# *ABSTRACT*

*In a factory, it's common to get a problem which caused by the unnecessary usage of lighting. That problem may cause high fixed cost for a company. The implementation of a lighting control system in a factory is the best solution to decrease the energy cost.*

*This research is explaining about the design and implementation of a microcontroller-based lighting control and scheduling system in the factory of PT. Swadharma Eragrafindo Sarana. User can set the lighting, manually or with schedule, from Delphi-based application in a computer. To decrease the power supply usage inside the system, PoE (Power over Ethernet) technology is being used as data transmission and power supply media for the microcontroller's minimum system. A relay is being used as a current sensor, so the user can notice if there is a blackout inside the factory from the computer application. In addition to that, this system is also equipped with 3-state switches (manual ON, manual OFF, and AUTO to control from microcontroller), therefore user still can set the lighting manually from those switches if the LAN network or microcontroller is out of order.*

*The system was tested in several stages, the first stage is the hardware system test (minimum system of ATMega 128L, relay board, current sensor and data communication) and the last stage is the software system test (testing the program in manual mode and schedule mode). Based on the current sensor test, resulted in the error rate of the ACS712-ELC-05B's current reading is approximately 14.36%. The success rate for command execution in this system is already 100%.*



***Keywords:*** *lighting control system, microcontroller, PoE, Delphi, Bascom*