Solar Engine Applications III

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The purpose of doing this project is that the world is dependent on fossil fuels. There are many ways to produce renewable energy. I have used the BASIC Stamp and Arduino to operate light seeking headbots to collect solar energy. I have also built capacitor packs to store excess energy. The GBSE II configurations were tested by measuring amperage and voltage levels. The GBSE II configurations were placed 20cm and 30cm away from a vertical and horizontal light source which was a 100w white light. Readings were taken every ten seconds for one minute, and then averaged out. Readings were taken from the solar cells and the solar engine to see what the difference would be between the two. I also tested the capacitor packs by charging them 6.85 volts and then timed how long it would take to decay to three volts. I found that the different configurations of the GBSE II performed effectively with the different angles and distances. Each had responded differently to the conditions in which they were placed in. Some performed well, while others in the same test would struggle. I found that the Arduino configurations had performed better than last year's BASIC Stamp configurations. This is because of the programming, motor, and sensors used. Last year's BASIC Stamp configurations used gearhead servos and LED photo sensors. On average, the Arduino headbots had produced higher amperage and voltage readings per experiment. I found that the ten farad capacitor packs took the longest to decay.

Awards Won: