

## ABSTRACT

In this era of globalization, lots of people have mobile phone or smartphone, starting from children into adult. It is because mobile phone already become a main thing in life, even right now each person can have more than one mobile phone or smart phone. However with all the advantages and convenience, mobile phone or smartphone also have disadvantages. It comes from the battery which is not durable or easily run out. The application usage from the mobilephone or smart phone are using a lot of power and it requires the mobile phone to be charge more than once per day that. It cause waste of electrical power.

Mobile phone charger based from solar panels and microcontroller with Boost Converter metode will be able to create new energy from the sun shine and it will changed into electrical energy by solar panels. Boost Converter are used to raise the voltage from the battery into 5 V. Microcontroller are using Arduino Nano which is useful to check the battery if it's already full or not, and if the battery has full it will disconnect the power who enter the backup battery automatically.

The result of this design tool will able to create a charger who can disconnect the power from the battery when it's fully charged, and for the battery it will be fully charged when the battery output voltage has reached 4.2 V, charging uses sun shine converted into electrical energy that produces average voltage of 7.006 V and an average current of 0.039 A, Arduino Nano as a power check inside the spare battery will cut the incoming currents who enter from the solar panels to the spare battery. The spare battery from the charger has 6800 mAh capacity.

***Keyword : Boost Converter, SmartPhone***