



CALIFORNIA STATE SCIENCE FAIR 2014 PROJECT SUMMARY

Name(s) Emir Karabeg	Project Number 34976
Project Title Robot-Computer Communication	
Objectives/Goals The invincible tic-tac-toe playing robot, Invictus 2000, challenges you to put your mind to a test. As you play, the robot's brain, the computer, makes hundreds of calculations and decisions based on the inputs from robot sensors, and transmits commands to motors and other robot muscles. Abstract As a future roboticist, I wanted to find out which network communication protocol should I use in my robot designs, when response time is the most important requirement. Methods/Materials <ol style="list-style-type: none">1. Gather materials:<ol style="list-style-type: none">1.1. EV3 robotics kit1.2. Computer for software development1.3. Tablet computer for testing1.4. Visual Studio development environment1.5. EV3 robotics software1.6. Wi-Fi network adapter1.7. Wi-Fi network router2. Build the robot3. Program the computer software4. Program the robot5. Test Bluetooth interface6. Test Wi-Fi interface7. Create a graph8. Write conclusion Results <p>The experiment requested information from the robot in a loop, measuring total response time. The first 10 measurements were done using Bluetooth, and the second group of measurements was done using Wi-Fi. To compare the two groups, mean value was calculated for each group of measurements.</p> Conclusions/Discussion <p>The experiment confirmed my theory. Invictus 2000 responded 10.77 % faster when using Wi-Fi, then when it was using Bluetooth to communicate with the computer. In conclusion, Wi-Fi is faster than Bluetooth for Robot-Computer communication.</p>	
Summary Statement Finding the fastest Robot-Computer communication protocol.	
Help Received Father helped with some C# code.	