

# Multi-Application Surveillance Robot for Border and Industrial Security

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**Abstract:** *This paper presents the design and implementation of a multi-application surveillance robot capable of performing border, industrial, and hazardous-area monitoring using multiple sensors and wireless control. The proposed system integrates IR and ultrasonic sensors for obstacle detection, a temperature sensor for environmental monitoring, and a motor-driver module for robotic movement. Wireless communication via Wi-Fi or Bluetooth enables remote operation and live feedback. The robot minimizes human involvement in risky zones and enhances surveillance efficiency. Experimental testing demonstrates stable obstacle avoidance, reliable data transmission, and energy-efficient mobility.*

**Keywords:** Surveillance Robot, IoT, Wireless Monitoring, Obstacle Detection, Arduino, Industrial Security

