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Project Title

Wildfire Early Warning System Using Computer Science: C.S. to the Rescue!

Abstract

Objectives/Goals

The objective is to design, build and test a prototype hardware and software to detect fire in its infancy and produce an automated warning response via Bluetooth.

Methods/Materials

Fire detectors sense presence of fire by responding to changes in their local environment that are indicative of a fire within the area of coverage. The goal is to select conditions for sensing fire as early as possible. Various fire conditions may produce different fire signature characteristics depends on the location and source of the fire. Using three different sensors allows the system to detect fire in several different ways and will improve the possibility of early detection by several factors.

Each sensor keeps track of its input individually. Once the sensor detects an abnormal measurement of heat, gas, or IR then it will check to find out the state of other sensors. The truth table in the program will set the threshold for each sensor to decide the presence of fire and issue a warning to the nearby cell phone via Bluetooth. Once the warning is issued the massage could be communicated to a local fire station.

Results

Using three different sensors, IR, Temp and gas, I was able to detect fire fast and accurate. Each sensor is set to detect and measure heat or gas and consequently send a text massage to a nearby smart phone once it hits its system defined threshold for each measured data.

The prototype is stable and able to detect variety inputs and produce a warning text to the phone.

Conclusions/Discussion

Wildfires and house fires are becoming an increasing issue in the US. With rising heat, increasing dryness and longer summers, it#s no surprise that this is a problem. Using my simple and cheap prototype (under $40), I am able to detect fire early and accurately. Early detection is the best way to fight fire while save money, resources and even lives.

Summary Statement

Cost effective early fire detection and warning system prototype using of the shelf hardware and simple programming

Help Received

My father helped me build the test environment for the sensors