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360 Degree Rotating Fire Protection System

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ABSTRACT - Large factories, warehouses, and industrial production facilities always run the risk of fires breaking out. Lack of appropriate fire fighting measures could result in disastrous consequences and along with financial losses and might even lead to massive loss of human life. Usual fire protection systems installed in buildings have the disadvantages like They spray small amounts of water from each sprinkler which may not be enough to put out the fire. The sprinklers are not targeted and spray an entire floor or building ruining computers, furniture and paperwork. While this sprayer gun can spray water in desired quantity only at fire outbreak point to stop fire without ruining complete office furniture and electronics. This demo version is made to be remote controlled from few meters but future version will operate remotely from fire dept. Fire monitors and sprayers are an aimable and controllable high-capacity water jet used to deal with large fires.

Key Words: Motor, Sprayer, Nozzle, Fire extinguishers, Remote Controller

I. INTRODUCTION

1.1 Background

The increasing occurrence of large-scale fires in modern society significantly impacts society and communities in terms of remarkable losses in human lives, infrastructures and properties. Depending on burn severity, wildfires also impact environment and climate change, increasing the released quantity levels of CO2, soot and aerosols and damaging the forests that would remove CO2 from the air. This results in extremely dry conditions, increasing the risk of wildfires. Furthermore, forest fires lead to runoff generation and to major changes to the soil infiltration. To this end, computer- based early fire warning systems that incorporate remote sensing technologies have attracted particular attention in the last decade.

1.2 Fire Detection Challenges

Usual fire protection systems installed in buildings have the following limitations as they spray small amounts of water from each sprinkler which may not be enough to put out the fire. The sprinklers are not targeted and spray an entire floor or building ruining computers, furniture and paperwork. While this sprayer gun can spray water in desired qty only at fire outbreak point to stop fire without ruining complete office furniture and electronics. This demo version is made to be remote controlled from few meters but future version will operate remotely from fire dept.

1.2 Fire Extingushier :-

Portable fire extinguishers serve as an important line of defence and life safety device helping to protect people and property from fire in all built environments including workplace settings, areas occupied by the general public, vehicles, marine areas, and aviation. In a variety of environments, portable fire extinguishers are required by fire, life safety, and occupational safety codes to be installed, maintained, serviced regularly, and kept accessible for immediate use of occupants in the area. Such requirements are found in the National Fire Protection Association 10. Inspection, Test and Maintenance of Portable Extinguishers. This standard is reported by reference in many model codes and federal regulations.

II. PROBLEM STATEMENT

Recently, it has sometimes been impossible for fire-fighting personnel to access the site of a fire, even as the fire causes tremendous property damage and loss of human life, due to high temperatures or the presence of explosive materials. In such environments, fire-fighting robots can be useful for extinguishing a fire. Thus, Fire-fighting robots are operated in places where fire fighters are unable to work. Besides that, fire fighting robot can be use for protecting fire fighters from extreme danger in petro chemical, chemical dangerous product, toxicity or exploder fire accidents. Therefore, it also can reduce the human injury from a fire burning.

The security of home, laboratory, office, factory and building is important to human life. We develop security system that contains a fire protection robot using sensor.

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III. METHODOLOGY

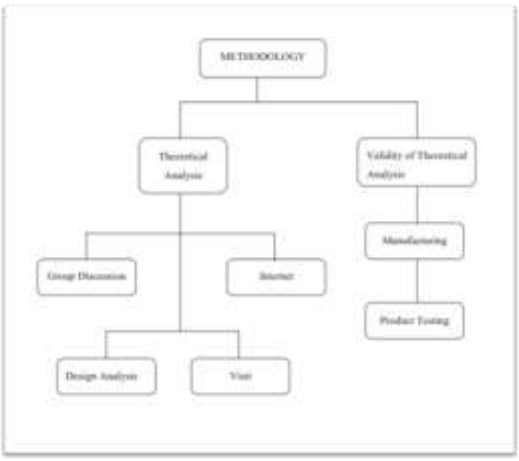


Chart -1: Methdology

IV. NEED OF PROJECT

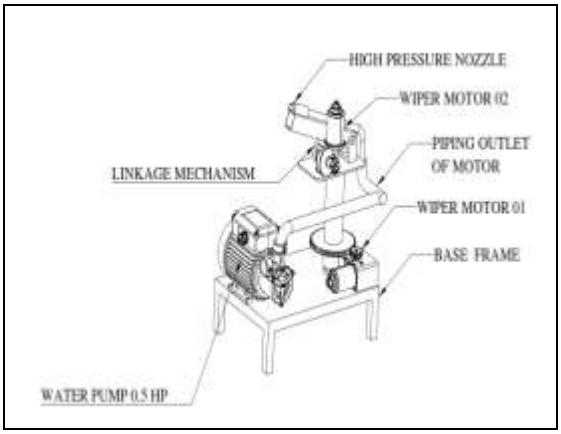
Used for controlling indoor fires. We provide low cost fire protection system with limited centralized fire protection.

V. EXISTING SYSTEM

The existing fire alarm system in market nowadays is too complex in terms of its design and structure. Since the system is too complex, it needs regular maintenance to be carried out to make sure the system operates well. Meanwhile, when the maintenance is being done to the existing system, it could raise the cost of the system.

VI. PROPOSED SYSTEM

Fire monitors and sprayers are an aimable and controllable high-capacity water jet used to deal with large fires. Unlike Fire extinguishers, Fire Monitors are permanently installed and cannot be moved. While traditional fire monitor systems need a human operator to change the direction of the water jet and aim it appropriately.



VII. WORKING PRINCIPLE

The system makes use of Motors coupled with a powerful sprayer motor with piping system. The 2nd motors are used to control the nozzle direction movement. The user may use a wireless remote to transmit movement commands. The receiver circuitry mounted on system receives users commands And operates the motors to achieve desired motion.

Also the receiver operates the pump motor to start and stop the spray. The sprayer nozzle can also be adjusted to adjust the water spray outlet. The sprayer mechanism is built to operate in a 2 DOF operation to adjust position in x and Y directions and achieve a 360 Degree water spray coverage.

VIII. ADVANTAGES

Targeted water spraying to avoid water damage in office . Remote controlled operation ensures operator remains safe . Adjustable Nozzle for Spray Tuning . Powerful Long Distance Water Spray

IX. APPLICATION

Useful for controlling indoor fires.
Can provide a low cost fire protection system with limited centralized fire protection

X. CONCLUSION

Fire has always been a devasting phenomenon but the technology advancements it become easier to tackle it . Fire fighters try their best to respond quickly to case of fire & event put their lives at risk of they endeavour to save human life & to protect property from fire.

In conclusion there are many possible ways to put out fire but its always safer to use the constantly this idea to reduce the involvement of fire fighters thereby decreasing the risk of injuries & life threats.

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