

## **ABSTRACT**

*Leakage of current in cable insulation can cause a fire because the insulation on the cable can no longer withstand the current and voltage flowing, causing high temperatures and can remove insulation from the cable. In addition, the decline in cable quality due to cable use and routine maintenance can be one of the causes of current leakage in this insulation.*

*In this final project, a prototype monitoring and leakage current detection system is designed in several cable insulation conditions using a current sensor Clamp Transformer SCT-013 and a current sensor module PZEM 004-T. The prototype that is built can provide an early warning to detect leakage current on the LCD display and web server with a current threshold of 0.001 A. The reading value of the current sensor when compared to the Kyoritsu AC Digital Clamp Meters KEW 2007r amperage tool has an accuracy of 96.42%.*

*From the results of tests carried out by measuring leakage current on the NYRGBY cable and Li2YCY cable, the results obtained on the NYRGBY cable with a cable length of 20 Cm, the average value of leakage current is 0.353 A, with a cable length of 40 Cm, the average value of leakage is obtained. the current is 0.606 A and in a cable with a size of 60 Cm the average value of leakage current is 0.85 A. While in the Li2YCY cable test with a cable length of 20 Cm the average value of leakage current is 0.180 A, with a length of cable size 40 Cm, the average value of leakage current is 0.218 A and for cables with a length of 60 Cm, the average leakage current is 0.294 A. The power wasted due to leakage current in the NYRGBY cable test is in the range 0-16.24 VA and the Li2YCY cable is ranging from 0 - 5.88 VA as well as in the comparison test Delay time of sending data the value of the leakage current to the LCD and Antares obtained an average value of 54.83 ms.*

**Keywords:** *Leakage current, Cable insulation*