

# Design and Development of Multipurpose Agriculture Equipment

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**Abstract:** *The design and development of a multipurpose automated agriculture equipment utilizing a Bluetooth module with a hopper for fertilizer, spraying, and grass cutting is presented in this paper. The objective of this project is to enhance the efficiency and productivity of agricultural practices by incorporating automation technology. The equipment consists of a robust chassis with wheels for mobility, powered by an electric motor. It is equipped with a hopper for storing fertilizers, a spraying mechanism, and a grass-cutting attachment. Additionally, a Bluetooth module is integrated into the system to enable wireless communication with a smartphone or a central control unit. The Bluetooth module allows the user to remotely control and monitor the equipment. Through a dedicated mobile application, the user can set parameters such as the amount of fertilizer to be dispensed, the spraying pattern, and the cutting height. Real-time feedback from sensors on the equipment, such as soil moisture sensors and obstacle detection sensors, can be displayed on the mobile application, providing valuable information for decision-making. The hopper is designed to hold a significant amount of fertilizer, ensuring uninterrupted operation for extended periods. The spraying mechanism utilizes adjustable nozzles to enable precise and controlled application of pesticides or herbicides. The grass-cutting attachment incorporates a high-speed rotating blade for efficient cutting of grass and weeds. The development of this multipurpose automated agriculture equipment offers several advantages. It reduces the labor-intensive tasks associated with traditional agriculture practices while improving accuracy and efficiency. The remote control and monitoring capability provided by the Bluetooth module enhances convenience and enables intelligent decision-making. Furthermore, the integration of the hopper, spraying mechanism, and grass-cutting attachment into a single equipment simplifies the farming process, resulting in cost savings and increased productivity.*

**Keywords:** Hooper, Spraying, Grass Cutting, Microcontroller and Bluetooth Module

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