CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
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Project Number
22620

Project Title
Search for the Sun

Abstract

Objectives/Goals
The purpose of my project is maximizing the efficiency of a solar panel. This is achieved by being able to have a tracking system that can always calculate the location of the sun from any place on earth at any time. My science fair project is a combination of programming and mechanics. I have completed tht development of the solar-calculator software and will demonstrate mechanical control of the solar panel.

Methods/Materials
The programming part of my project has been done in the language called Scheme. I wrote and debugged over twenty programs and 3 structures to build my software solar-calculator. The software program takes in the date of a particular day, the time, the standard longitude of the area, the longitude of the city, an€ the latitude. The program will output the Azimuth location and the Altitude of the Sun. This information is fed to stepper motors that can move the solar panel to make them always perpendicular to the rays of the sun. The program also outputs the Sunrise Angle so that the stepper motor can be reset to the sunrise for the next day. Materials include:
1. Laptop
2. Dr. Scheme (software)
3. Voltage Meter
4. Soldering Iron
5. Solder
6. 2 Bread Boards
7. 30 Reinforced Wires
8. 2 Stepper Motors
9. Parallel Port
10. Internet
11. Resistors

Results
My program works as it was designed. I have verified that the results of my program with visual observations of the sun.

Conclusions/Discussion
In conclusion, my project has a large potential for further uses and work. This method can be used to improve efficiency of solar panels.

Summary Statement
My project tracks the location of the sun, maximing the efficiency of solar panels.

Help Received
My mentor helped me with my programming, my mother proof read my report, my father helped and taught me how to solder