



AGRONOMY MONITORY ROBOT USING IoT TECHNOLOGY

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ABSTRACT

A Multitasking robot for the field of Agriculture has been studied in this research. Currently precision agriculture by agricultural robots is the newly emerging technology in the agriculture sector to save the time and energy that is wasted in repetitive farming tasks automation in farming processes is quite helpful. The Prototype of an agricultural robot "Agronomy Monitory robot" is modeled for multitasking such as seeding, cultivating and harvesting with a separate irrigation system. It is a quad-wheeled vehicle which is controlled by microcontroller as master controller, moisture sensor for irrigation, power supply is provided by battery.

Keywords: multitasking robot, sensors.

I. INTRODUCTION

Agriculture is the backbone of India. The history of Agriculture in India dates back to Indus Valley Civilization Era and even before that in some parts of Southern India. Today, India ranks second worldwide in farm output. The special vehicles plays a major role in various fields such as industrial, medical, military applications etc., The special vehicle field are gradually increasing its productivity in agriculture field. Some of the major problems in the Indian agricultural are rising of

input costs, availability of skilled labors, lack of water resources and crop monitoring. To overcome these problems, the automation technologies were used in agriculture. The automation in the agriculture could help farmers to reduce their efforts. The vehicles are being developed for the processes of cultivation, seed sowing, leveling, and water sprinkling. All of these functions have not yet performed using a single vehicle. In this the robots are developed to concentrate in an efficient manner and also it is expected to perform the operations autonomously. The proposed idea implements the vehicle to perform the functions such as cultivating, seed sowing, mud leveling, and water sprinkling. These functions can be integrated into a single vehicle and then performed.

II. PROBLEM STATEMENT

In the recent days, the technology has changed tremendously. Along with improvement in technology, the human must also cope-up with updating environment. In order to reduce human work the vehicles are evolved. The main drawback which the farmers are experiencing now is lack of advance mechanization in farming. Due to manual sowing of seeds distance between the seeds are not

symmetrically maintained which in turn affects the growth of crops and wastage of area. Manual farming also requires excess time consumption for performing individual process.

III. PROPOSED SYSTEM

The basic aim of the project is to build up a multipurpose machine which is utilized for digging the soil, seed sowing, water sprayer and close the mud with least changes in accomplices with minimum cost. The sensor system included in "Agronomy Monitory Robot" helps to detect monitor the humidity before sowing the seeds without the presence of farmer at the actual site.

IV. ADVANTAGES

- The sensor system included in "Smart Irrigation System" helps to detect monitor the humidity before sowing the seeds without the presence of farmer at the actual site.
- The use of automation in vehicle handling through computer saves tremendous human efforts and animal power.
- Use of webcam reduces chances of error.
- High performance.
- Low power consumption and reduced man power.

V. SYSTEM ARCHITECTURE

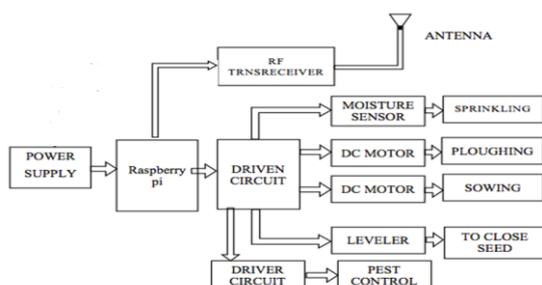


Fig 1: System Architecture

The block diagram of the Agronomy Monitory Robotis as shown in above figure. The quad wheel vehicle is electrically powered by the 12V DC 7AH battery which is enough to drive the vehicle and perform the activities in the farm. The control and processing of the entire Agronomy monitory robotis done through the Raspberry pi which is a microcontroller.

- The Driver circuit used in our Agronomy Monitory Robot is an 4 channel relay which is used to drive the vehicle and controls the motion of the motor.
- The camera used in the Agronomy Monitory Robot is mainly to monitor the area where the crops are grown.
- The camera is mounted on a Pan Tilt mechanism which enables the Camera with the entire view of the Field.
- The Wiper motor that are connected to both the front wheels are used to provide the back and forth movement to the Smart Irrigation System.

VI. RESULTS

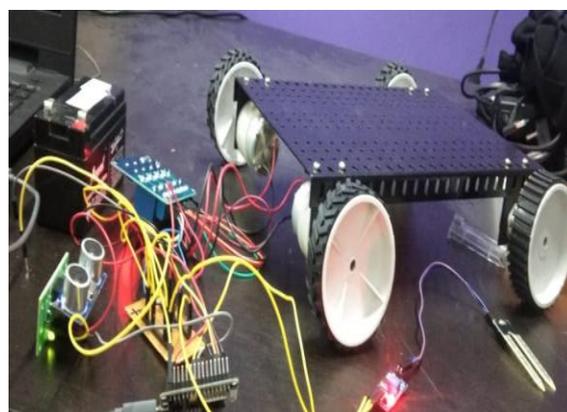


Fig 2: Initial stages of integration of components

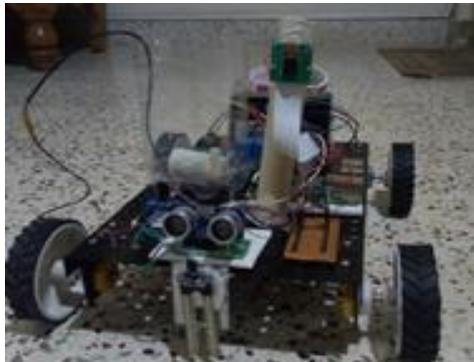


Fig 3: Integration of sensors to robot

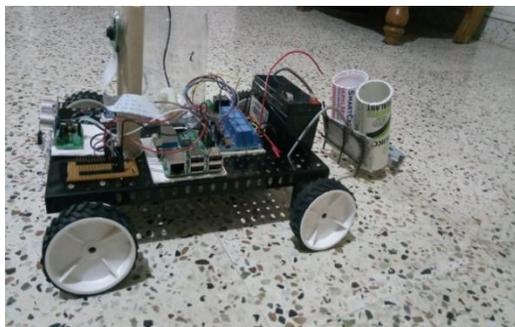


Fig 4: Integration of plougher and leveler to the robot

VII. CONCLUSION

- The use of automation in vehicle handling through computer saves tremendous human efforts and animal power.
- The Use of the camera keeps the farmer well informed about the ongoing things in the field with respect to the crop.
- Effective utilization of automation which eases the load off the farmers both physically and economically.
- The performance and the precision is been increased to a greater extent as the human errors are reduced and substantial increase in the yield is witnessed. Low power consumption and reduced man power.

VIII. REFERENCES

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