

# FIRE FIGHTER ROBOT WITH NIGHT VISION CAMERA

# ABSTRACT

A Fire Fighter Robot with a Night Vision Camera is an advanced autonomous or semi-autonomous robotic system designed to detect, navigate, and extinguish fires in hazardous environments, reducing risks to human firefighters. Equipped with heat and smoke sensors, it can identify fire outbreaks and transmit real-time data using a night vision camera, allowing for effective operation in low-visibility conditions such as smoke-filled rooms or nighttime emergencies. The robot is typically built on a rugged chassis with fire-resistant materials and features mobility solutions like wheels or tracks for maneuvering through debris and uneven surfaces. It may include water jets, CO₂ extinguishers, or foam-based suppression systems to tackle different fire classes. Controlled remotely or autonomously, the robot enhances fire response efficiency, minimizes collateral damage, and significantly improves safety in industrial zones, residential areas, and hazardous sites where human intervention is dangerous. With IoT integration, it can communicate with control centers, providing crucial data for coordinated firefighting strategies.

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