Autonomous Farming Robot with Real-Time Environment Analysis

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Abstract: *The purpose of this project is to develop an autonomous mobile platform which can minimize the labor of farmers in addition to increasing the speed, accuracy and yield of the farming. The robot is designed in such a way that it performs the elementary activities involved in farming such as weed removal, spraying pesticides etc which are notoriously difficult to remove and are capable of even becoming resistant to weed killers over time. Nowadays modern agriculture is an important aspect of farming because it improves the yield rate, reduces the environmental impact, increases precision and efficiency, saves money and energy during the production. Considering this, the robot is designed to perform various testing and analysis works such as soil nutrient analysis to determine the composition, characteristics or nutrient levels of the soil, soil moisture testing, temperature and humidity monitoring etc.It also helps in the efficient use of manpower and elevates productivity and improves the quality. The robot is also equipped with artificial intelligence which can identify weeds from crops as well as detect diseases in crops by analyzing leaves. To make the robot autonomous in its tasks we have introduced a unique navigation system based on rfid which can be easily implemented, at the same time convenient to use at large scale. The entire purpose of agriculture robots is to ease the physical burden on farmers, allowing them to use their intellectual capabilities and maximize abilities. This allows farmers to strategize better with their space and eventually bring down the food shortage crisis for the global population.*

Keywords: Autonomous Farming Robot, Weed Cutting, Soil Moisture Testing, Fertilization, Artificial Intelligence, RFID Based Navigation System

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