IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

Elimination of Fire hazards in E-vehicle

[1] Shankar Maske [2] Dip Pawar [3] Vaishnav Jadhav [4] Dnyanesh Bhagat
[1] Student [2] Student [3] Student [4] ProfessorAutomobile Engineering,
Karmayogi Institute of Technology (polytechnic), Pandharpur, India

Abstract: **-.** - In today's world people are using transportation on their own instead of using the buses. The people are using the vehicles like electric bike, car, van, etc. Today each and every home has vehicle either bike or car or both. Vehicle transportation is increasing its field in all over the world and the vehicle accident also increasing all over the world. For avoid vehicle accident many other features available all over the world but till accidents occurs continuously. On the accident in EV battery event lots of life is lost due to the fire spreading, vehicle exploding, etc. For controlling the fire accident, lot of devices are invented and used and it not efficiently works. To reduce the fire accident and save the life of passenger or customer the automatic fire extinguishing system is used. The fire extinguishing system is used to reduce the fire or totally extinguish the fire in the fire accident. The loss of life while attempting to save another person's life is one of the most crucial elements of a fire disaster. Because of explosive materials, smoke, and high temperatures, it is occasionally impossible for firefighter personnel to access the scene of a fire. A prompt response to the fire can help avert several disastrous outcomes. A fire outbreak is a risky conduct with numerous unfavourable consequences. A number of accidents can be avoided with the use of early fire detection and suppression. We have relied on human resources thus far. This frequently results in putting that person's life in danger. Security against fires becomes crucial in order to save lives. This system has a created and suggested fire suppression system that locates the fire and extinguishes it by turning on sprinklers when a pump is activated. This project is aimed to prevent vehicles from fire explosions.

1. INTRODUCTION

Fire could be a chemical process of carbon primarily based material that mixes with element and is heated to some extent wherever burnable vapors are made. These vapors then are available contact with one thing that's hot enough to cause vapor ignition and leads to a fireplace and its prevalence is random. Industry, home offices,hospitals etc.

Are noticeably susceptible to hearth that has the potential to cause hurt to its occupants and severe harm to property. On a mean, in India, every year, about 25,000 persons die due to fires and related causes where female accounts for about 66%. As per the statistics of National Crime Records Bureau (NCRB), hearth accounts for regarding 5 .9% (23,281) of the total deaths according because of natural and unnatural causes throughout the year 2012. The data accidents in Asian nation reveal that on the brink of three hundred thousand individuals lost their lives in fire accidents between 2001 and 2014, averaging to 59 deaths per day. The estimate of propertyloss due to fire crosses about 1000 cores rupees every year.

The major characteristics of fireside area unit it extends exponentially with time. Hence, timely detection of fireplace is important for avoiding a serious accident. Hence, the essence of getting a classy hearth alarm and observance system is kind of obvious. The early detection of fire can be made with the rise of temperature, the presence of smoke and flame. Hence applicable sensors got to be put in at the vulnerable places to find the mentioned physical quantities. The alarm information is generated by comparing them with predefined threshold values and send to a central processor that may be a microcontroller.

2. OBJECTIV OF THE PROJECT

Objective:

- To understand the basic principle of our project
- Describe the construction and working of various parts of our project
- Development of the working model of our project
- To reduce time spent on this activity.
- To analyze the technology according to needs and capabilities.

3. LITERATURE SURVEY

Kiruthika S. and et al., (2023) aimed to prevent vehicles from fire explosions. In this project we used sensor, pipe valve, Fire extinguisher and Arduino. The sensor and pipe valve are placed in near the areas where there is a possible to catch on fire. The sensor and valve are connected to the Arduino and the valve is also connected to the fire extinguisher. Arduino is powered by separate battery. The working of the project is like whenever the fire is detected by the sensor, it transmits the signal to the Arduino and the Arduino transmit signal to the valve which is placed near to that fire. While doing this process, the Arduino unlock the central lock system of the vehicle and disconnect the battery to prevent the spreading of fire. For that we use separate battery for the Arduino. And also, we use wi-fi module which send alert message to the fire station about the fire.

