

## ABSTRACT

Solar panel allows the conversion of solar energy into electrical energy. Most of the solar panels are still installed in fixed position, where the power generated is still less than optimal because the solar panel do not follow the movement of the sun. To seek a more optimal output power, it requires a system that can follow the movement of sunlight.

In this research, a dual axis solar tracker is made to follow the movement of the sun with the help of four mini solar panels surrounding it. These four mini solar panels are placed on each side of the main panel as light sensors, where the main solar panel is driven by two servo motors using belts. Using Arduino microcontroller, the output power generated by the solar panels is monitored for later display on the LCD and stored in the SD card.

The whole system of this tool was tested for three days to see the comparison of the output power generated between dual axis solar tracking system and fixed solar tracking system. During the three days of testing, the fixed solar panel is positioned at an angle of  $0^\circ$ , meanwhile the dual axis solar tracking system moves after the sun movement. The result of this research showed an increase in the average power output 12,44% in the first test, 4,37% in the second test, and 3,95% in the third test.

**Keywords:** *Solar panel, dual axis solar tracker, mini panel*