**SENTINEL ROVER**

**ABSTRACT:**

The Sentinel Rover is a compact yet efficient surveillance system designed to provide real-time monitoring in various environments. It is built using a Node MCU microcontroller, an ESP32-CAM module for image processing, a small display for status updates, and a robust 30 RPM motor controlled by an L298N motor driver for precise navigation. The Node MCU acts as the main wireless communication hub. The ESP32-CAM captures high-definition images, which are then processed locally to analyze and detect important features or anomalies, making the rover ideal for surveillance in areas with limited or dangerous access. The L298N motor driver helps the rover move across all terrains by regulating the 30 RPM motors efficiently. It also displays some necessary information such as connectivity status and battery level to enhance user experience. This project combines affordability, portability, and functionality, making it suitable for applications such as security monitoring, disaster response, and exploration in areas inaccessible to humans. Future improvements may include integrating AI for object detection and night vision capabilities, further expanding the rover's potential applications. The Sentinel Rover is a step toward accessible and versatile surveillance technology.

**KEYWORDS:**

Surveillance system, Real-time monitoring, Wireless communication, Image processing, Battery level.