CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)

Nathan G. Jacob

Project Number

34761

Project Title

Solar Charged Secondary Battery Pack

Abstract

Objectives/Goals

The purpose of my project was to both design and build a portable and reliable source of renewable energy that can be used for mobile devices. I designed my prototypes to address problems that existed with current sources of renewable energy, such as inefficient reliability and/or portability factors.

Methods/Materials

Three portable solar charged battery pack prototypes of different electrical and casing designs were constructed. The first first prototype was a base design of how reliable and effective the device could be. The second prototype evolved off of the first one#s problems to create a more electrically and spatially effective device. The third prototype made minor changes from the second to perfect the overall design. Each prototype was used to charge various devices from zero to 100 percent battery capacity to compare charging times and consistency to other controlled methods.

Results

The final prototype was able to charge devices at an average rate of 35Mah per minute. These charging times were very comparable or even faster than the controlled methods.

Conclusions/Discussion

My prototypes show that solar energy can be effectively used as a means for portable renewable energy. I expect this new approach at portable energy may also have a positive, potential impact in the growing consumer electronics market.

Summary Statement

The central focus of my project was to design and construct a portable and reliable source of renewable energy for mobile devices.

Help Received

Step-dad helped in creating custom printed circuit boards.