ABSTRACT

The train is one of the mass transportation be an alternative for people to travel both within the city and outside the city. However, the accident rate in this mode of transportation caused by damage pathway is still a major factor. Problematic is not separated from the slow process of examination of the railway line which is still done manually. Therefore, it takes an application Monitoring System which will make it easier for train operators to monitor the railroad.

In this final project, will be made a prototype of a web-based monitoring application for monitoring the state of railway lines using fiber optic cable as a sensor. In principle, this application uses the FO to Ethernet Media Converter for changing the fiber optic cable into the ethernet data cable. Once converted into Ethernet data cable, optical fiber can pass protocol TCP / IP. Then, by adding the IP device and this device to ping the server can detect the state of the railway line in the event of disturbances, by measuring the activity of replay data from ping in cmd. Then the web application will show the results of the ping activity using python programming language, PHP, JavaScript, MySQL for database and application has several features. By using the parameters of ping application can display the track conditions when the reply ping > 0 ms then the track conditions in normal circumstances, reply ping > 30 ms then the track conditions in a state of bending or bent and if the reply ping > 1000ms or Request Time Out (RTO), the track conditions in case of breaking up.

After the completion oh the final project, a prototype application monitoring railway line has been able to function properly, it can be seen when the obtained delay 0.10085 / ms when the track conditions in normal conditions and 30.000934 / ms when the track conditions in a state bending. Which means that good quality data traffic based on the ITU-T standards.

Keywords: *Fiber Optic, Sensors, Train, Fiber to Ethernet Media Converter , Website.*