

## ABSTRACT

*Copper Local Access Network is currently operated by PT Telkom, although it will gradually be changed to fiber (FTTH). Copper cable has a fairly high economic value and held past several routes so it is vulnerable to theft. It has been quite a lot of mitigation in anticipation of theft, both in collaboration with the security forces and the community, internal patrols and installation alarm copper cable. Alarm copper cables available today, the perceived end to end is still manual and work serially, so prone to inaccuracies and delays early warning information on the theft of copper cables.*

*In response, the alarm needs to be created that is able to provide information about the condition of the cable connections accurately and quickly, by utilizing a microcontroller. This alarm is designed by using a microcontroller whose output is connected with sms gateway module, to inform Microcontroller detection results to the relevant parties. Information from the original alarm expressed in the form of alarms and lights, will be converted in the form of SMS messages. Alarm copper cables are designed using the sensor relays controlled by the microcontroller 328. ATmega sensor output is processed by a microcontroller that the results will give orders to the GSM module to send a message. According to the data processing results a microcontroller based on detection a sensor, the message sent to the number of the officer with the contents of a message about the condition of the cable connections.*

*Alarm system designed has been able to produce alarm with a fast response time and high accuracy. This alarm can send information to local cable network officers with an average time of 4.62 seconds and has a 100% accuracy rate. The information resulting from the detection of alarms, simultaneously transmitted to the relevant parties, that are useful to speed wired security and recovery. With a fast response time and high accuracy, hopefully impact to decrease the frequency of vandalism of copper cables.*

**Keywords:** *ATmega 328, Copper Cable Alarm, GSM Module, Local Network Access Copper, Microcontroller, Relay.*