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 firefighting 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 following disadvantage. 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. Unlike Fire extinguishers, Fire Monitors are permanently installed and cannot be moved. While traditional fire monitors systems need a human operator to change the direction of the water jet and aim it appropriately, this fire monitor has been equipped with RF control. Thereby allowing the user to operate it from a safe distance. The system makes use of a Motor coupled with a powerful sprayer motor with piping system and onboard wireless fire sensing sensor to run this system. Another motor 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 360 Degree water spray coverage.

1. INTRODUCTION

Nowadays, machinery and robotic design become important in helping human. This Fire Protection Robot was design to help people in any destructive burnt situation where this robot can extinguish burnt area immediately using autonomous system. This autonomous system will be designed using programming in PIC18F4550 and others additional circuit**.** In real life, destructive burnt area often happens without our realization. Therefore, this type of robot will require a high demand in the market because of its usefulness to the human as well as the environment transmit fire information to cell phone using controller. The objective of the project will be to design a SMS electronic Fire Protection Robot toolkit which can replace the traditional Fire Protection Robot. The toolkit sends the fire and send SMS to owner of the house, the system is made efficient by SIMs so that the SMS can be received by number of devices boards in a locality using techniques of time division multiple access.

2. PROBLEM STATEMENT

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. The security system can detect abnormal and dangerous situation and notify us. First, we design a fire protection robot with extinguisher for the intelligent building. Besides,

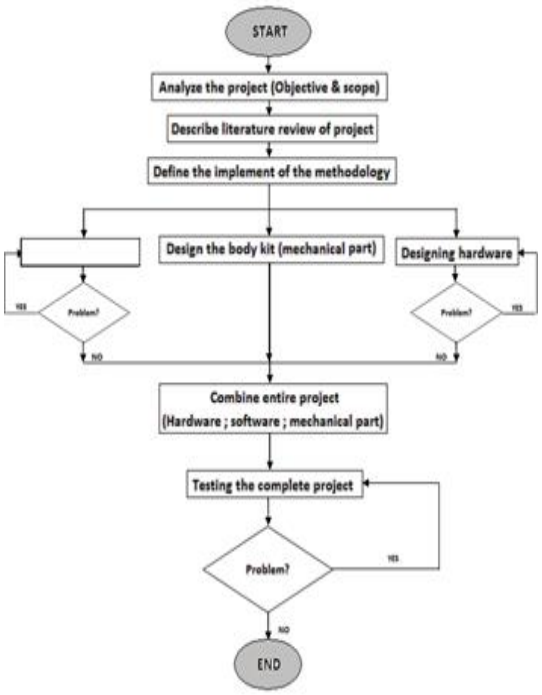
3. LITERATURE SURVEY

This project entitled “Design and Fabrication of Fire Fighting Autonomous Robotic System Equipped with Sensitive Sensors for Fire Alarm and Detection, Avoidance Behaviour Mechanism and SMS Messaging Capability”. The title was based on the functions and objectives of the study. However, this project was similarly alike to other robots but this innovative robot was the researchers own idea.

The features were pondered by the researchers technically focusing on the components contributions when assembled as one robot. The Design and Fabrication of Fire Fighting Autonomous Robotic System Equipped with Sensitive Sensors for Fire Alarm and Detection, Avoidance Behavior Mechanism and SMS Messaging Capability has additional features that make it unique to others.

It was installed with an alarm system that notifies the owner that flame has occurred. Moreover, it has an auxiliary function like ultrasonic sensor, flame sensor and a smoke sensor that detects the flame combustion. Robot is a machine that resembles a human being and mimics various complex tasks. Now, let us have a good look at existing firefighting robots. The following robots below are the characteristic of the previous robot that have been similar with this robot project and used in the literature reviews:

4. DESIGN OF MECHANICAL CLEANING SYSTEM



5. SYSTEM DESIGN INPUTS

COMPONENT	QUANTITY	MEASUREMENT
shaft	1	diameter= 15 mm
tank	1	length=150x150 mm
Base frame	1	600x400mm

6. FABRICATION OF MODEL

Fig.2 fire protection system

7. WORKING PRINCIPLE

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 monitors systems need a human operator to change the direction of the water jet and aim it appropriately, this fire monitor has been equipped with RF control. Thereby allowing the user to operate it from a safe distance. The system makes use of a Motor coupled with a powerful sprayer motor with piping system and onboard wireless fire sensing sensor to run this system. Another motor are used to control the nozzle direction movement.

8. CONCLUSION

Fire has always been a devastating phenomenon but the technology advancements it become easier to tackle it. Firefighters try their best to respond quickly to case of fire and event put their lives at risk of they endeavour to save human life and protect property from the fires. Some attempts have been made to automatic fire fighting for the navy (ship board autonomous fire fighting robot). This paper describes one such solution to the problem of fire fighting with help of 360 degree fire protection system.

In conclusion there are many possible ways to put out fires but it always safer to use the constantly this idea to reduce the involvement of fire fighters thereby decreasing the risk of physical injuries and life threats. Comparing this prototype with the existing technology we implement the sensor and wireless technology. Nowadays the fire fighting technologies are fully manual. in scope of future we implement wireless technology to control the fires.

9. REFERENCES

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