

Arduino Based Fire Fighting Robot

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Abstract: *In recent years, fire accidents have become increasingly common, leading to significant loss of life and property. To address this issue, we propose an Arduino-based Fire Fighting Robot designed to detect and extinguish fire in its vicinity. This robot is a prototype of an autonomous system capable of identifying fire hazards and responding without human intervention, making it ideal for use in environments that are unsafe for humans.*

The robot is equipped with flame sensors to detect the presence and intensity of fire. Upon detection, the robot navigates toward the fire source using DC motors and a motor driver module, controlled by an Arduino microcontroller. Once in proximity, the robot activates a water pump or fan mechanism to extinguish the fire. Additional components such as ultrasonic sensors are used for obstacle avoidance, ensuring safe and accurate movement.

This project demonstrates a cost-effective and efficient solution to early-stage fire fighting, especially useful in industries, homes, and laboratories. With further enhancements, such robots can be integrated into fire safety systems to improve emergency response and reduce risks to human life..

Keywords: Arduino; Fire Fighting robot

