**DESIGN AUTOMATIC FIRE EXTINGUISHER FOR ROAD VEHICLES**

**ABSTRACT:**

Automatic Fire Extinguisher is a Hardware based model used to automatically extinguish the fire during fire accidents. A sytem has been developed which features to move in the direction with respect to the fire intensity. The Robot shield is coated with calcium silicate boards that are capable of withstanding very high temperatures. The principle used, was designed and experimented at a temperature of 300°C. The temperature sensing capability of the robot is varied by heating the Thermocouple ends to a cut-off temperature, above which the robot starts responding to the fire. The Robot finds its applications in Rescue operations during fire accidents where the possibility for service men to enter the fire prone areas is very less and also during wars to perform rescue functions. The most added advantage of this Robot is that it turns ON automatically as it detects the fire around its surroundings, using Thermocouple and tries to extinguish it by moving in the direction with respect to the fire. The temperature sensor provides a backup to the Thermocouple, if needed in vast circumstances.

**KEYWORDS**: Robotics, Fire.

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| **EXISTING SYSTEM** | **PROPOSED SYSTEM** |
| 1. In the existing model there is no system for automatic fire extinguisher in the road vehicles. 2. Fire accidents cause bunch of death in road vehicles.   **Drawbacks:**   1. Loss of human life’s. 2. It requires lot of force to put off the fire. 3. There is no prevention system for vehicle fire accidents. | 1. In the proposed model, a embedded system used to detect the automatic fire detection and extinguished. 2. The flame sensor and the extinguisher given the proper solution for vehicle fire accidents.   **Advantages**   1. Saves human lives. 2. Automatic detection system give the extra safety element in the vehicles. |

**WORKING PRINCIPLE:**

In this system, we use ARDUINO UNO microcontroller which acts as brain of the system as it controls the entire system and the programs are stored in it. The 4 flame sensor place on the different four part of the vehicles and also the two smoke sensor fixed on the two location. Whenever the smoke are flame detected the microcontroller trip the relay for open the solenoid valve. The nozzle nearby the flame sensor used to refuse the fire. All the information’s are displayed through the LCD display. The buzzer will alert the vehicle driver and nearby people’s. When flame or smoke detected in that sensors the GSM will send the alert message to our care takers.

**BLOCK DIAGRAM:**

**ARDUINO UNO**

**POWER SUPPLY**

**FLAME SENSOR- 4**

**LCD DISPLAY**

**BUZZER**

**GAS SENSOR- 2**

**SOLENOID VOLVE**

**RELAY**

**GSM**

**HARDWARE REQUIREMENTS:**

* ARDUINO UNO
* POWER SUPPLY
* LCD DISPLAY
* FLAME SENSOR – 4
* GAS SENSOR - 2
* RELAY – 2
* SOLENOID VALVE - 1
* BUZZER
* GSM

**SOFTWARE REQUIREMENTS:**

* EMBEDDED C
* ARDUINO IDE

**APPLICATIONS:**

1. It is used as an automatic fire extinguisher in the road vehicles.