

Sensory Solar Panels

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The purpose of this project was to design a device that would rotate solar panels to an angle where they can obtain the maximum amount of sunlight in one day. It is really important to look for ways to reduce our carbon foot print because that is one of the reasons for global warming. My project can be used to reduce our carbon foot print because whatever it is powering usually uses energy from the energy grid which utilizes fossil fuels. The fossil fuels are used and pushed into the air being one of the causes of global warming. The Sensory Solar Panels will make it so a device can use less fossil fuels and improve the environment. To address this issue, I designed and printed a 3D printed board to isolate photovoltaic cell movement and maximize solar exposure when in use. The design also includes a 3D printed motorized arc outfitted with resistors. The photo-resistors communicate via with a servo motor through an Arduino board, which processes the data to manipulate the angle of exposure to the sun. From making this project, I was able to make a device that would rotate solar panels to where light is shining to help them obtain the maximum amount of sunlight in one day. I compared a fixed-tilt system to my rotating system by adding up the voltage from each and found that the rotating system was more efficient than the fixed-tilt system. There are eight different angles that the solar panels can rotate to, which creates a more efficient solar panel system because there are no concerns about the solar panels being shadowed at a certain time during the day.

Awards Won:

IEEE Foundation: IEEE Foundation Third Place Award \$400