# ABSTRACT

The utilization of solar energy has not maximized yet due to the various efficiency of solar panels. It is due to the difference of sunlight intensity, the difference in material used, the temperature of surroundings, and the width of solar panel. Thus, a system that can determine the maximum power point of solar panel is needed, so that it can produce optimal power.

In this final project, an Arduino-based maximum power point tracking (MPPT) solar charge controller system with perturb and observe (P&O) algorithm is designed, expected to maximize the power output of solar panel. Parameters measured are voltage, current, and power produced by solar panel and solar charge controller.

According to the experiment data without MPPT P&O, 77.76% efficiency is obtained, and for the with MPPT P&O experiment, 78.14% efficiency is obtained.



**Keywords**: *arduino, maximum power point tracking, solar charge controller*