CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY

Name(s)
Chloe Cheng

Project Number
J0203

Project Title
Solar Power: A Quest for the Future

Abstract

Objectives/Goals
For my experiment, my objective is to find out what types of outdoor conditions are best for collecting solar power. These conditions can be anything that affects the amount of solar power collected, ranging from humidity to wind. Based on my knowledge of my topic before doing my experiment, my hypothesis was that if I collect solar power and run it through a resistor, then the test with the least wind, low humidity, high temperature, and sunny factor will collect the most solar power and electricity.

Methods/Materials
To do this project, I used certain materials to form both my interior, which is my solar power collector, and my exterior, which is used to put everything together. The materials needed for my interior include Arduino Uno Board, Solar Panel, Python(programming), Temperature and Humidity sensor DHT11, DELL Computer, Cables, Breadboard. In addition to the things needed to make the interior of the solar power collector, I will also need other materials to form the exterior of my solar power collector, which include: A thin, wooden board(to make the solar panel easier to carry), Super glue(to secure the solar power collector onto the board), Duct Tape(to secure the project and ensure that the Android and breadboard will not be damaged)
After forming my solar power collector using the materials below, I now need to start the experiment. The steps that I will take to do this include placing the solar power collector out in the sun. Directly after this, I will record the variables in my experiment, which is the sun factor, humidity, precipitation, temperature, and wind.

Results
As a result of my experiment, I now know that the main factor in collecting solar power is to collect it during the sun's peak point, which is at 12:00 PM. Other variables such as wind and humidity do not directly affect the amount of solar power collected.

Conclusions/Discussion
After doing repeated collections of solar power, I can now say that sun factor is the main factor in collecting solar power. This can aid many solar panel users by letting them know what variables, in this case, time of day, is best for collecting solar power. However, the temperature will also slightly influence the amount of solar power collected because the temperature often affects the sun factor. For example, if it is cold, it may be less likely that it will be sunny.

Summary Statement
As a result of my experiment, which includes using a handmade solar power collector to determine which outdoor conditions are best for collecting solar power, I now know that sun factor is the only main factor for collecting solar power.

Help Received
My father aided me in setting up my solar power collector.