

Multitasking Agribot for Smart Farming Applications

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Abstract: *This paper presents the design and development of a multifunctional agricultural robot operated via remote control to enhance farm productivity and minimize manual effort. The robot is capable of performing four key agricultural tasks: fruit cutting, grass cutting, seed sowing, and water spraying. At its core lies the PIC16F877A microcontroller, which manages the coordination of various actuators and modules. A 12V, 8A DC battery powers the system, with a DC-DC converter ensuring voltage compatibility across different components. Wireless control is achieved using a Bluetooth module, while a 16x2 LCD display provides real-time operational feedback. Dedicated motors and actuators are used for executing individual tasks, such as tool movement, irrigation, locomotion, and seed dispensing, all controlled via a relay interface. The integration of these features enables the robot to operate effectively in diverse agricultural settings, particularly where manual labor is limited or challenging. By combining automation with wireless communication, the system supports precision farming practices and contributes to the advancement of smart agriculture.*

Keywords: Agribot (Agriculture Robot), PIC Microcontroller, DC Gear Motor, 12 V DC Battery, DC – DC Converter, Wheels, Blade, Robo ARM Kit, Jumper Wires, Bluetooth Module, Relay, LCD Display Nozzle