Vijay Gaikwad, and et al., (2022) presented the fire can be a common problem for life and property. The automatic chimney shutoff strategy provides real-time monitoring, hood and programmed chimney alarms. It provides a kind of chimney protection system with a sturdy and safe construction, and sometimes it's worth it. Provides immediate warning in case of fire and reduces damage caused by fire. The method consists of a smoke sensor and a temperature sensor, and the working rectangle is connected to the controller. This system considers the harmful properties of smoke and in many cases avoids the possibility of false alarms.

4. PROBLEM STATEMENTS

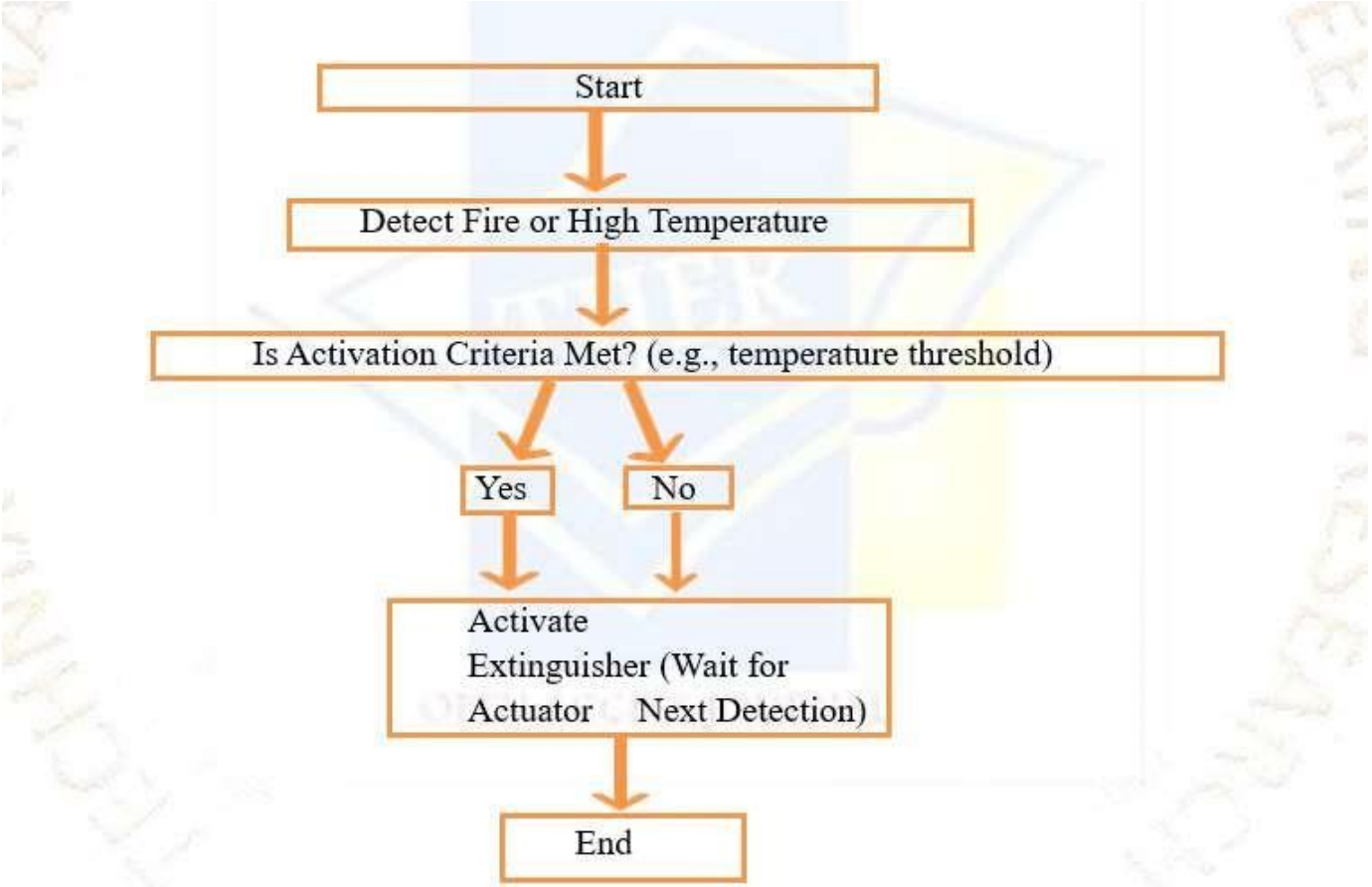
The automobile related fires occur majorly due to the electrical system of the vehicle. The vehicle electrical system can maintain a limited amount of the electricity. If more amount of electricity is transmitted, the system will short circuit. This is majorly occurring in E-vehicles. The problems which cause fire accidents are explained and shown below.

