



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Norman Bae	Project Number S0203
Project Title Robotic Hexapod	
Abstract Objectives/Goals My objective was to determine which hexapod design would allow for the best performance. Specifically, how the leg design and different servos affected the speed under different payload conditions. Methods/Materials The experiment was conducted by testing the rate at which the Hex Crawler and Prototype models were able to move four feet. Different servo motor ramp up speeds were varied to see the effect it had on the performance of the hexapods. Both models were timed in each trial using the same program and battery power. Results The results showed that the Hex Crawler performed best with or without payloads. The Hex Crawler was able to achieve a speed of 0.996 in/sec without payload. The prototype performed the worst with a slow servo speed of 0.804 in/sec. Although, the Hex Crawler was able to reach a higher speed of 1.02 in/sec while the prototype reached a speed of 0.612 in/sec under payload. Conclusions/Discussion The Hex Crawler performed better at higher forward speeds due to its leg kinematics. The Hex Crawler had a mechanical advantage compared to the prototype. The prototype was only able to lift 0.25 lb vs. the 0.47 lb of the Hex Crawler. Also, the Hex Crawler had more powerful servos than the prototype.	
Summary Statement Using two different hexapod designs, I tested which hexapod performed the best under different conditions.	
Help Received Father helped gather materials for project.	