From the calculation of the Power Link Budget obtained for $\alpha_{tot} = 7.22$ dB, $P_{rx} = -3.22$ dBm, and a power margin of 25.78 dBm. This means that the link meets the PLB and the attenuation is above -29 dBm and below 25 dB. For features in the application, data can send notifications in real-time with a delay of 5,000033 s.

Keywords: *Fiber Optic, Network Management System, LDR Sensor, Power Link Budget, Attenuation, Delay*