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Surveillance Robot

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Abstract: *This abstract outlines the concept and typical implementation of a surveillance robot system designed for automated monitoring and security tasks. Addressing the limitations of traditional surveillance methods, such as human fatigue, high costs, and risks in hazardous environments, surveillance robots offer a mobile, persistent, and often autonomous solution. These robots are typically equipped with a suite of sensors, including high-resolution cameras (visual, thermal, night vision), microphones, and potentially environmental sensors (gas, temperature). They utilize robust mobility platforms (wheeled, tracked, or even flying) coupled with sophisticated navigation systems (like SLAM, GPS, or line-following) to patrol predefined routes or dynamically explore areas of interest. On-board processing capabilities or wireless communication links enable real-time data streaming and analysis, often incorporating artificial intelligence (AI) for tasks like intruder detection, object recognition, anomaly identification, and automated alerting. The primary goals are to enhance situational awareness, provide early warnings of threats, gather actionable intelligence, and reduce the need for direct human intervention in potentially dangerous situations. Applications range widely, including perimeter security, industrial site monitoring, infrastructure inspection, search and rescue support, and environmental monitoring. The system aims to improve security effectiveness, operational efficiency, and personnel safety. The Wireless Bomb Disposal Robot is remotely controlled by the user through wireless technology utilizing a control programme. At the control site, the robot is managed by the bomb technician using this programme. The user's input is communicated over Bluetooth to the receiver, which receives it, recognizes it, and forwards it to the appropriate module (Robot) for action.*

Keywords: Camera, Sensor, L293D, Metal Detector