

Design and Fabrication of Multi-Tasking Agricultural Machine

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Abstract: *This project presents the design and fabrication of a multitasking agricultural machine capable of performing multiple essential field operations such as ploughing, seed sowing, water sprinkling, and pesticide spraying, all in a single pass. The main objective is to create a compact, cost-effective, and efficient farming tool that reduces manual effort, saves time, and increases productivity for small-scale farmers.*

The developed machine is built on a mild steel frame and powered by two 12V DC motors in a two-wheel drive configuration. A 12V rechargeable battery serves as the main power source for movement and control. All operations, including forward/reverse motion, seed dropping, and pesticide spraying, are controlled wirelessly through a remote-control. The machine also integrates a 20-liter multi-use tank that serves both pesticide spraying (via a DC pump) and water sprinkling (manually through gravity flow). Seed hoppers are mounted and controlled with a servo or rotary mechanism for accurate, uniform dispensing.

Overall, this project demonstrates that a single, versatile machine can replace multiple conventional tools, helping reduce operational costs and dependency on labor. It represents a significant step forward in rural mechanization, with potential for further improvement through solar integration, automation upgrades, and precision farming features.

Keywords: agricultural machine

