



**CALIFORNIA STATE SCIENCE FAIR  
2014 PROJECT SUMMARY**

<b>Name(s)</b> Nina K. Kagan	<b>Project Number</b> <b>J0909</b>
<b>Project Title</b> <b>Autonomous Ultrasonic Sensor Robot</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> To chart was to see how different shapes and angles could be sensed more accurately than others. Three different shapes (cylinder, cube and rectangular prism), and two different angles (45 and 90 degrees) were used to test the ultrasonic sensors accuracy compared to the actual distances measured by a ruler. I put the ultrasonic sensor bot 6 inches away from each object and programmed the ultrasonic sensor bot to stop once it sensed an object four inches away from the sensor.</p> <p><b>Methods/Materials</b> Spider hexbug, Ultrasonic sensor, arduino micro, macbook pro with arduino software</p> <p><b>Results</b> the ultrasonic sensor was able to detect the 90 degree angle with the most accuracy, and the rectangular prism with the least accuracy consistently.</p> <p><b>Conclusions/Discussion</b> My conclusion is that sound reflecting from an angle is not as big of an issue as I originally thought.</p>	
<b>Summary Statement</b> My project is about the affect of different shapes and angles on the accuracy of readings for an ultrasonic sensor robot	
<b>Help Received</b> Tutor assisted building the robot	