

## ABSTRACT

*The use of electricity continues to increase and still relies on electricity sources supplied by PLN, therefore an additional source of energy is needed to help meet the electricity needs of the house. The most widely used additional energy source is solar panels. With the presence of solar panels as additional energy, a control system is needed to regulate the use of electricity in supplying electrical equipment to the home.*

*Therefore, in this final project a control system is designed that can carry out the transfer of electric power automatically and manually based on the Internet of Things from the main power source to a backup power source. This control system can be controlled remotely in connecting and disconnecting backup power sources that can be accessed through smartphone devices.*

*Based on the results of testing the resource transfer control system, the DC voltage sensor accuracy value is 99.44%, the PLN voltage measurement has an accuracy of 98.31%, and the measurement of the current flowing in electrical equipment has an accuracy level of 68.63%. In the control system transfer to a backup power source with manual control has an average time duration of 0.74 seconds while the automatic control has an average time duration of 0.98 seconds to 1.33 seconds and for automatic control with priority reading the battery capacity of 12.75 Volts can perform transfer from the PLN power source to the backup power source and do the transfer to the PLN source if the voltage is less than 10.5 Volts with a 100% success rate.*

**Keywords:** *On-Grid system, transfer of electrical power sources, Internet of Things.*