CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)
Michael S. Roach

Project Number
J0225

Project Title
Energy

Abstract

Objectives/Goals
The objective is to determine which battery and motor combination will be the most efficient.

Methods/Materials
In my project, I tested five batteries and four motors. I did all my tests on the dynamometer that I built which recorded the volts l, watts, speed, and the distance run. The batteries I tested were; one 7.2 volt NICD-1800 mAh, one 8.4 volt NIMH-5000 mAh, one 7.2 volt NIMH-4200 mAh, one 7.2 volt NIMH-5000 mAh, and one 7.4 volt LIPO-5200 mAh. Two of the motors that I tested were 12 and 14 turn brush type motors. The other two motors were 8.5 and 5.5 turn brushless motors. I repeated each test five times with each battery and motor combination. I also ran a five-volt test to determine how long the different combinations would run until drained down to five volts.

Results
The LIPO-5200 mAh battery with the 5.5 brushless motor was the most efficient because it drained less volts, watts, and went the furthest compared to all the other motor and battery combinations.

Conclusions/Discussion
The LIPO battery was the strongest, and the most efficient. It used less energy with the least amount of voltage, and watts drained. The brushless motors ran cooler at the end of all the tests. The brushless motors ran more evenly with less variation during each test.

Summary Statement
My project is about finding the most efficient battery and motor combination.

Help Received
Dad helped time tests and supervised the building of my dynamometer.