Detecting Forest Fires and Park Visitors in Distress Using Radio Systems

Parsons, John (School: Auburn High School)

The purpose of this project was to develop a minimally intrusive system to monitor forests and visitors well being. The process I went about to create this system involved research, designing, coding, troubleshooting, then testing. My research primarily involved researching component compatibility, radio frequency regulations, and ArduinoCode Documentation. To design the wiring and code I watched some basic Arduino tutorials and EdrawMax to make a schematic. Coding and troubleshooting involved testing code segments and having the components work properly. Once the device worked I tested the GPS by standing in various positions and comparing the GPS readings on Google Maps to my actual position. The GPS had an accuracy of + or - 3 meters. Then I went to Town Creek Park to test the range. Every 10 meters I tested the signal by sending five signals and counting how many the receiver received. The devices were able to communicate up to 60 meters away from each other. Further research will involve testing 915 mhz transceivers that can transmit up to 500 meters because their wavelength. All this system needs is a little weather protection and then it could be effective in the field.

Awards Won:

K. Soumyanath Memorial Award: First Award of $3,000

K. Soumyanath Memorial Award: $1,000 will be awarded to the winner's school.