CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)

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Project Number

34404

Project Title

Enhancing Current Fire Safety Technology to Include Adaptive Visual Exit Procedure

Abstract

Objectives/Goals

To create a smoke alarm system with a microcontroller capable of directing people to the nearest exit, and alert them the origin of the smoke.

Methods/Materials

An Arduino was used for the microcontroller and code in C was written and uploaded. The code is then used to control and take data of smoke sensors. Then LEDs arranged in a certain way are near the smoke sensor. These LEDs are soldered with resistors and all hooked up to the input output pins of the microcontroller. The price for the sensors and microcontrollers was added up amd compared to current fire alarm aystems to see if it would be competitive.

Results

A smoke alarm system made with a microcontroller was able to compete with the price of current smoke alarms and was able to create an LED sequence to help lead people out of a smoky building, while showing the origin of the smoke.

Conclusions/Discussion

A smoke alarm system capable of leading those within a burning building to the nearest exit is a feasible system which prices would compete with current fire alarm systems, but might not be feasible for bigger commercial buildings.

Summary Statement

A fire alarm system capable of leading those within it to the nearest exit is possible due to the availability of microcontrollers and sensors.

Help Received

Dean Reese, physics teacher helped fund my project; Tracy High Science department donated the poster board; Alejandro Baez, fire science student, helped with information on current fire safety technology.