



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Raman V. Nelakanti	Project Number J0722
Project Title How Do Different Kinds of Antennas Work in Outdoor Conditions for WiFi?	
Abstract Objectives/Goals WIFI uses devices called Access Points that may use antennas to transmit signals for a receiving client to access the internet. The purpose of my experiment was to find out which antenna sends the strongest signal to the receiving laptop in two different outdoor conditions, through trees and in an open field (straight line and at an angle). It was hypothesized that if an antenna could be made to direct the signal, then this type of antenna would direct the strongest signal to the receiver. Methods/Materials The four antennas (coffee can, Yagi Pringles, Plain Pringles, and commercial Linksys) were placed in a park and readings were taken every ten feet for 100 feet and every twenty feet after that. The results were analyzed according to the distance from the antenna and the type of antenna that was used. Results The results showed that the coffee can was omni-directional and showed the strong signals in the three different environments. The directional Yagi Pringles antenna performed the best in open conditions when you needed a signal in a particular direction. Conclusions/Discussion It was concluded that omni-directional antennas perform best in outdoor conditions because they reflect signals off surrounding objects to send multiple signals to the receiver.	
Summary Statement The main point of my project was to find out how different types of my homemade antennas worked in outdoor conditions for WIFI.	
Help Received My father helped me understand the concepts of wireless networks and helped in setting up the equipment.	