

Lora Field-Rover: Enhancing Farming Efficiency with Autonomous Robotics

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Abstract: *The "FieldRover – All-in-One Agriculture Robot" is a pioneering agricultural automation solution designed to augment farming practices through the integration of cutting-edge technologies. This project leverages the ESP8266 microcontroller, Blynk IoT platform, L298 motor driver, DC motors, high-speed motor for grass cutting, water pump, servo motor for plowing, and an ESP32 Cam for live streaming. The amalgamation of these components results in a versatile agricultural robot capable of performing tasks such as grass cutting, irrigation, plowing, and real-time field monitoring.*

Traditional agriculture is evolving towards greater efficiency and precision, necessitating the incorporation of modern technologies. The FieldRover addresses this need by providing a holistic and adaptable solution for farmers. The ESP8266 microcontroller serves as the central processing unit, facilitating seamless communication and control of various functions. The Blynk IoT platform complements this by offering an intuitive interface for remote operations and live data monitoring.

Mobility is achieved through DC motors controlled by the L298 motor driver, ensuring the robot's navigation is precise and responsive. A high-speed motor is dedicated to efficient grass cutting, while a water pump supports targeted irrigation for optimized resource utilization. The plowing function is executed through a servo motor, delivering controlled and accurate soil preparation.

The FieldRover represents a significant advancement in agriculture, promising increased efficiency, resource conservation, and improved productivity. By embracing smart technologies, this project contributes to the evolution of precision agriculture, fostering sustainable practices and data-driven decision-making. The integration of diverse functionalities into a single robotic platform positions the FieldRover as a comprehensive solution for the modern agricultural landscape.

Keywords: FieldRover

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