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## Patent Search

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### Abstract:

A fire outbreak is a hazardous act that leads to numerous consequences. Thus, to reduce such undesired and unexpected accidents we are aimed at making a robot that detects the fire and extinguishes it. Detecting a fire at an early stage and extinguishing it can aid in prevention of various accidents. Till now we rely on human resource. This is risky as it risks the life of that person. Therefore, fire security becomes an important aspect to save human lives. In this report a fire extinguishing robot has been proposed which detects the fire location and extinguishes fire by using a sprinkler on triggering the pump. This robot uses three flame sensors for accurate fire detection. The robot is equipped with SIM800L which enables the robot to send emergency messages to a registered mobile device as SMS. This proposed model of Fire Extinguishing Robot is used to detect the presence of fire and extinguish it automatically without any human interference. It detects the presence of fire and will automatically start the water pump to extinguish that fire breakout. This model robot has a water pump which is capable of ejecting water at the fire breakout place. The water ejector pipe can be moved in the required direction using a servo motor. The whole operation is controlled by an Arduino UNO microcontroller. When the fire is detected and the robot is at a distance, a centrifugal pump is used to throw water for extinguishment purposes. A water spreader is used for effective extinguishing. Two sensors: LM35 and Arduino Flame Sensor are used to detect the fire and distances on its way towards the fire.

### Complete Specification

Description: There are various incidents in many industries from small scale to large scale industries that involves fire and have caused a lot of destruction and life loss due to such accidents. A very effective way of controlling and preventing such accidents is achieved by using the Fire fighting robot to patrol for accidental fire. It is not feasible to appoint a person to patrol for accidental fire where a robot can do the patrolling. So a robot is made to patrol for fire detection and early warning in domestic, industrial and environmental cases. This robot may be used in industrial environment and even in household areas where there is more probability of occurring accidental fire. Different sensors are used and fusion of their performances is ensured by an intelligent algorithm in Arduino computing platform or by soft computing techniques. , Claims: 1. When fire is detected, a water spraying mechanism is triggered to extinguish the fire.

2. The Arduino platform allows for easy integration of sensors, motors, and other hardware components, making it an ideal platform for building a fire-fighting robot.  
3. Improved Navigation and Mapping: Firefighting robots can be equipped with advanced mapping and navigation technology such as LiDAR and SLAM to navigate through cluttered and dynamic environments.

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