A) Battery overcharge overcharging of battery is a one of the causes of fire accident. If battery is overcharging continuously, it may blow up. If it happens it might blow up and cause fire to the circuit in Fig.1. If the circuit catches fire, then there is a possibility of vehicle caught fire too.

B) Short circuit components In vehicles, the electric components also cause fire accident in vehicle by damage in the circuit components. If any damage occurs in the components or in circuit, it creates sparks in the circuit which leads to fire accident in Fig.2. The electric components must be checked and safely connected.

C) Car Crash Car crash also one of a cause of fire accident in vehicle in Fig.3. During accident, 1. Leakage of fuel, 2. Damage of the electric circuit, 3. Damage of the battery may lead to major car fire accident.

5. PROPOSED SYSTEM MODEL



6. CIRCUIT DIAGRAM

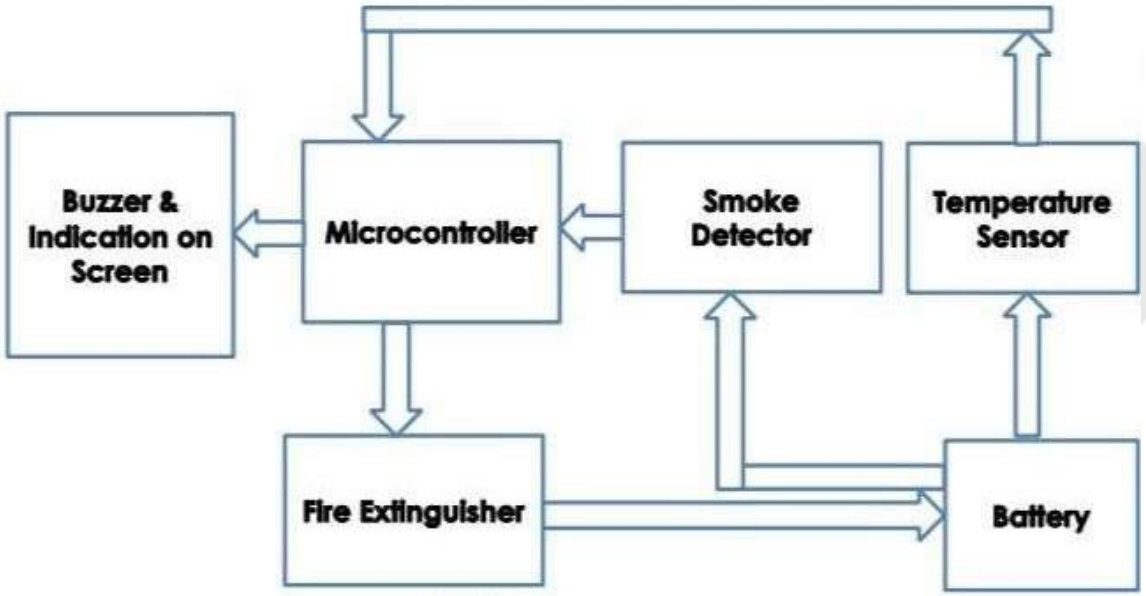


Fig. Block diagram

7. ADVANTAGES

1) No conventional grid electricity required
2) Long operating life
3) Highly reliable and durable
4) Easy to operate and maintain
5) Eco-friendly

8. CONCLUSION

This project is developed for the passengers or the customer safe travel. In this project, As soon as the power is applied, it initially initializes itself, meaning that its sensors are initialized. Second, the system detects the environment (such as the temperature level) and locates the fireplace. Third, the system transmits the navigational data and begins to travel itself in the direction of the fireplace. Fourth, using motors and a submersible water pump, the robot eventually begins to put out the fire and the battery of the vehicle gets disconnected by the controller of the system to prevent fire spreading. By using this fire extinguishing system, we can able to reduce vehicle fire accident in future.