



CALIFORNIA STATE SCIENCE FAIR 2013 PROJECT SUMMARY

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Project Title Wireless Community Alarm	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Usually, alarms (fire, burglar etc.) installed in one home, do not communicate with the alarms in neighboring homes. Without an automated system that can immediately send emergency alerts to all the neighbors, there is a huge risk to both properties and living beings in a community. The objective of this project is to design and build a low-cost Wireless Community Alarm system which enables communication between alarms in neighboring homes, for sending and receiving remote alarm events.</p> <p>Methods/Materials Three prototype devices have been built to demonstrate an example community scenario consisting of three homes. The main hardware components used in building each prototype device are listed below. * Battery operated wireless hardware module for wireless transmission and reception * Buzzer for audible alert * Three LED lights of different colors for visual alerts, each representing a different home * Button to switch off its own visual and audible alarms * Thermistor (heat sensor) for detecting the temperature of the environment</p> <p>After building the electronics hardware, software is programmed on to each device for continuously reading the value of its heat sensor. For designing the demo software, a flow chart representing the functionality of the device is prepared. Based on the flow chart, software scripts are developed and downloaded to each prototype device. The demo software is designed to trigger an alarm, when sufficient heat is applied to the thermistor by holding it between the fingers.</p> <p>Results The Wireless Community Alarm system has been successfully tested by triggering alarms on one or more prototype devices and observing the alarms on all the devices. When heat is applied to the thermistor and the preset temperature threshold is reached, the device, not only switched on its own buzzer and LED, but also sent a wireless alarm signal to trigger all the remote alarm devices.</p> <p>Conclusions/Discussion To begin with, the idea of Wireless Community Alarm system is inspired by an incident where a neighbor saved the life of an unconscious resident, after hearing their smoke alarm in the distance. If the neighbor did not hear the alarm, the outcome would have been different or even deadly. Wireless Community Alarm system ensures that the emergency alerts are heard by all the neighbors. Also, this system helps in fostering strong and effective community bonds. Indeed, neighbors can save neighbors!</p>	
Summary Statement Wireless Community Alarm system is successfully built to enable communication between alarms in neighboring homes and helps in preventing situations from turning to fatal.	
Help Received Father and mother helped in getting the required components.	