

## ABSTRACT

Electrolysis is the electrolyte separation process of electric current. Water electrolysis will disentangled into hydrogen gas at the cathode and oxygen gas at the anode. The results of the disentangled will produce water that has a different pH. In this final project, solar panels are used to produce electrical Voltages that are used in the electrolysis process. However, the Voltage acquisition is very small and depends on sunlight. For that purpose, a power supply is designed by adding a Voltage multiplier series to produce a greater Voltage. Voltage multiplier circuit is a circuit that convert AC power to DC power with high voltage. This circuit is designed with capacotor 4.7  $\mu$ F and diode 1N4007. The high Voltage design is using the Cocroft - Walton Voltage multiplier method. The design of this power supply can produce a Voltage of 1358 Volts DC from a solar panel that before is connected to electrolysis device. The Voltage drop is caused by electrolysis load, the drops is up to 298.57 Volts DC with a current of 0.027714 Amperes. With the Voltage, an electrolysis process can be carried out which makes the pH of the water change to 7.5 in anode box and 8.8 in katode box for 3 hours when the sun is at its highest between 11 AM to 2 PM.

*Keywords: electrolysis of water, solar panels, Voltage multiplier*