ABSTRACT

Solar panels are tools that can convert sunlight radiation into electrical energy. To get the maximum power produced by the solar panel then the direction position comes the light of the sun and solar panels should always be perpendicular. The movement of the sun every time is always changing from east to West as well as the influence of the position of the sun in the north and south. This makes the angle of the movement of the sun always different at all the times. Therefore the necessity of a tool to be able to make angular positions is always known to be implemented on solar panels.

On this final assignment, designed a device that can make the position of the directional corners come the sun is always known. Using the camera and the image processing process by utilizing the shadow of the stem object in the form of a bolt with a size of 4cm and a diameter of 1mm placed on the flat plane, the shadows captured by the camera are processed by image processing to get the angle position of the direction comes the sun and the position of the angle as input material for the drive motor to be able to always adjust the position perpendicular to the direction of coming sunlight.

From the results of the study can be concluded that the device that is made can always follow the direction of sunlight, using the angle input of the results with examples value accuracy level of accuracy to the direction of the central point is 104% for azimuth angle or X axis and 97% for altitude angle or Y axis

***Keywords**: shadow conversion, angle, image processing .*