Agribot Technology

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Abstract: *Agriculture plays a critical role in global food production, and efficient crop management practices are essential for maximizing yield and minimizing losses. Traditionally, tasks such as pesticide application, sowing seeds and weeding have been performed manually, which is both labor-intensive and inefficient. In response to these challenges, this paper presents the design and evaluation of a remote-controlled agricultural robot aimed at improving agricultural efficiency and sustainability. This machine is battery powered and is remotely controlled, allowing farmers to apply pesticides with precision and minimal effort. The machine is designed to spray pesticides directly onto targeted areas, reducing chemical waste and preventing over-application. Additionally, it is equipped with a weeding mechanism that enables selective removal of unwanted plants, further enhancing its versatility. This abstract explores the potential of agribot technology in revolutionizing agricultural practices. This research focuses on three key applications:*

1.Weed Cutting: Agribot systems can effectively identify and eliminate weeds through various methods, including mechanical cutting, thermal ablation, and selective herbicide application. This minimizes the use of broad- spectrum herbicides, reducing environmental impact and improving crop yield.

2.Pesticides Spraying: Precision spraying technology integrated into agribot systems enables targeted application of pesticides, minimizing drift and reducing the environmental impact. This approach ensures optimal pesticide use while maximizing crop protection and minimizing off-target effects.

3.Seed Sowing: Agribot systems can accurately and efficiently sow seeds at precise depths and spacing, optimizing seed-to-soil contact and ensuring optimal germination rates. This technology can improve seed utilization, reduce labor costs, and enhance overall crop productivity. The integration of Agribot technology in agricultural practices has the potential to significantly improve efficiency, reduce environmental impact, and enhance the sustainability and profitability of agricultural operations.

Keywords: Agribot Technology, Agricultural Robot, Precision Agriculture Sustainable Agriculture Crop Management, Agricultural Efficiency Weed Cutting/Weeding Pesticide Spraying, Seed Sowing

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