**SUN TRACKING SOLAR PANEL WITH STREET LIGHT CONTROL**

**ABSTRACT**

This project employs a solar panel mounted to a time-programmed stepper motor to track the sun so that maximum sun light is made incident upon the panel at any given time of the day. This is better compared to the light-sensing method that may not be accurate always – for example, during cloudy days.

With the impending scarcity of non-renewable resources, people are considering to use alternate sources of energy. Barring all the other available resources, the solar energy is the most abundant and it is comparatively easy to convert into electrical energy. The usage of solar panel to convert Sun energy into electrical energy is very popular, but due to the transition of sun from east to west, the fixed solar panel may not be able to generate optimum energy. The proposed system solves this problem by an arrangement for the solar panel to track the Sun.

This tracking movement is achieved by coupling a stepper motor to the solar panel such that the panel maintains its face always perpendicular to the sun to generate maximum energy. This is achieved by using a programmed microcontroller to deliver stepped pulses in periodical time intervals for 12 hours for the stepper motor to rotate the mounted panel in one direction and then return to the start point for next day light as desired. The [Arduino](http://arduino.cc/) controller used in this project is from the [Arduino](http://arduino.cc/) family. The Stepper motor is driven by an interfacing IC as the controller is not capable of handling the power requirements of the stepper motor.

Furthermore, this project can be enhanced by using an RTC (Real Time Clock) to follow the sun. This helps in maintaining the required position of the panel even if the power is interrupted for some time.

**BLOCK DIAGRAM**

