



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Abhishek Jairam	Project Number J1518
Project Title Detecting a Red Light Runner the Easy Way	
Abstract Objectives/Goals My objective was to see if I could use the simple principle of sound as a function of car speed to detect red-light-runners and prevent potential collisions. I believe that if there is a green light, and the car is moving at a constant speed then the noise level will be high. I believe that if there is a red light, and a vehicle is decelerating then the sound level will be low. Methods/Materials The materials that I used to complete my experiment were a clipboard, two pencils, my sound meter (with a maximum DB hold function), and my data sheets. First, I did my control experiment by measuring a single vehicle moving at a constant speed through four points (simulating a green light). In addition, I conducted a real time traffic experiment. I went to different intersections and measured the overall noise level from vehicles that reacted to either red or green lights. I recorded up to three readings at each intersection for each condition. Results Out of all the eighteen intersections that I went to, the noise readings for the green lights were always much higher than those for the red lights. . In a single car control experiment, I found that a slowing car always results in lower sound levels. Using this principle, it implies that a vehicle that ceases to slow down during a red light will trigger a noise level that would be similar to that observed during a green light. Conclusions/Discussion In conclusion, my hypothesis turned out to be correct. For every intersection that I went to, the green light sound (db) readings were always higher than the red light db readings. Additionally, the control experiment with a single car always shows that DB level reduces as a car slows down near the intersection. This basically means one could use multiple sound sensors in the path of travel to detect constant or decreasing sound levels. Decrease in sound levels would denote a decelerating car. I also obtained an expert's point of view about my project. I talked to the Senior Deputy of Ventura County, Sheriff R.J. Godfrey. His exact words were, #This is a unique idea. It is a benchmark in our society. People have tried to come up with ideas for this red-light-running problem but no one has thought of using sound!# Most importantly, my project can save lives.	
Summary Statement My project is about how I can use sound measurements to detect a red-light-runner and prevent potential collisions.	
Help Received My dad helped me get the sound meter and drove me to various intersections.	