

ABSTRACT

Development of solar electricity based on photovoltaic effect of solar cell as one of alternative electricity is a right choice nowadays when crisis of energy resources occurs. But in fact, solar cell's ability to produce electricity is not optimal yet because of the solar-receiving angle in solar cell. Therefore, a motion controller for solar panel is needed, to achieve an optimal and suitable inclination angle to produce energy.

Solar cell will gain maximum energy when sunray makes 90° angle with solar panel. That way, the system is designed to ensure that the position of solar panel is still makes 90° angle with the sunray. A light sensor is used to detect direction of sunray, in this case LDR (Light Dependent Resistor) is connected to signal conditioning circuit. Therefore, the output can be the input for ATmega 8535 microcontroller, as the solar panel motion detector. Command from microcontroller will be conducted by two DC motor, which rotates 45° vertically and 360° horizontally

From the design and implementation of this system, it is concluded that this system have the ability to control solar panel to stand still in a position which makes 90° angle with sunray automatically.

Keywords : maximum energy, solar panel, LDR (Light Dependent Resistor), ATmega 8535 microcontroller, DC motor.