

Automation on Fire Prevention in Automobile

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Abstract: This paper demonstrates the requirements, specifications, design problems and solutions for the fire extinguishing system project fulfilling the requirements. Firefighting is an important and hazardous job. A fire fighter can be able to extinguish fire quickly, averting the damages and reduce losses. Technology has identified the gap between manual firefighting and Automatic systems using some effective method. The purpose of this thesis is to establish a system that can detect fire and extinguish it in the shortest time subject to a few effective factors. In this case, the system aims to put out the fire before it increases increasing the security of automobiles that is important to human life. We develop a fire extinguisher is automatically sprayed on the fire.

Keywords: Fire, automatic, fire extinguisher, smoke detector

1. Introduction

Fire accident is a very common phenomenon in our country. As a developing country we have no modern technology to solve this problem. Sometimes police, military com to the firing spot to help them. But this is not enough. If an automatic fire extinguishing system available, gives greater flexibility Control. In conventional automatic fire-extinguishing systems utilizing a Fire-extinguishing gas, a bomb containing a fire-extinguishing gas, such as helium gas, under pressure is provided at a location. Several gas jetting nozzles are arranged at desired locations within a region when a fire occurs there in. The gas jet nozzles are connected through a valve within the specified region the fire sensors sense the fire and give signal to the automatic valve system. The Extinguishing substance escapes through the valve and splash over the firing region. However, since such conventional automatic fire-extinguishing systems need a complicated system of gas pipes from a gas bomb to the gas jetting nozzles, the cost and installation of the pipes is expensive. Moreover, since the gas pipes are fixedly arranged in the walls, ceiling etc., of a room defining a region, it is not easy to remove the gas pipes and to change the arrangement of the gas jetting nozzles. Furthermore, the gas bomb to be used must have a capacity comparable with the space of the region and therefore, gas bombs having different capacities must be prepared for different regions. This is very uneconomical. To eliminate the drawbacks of the above-mentioned conventional fire extinguishing system a Portable automatic fire protection system is disclosed comprising battery powered, independent suppressor units, each including a supply of fire extinguishing fluid and a fire detector. The connection of

the individual unit's control circuits provides control circuit network that automatically initiates an extinguishing fluid discharge from all units in response to fire detection by any single unit. The main object of this paper is to provide an automatic Fire-extinguishing system which eliminates the above. Described disadvantages of the prior arts, and to enable. Easy installation or removal of the structure in or from a region wherein automatic fire-extinguishing should be effected and to allow a flexible arrangement of gas jetting nozzles according to the size and shape of the region. The document is a template for Microsoft Word versions 6.0 or later.

2. Fire extinguisher

Typically, a fire extinguisher Consists of a hand-held cylindrical pressure vessel Containing an agent which can be extinguish a fire. There are two main types of fire extinguishers: Stored pressure and generated pressure in stored pressure units, the expellant is stored in the same chamber at the firefighting agent itself. Depending on the agent used, different propellants are used. Stored pressure is the most common type of fire extinguisher. These types are ot as common, used primarily in areas such as industrial facilities, where they receive higher-than-average use. Unlike stored pressure types, these extinguishers utilize compressed carbon dioxide instead of nitrogen, although nitrogen cartridges are used on low temperature (-60 rated) models. Handheld extinguishers weigh from 0.5 to 14 kilograms (1 to 30 pounds), and are hence easily portable by hand. Cart-mounted units typically weigh 23+ kilo grams (50+ pounds). These wheeled models are most commonly found at construction sites, airport run ways, heliports, as well as docks and marinas. According to the standard BSEN 3, fire extinguishers in the United Kingdom as all throughout Europe RAL 3000, and a band or circle of a second color covering between 5-10% of the surface area of the extinguisher indicates the contents.

Class A fires involve organic solids such as paper and wood.

Class B fires involve flammable liquids and liquefiable solids.

Class C fires involve flammable gases.

Class D fires involve metals.

Fire extinguishing performance per fire class is displayed using numbers and letters such as 13A, 55B.EN3 does not recognize a separate electrical class- however there is an additional feature requiring special testing (35kVA dielectric test per EN 3-7:2004). A powder or CO₂extinguisher will

bear an electrical pictogram as standard signifying that it can be used on live electrical fires (given the symbol E in the table).

Parts of a fire extinguisher:

- # Handle and operating lever # Locking pin
- # Pressure gauge # Discharge nozzle # Label

Over view of fire extinguisher

Specification:

Model no.	VPA 1
Capacity	2 kg
Range	2.5 m
Pressure	1.5 M pa
Height	35 cm



Fig. 1. Fire extinguisher

This is the multipurpose dry chemical extinguisher. The ABC type is filled with mono ammonium phosphate, a yellow powder that leaves a sticky residue that may be damaging to electrical appliances such as a computer. Dry chemical extinguishers have an advantage since they leave a non-flammable substance on the extinguished material, reducing the likelihood of re-ignition.

A. Flame sensor

A flame detector is a sensor designed to detect and respond to the presence of a flame or fire, allowing flame detection. Responses to a detected flame depend on the installation, but can include sounding an alarm, deactivating a fuel line (such as a propane or a natural gas line), and activating a fire suppression system. When used in applications such as industrial furnaces, their role is to provide confirmation that the furnace is working properly.

B. Solenoid valve

A solenoid valve is an Electromechanical valve for use with liquid or gas controlled by running or stopping an electric current through a solenoid, which is a coil of wire, thus changing the state of the valve. The operation of a solenoid valve is similar to that of a light switch, but typically controls the flow of air or water, whereas a light switch typically controls the flow of electricity.

C. Relay

A relay is an electrical switch that opens and closes under the control of another electrical circuit. In the original form,

the switch is operated by an electromagnet to open or close one or many sets of contacts.

3. Conclusion

In our daily life whether it's an industry or domestic the most common fatal accidents occurred are due to fire. This result in both human loss and properties loss. Fire claims the lives of innocent people around the world every single day. A small amount of fire is able to damage a huge part of society. Although smoke detectors and fire alarms alert the people of danger they often have few choices other than escaping from a building and calling the fire department. Although waiting for fire fighters to rescue people may not always be the best choice. In automobiles fire is on the vehicle the fire extinguisher is automatically sprayed on the fire. The modern day home and business should be equipped with at least one fire extinguisher. For those purpose automated firefighting system.

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