

## ***ABSTRACT***

*In general, charging battery is a crucial need. Almost everyone needs a smartphone battery charger. One of the chargers that can be used is a solar charger. The sun is an unlimited energy source. From the energy a solar battery charger is made. This tool can be used by the smartphone users to charge the battery without depending on the availability of the electricity sources from PLN since the source used in this tool is a renewable energy source, sunlight.*

*Smartphone charger that is made in this final project is a solar panel-based circuit consisting of Microcontroller to catch the sunlight and change them into electrical energy, Solar Charge Controller to control the incoming electric current flow, and Arduino Uno to manage the relay as a switch. If the smartphone battery is fully charged, then the electric current will be stopped automatically*

*The results of testing this tool could have been realized and this tool can fill the batteries up to 82% of the smartphone. From the research, it is obtained that the average input voltage is 6.96V, average output voltage is 4.91V, and average current is 1.00 A*

*Keywords: Smartphone, Arduino Uno, Solar Charge Controller, Relay, Microcontroller, Batteries, Solar Panels*