

## ABSTRACT

*Indonesia is one of the countries that has abundant solar energy potential.]. Solar energy can be one of the renewable energy that can support the electricity needs of the community. To get maximum energy, a control system is needed that can control the movement of solar panels to always be perpendicular to sunlight. In this final task, the author created an image processing-based solar tracker system to get maximum solar energy.*

*The working principle of this solar tracker is a system by utilizing the projection of solar shadow obtained from the shadow of a rod (bolt) placed on a plate designed in such a way that it is parallel to the solar panels. Shadow Rod is then captured using the camera and processed by image processing, the image captured by the camera is processed by image processing on Software Open CV Open CV to get the position of the angle of direction coming from the sun and the position of the angle, as input for 2 motor drive that is azimuth angle for horizontal motor movement and altitude for vertical motor movement. In order for the double axis solar tracker can always adjust the position perpendicular to the direction in which sunlight comes.*

*From the results of the research conducted can be concluded that solar tracking system devices made can always follow the direction of coming sunlight. The test was conducted with 6 hours for 3 days, obtained Azimuth angle accuracy value of 95.82% and Altitude angle of 97.147%. The increase in power generated by solar panels by 20.4% compared to static system solar panels. The increase in power occurs because solar trackers can move solar panels following the movement of the sun*

*Keywords : solar tracker, image processing, sun's shadow, dual axis*