Intelligent Fire Alarm System

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The end goal is to create a low-cost, smart and wireless fire alarm system. The system would be Internet of Things based, i.e. the sensor data will be stored on cloud. The system will notify its users via different mediums about the fire incidents remotely and the data generated from the system would be used to understand the fire source and percolation behavior.

An intelligent fire alarm system would be one that notifies the rightful user in case of fire remotely, the user can control further actions from any location, and the complete package is wireless.

The Current Fire Alarm System

In this system the sensor senses the fire and sends the information of the fire along with the address of the location of fire to a control panel in a control/monitoring room.Then further actions are commanded by the person, who is in charge of the control room.

Drawbacks :

1.The control room requires to be manned at all times.

2.The sensor receives and sends signal through the same wire.

3.Financial expenditure:

(i) A lot of money is spent on wiring.

(ii)In case of any damage to the wiring system,the entire wiring will have to be changed.Therefore, increasing the expenditure manifold.

4. A system of this kind cannot be installed in structurally weak buildings(for instance-historical monuments),as this system requires extensive wiring.

5.This system does not cater to provide any assistance to the victim of the fire.

6. Lastly this system does not focus on analysis of fire spreading patterns, fire prone regions etc.

Aim of our project:

1.Our project aims to throw out the concept of a 'control room' and give direct access to informationto the user at any place.So that they can take required action.This reduces the man power required.

2.It also aims to direct fire spreading patterns and fire prone zones by collecting and analyzing data.

3. Furthermore we aim to make a system in which a sensor can detect any human in the vicinity during a fire, and provide required assistance.

4.Lastly, we aim at cost cutting so that our system can be afforded by the less fortunate, as in India fire is the second major cause for deaths.

Our Solution

We aim to give a room x number of fire systems (depending upon the size of the room). Each fire system consists of a smoke sensor, a heat sensor and a motion sensor(to detect any human and provide required assistance).

All these sensors would send their data to a receiver module, which would send the data along with the address of the affected area to a backbone or master receiving module. This master receiving module would process and send this data to an online web server which is connected to the rightful user with the help of an app or a website.

Further with the help of our app, one can remotely access the fire management system and take action from his/her safe location.

Lastly our system will analyze the data and give information on fire sensitive areas and also draw out possible fire spreading patterns.