

Smartphone operated advance irrigation vehicle

Kedar Prabhu¹, Akash Gupta² Haris Quazi³, Abhishek Mishra⁴

Project guide: Prof. Vinay Kumar Singh

¹(Electronic Engineering, Shree L.R. Tiwari College of Engineering, India)

²(Electronic Engineering, Shree L.R. Tiwari College of Engineering, India)

³(Electronic Engineering, Shree L.R. Tiwari College of Engineering, India)

⁴(Electronic Engineering, Shree L.R. Tiwari College of Engineering, India)

Abstract: Agricultural Robot or agribot is a robot designed for agricultural purposes. Irrigation robot, driverless tractor / sprayer, and agrorobots are deployed to replace human labour. Robots can be used for other horticultural tasks such as pruning, weeding, spraying and monitoring. Robots can also be used in livestock applications (livestock robotics) such as automatic milking, washing and castrating. Robots like these have many benefits for the agricultural industry, including a higher quality of fresh produce, lower production costs, and a smaller need for manual labour. The designed robotic vehicle is a machine of a considerable power with multipurpose system which gives an advanced method to seed sowing, ploughing, watering the crops and harvesting with minimum man power and labour making it an efficient vehicle. The machine will cultivate the farm. Moreover the vehicle can be controlled through Bluetooth medium using an Android smart phone. The whole process calculation, processing, monitoring are designed with motors and interfaced with Microcontroller

Keywords: agribot, agrobot, irrigation vehicle, sowing, ploughing, harvesting, water spraying

I. Introduction

The discovery of agriculture was the first big step toward a civilized life. It is a famous quote by Arthur Keith which emphasizes that agriculture plays a vital role in the economy of every nation. Since the dawn of history agriculture has been one of the significant earnings, producing food for human utilization. Today many more lands are been developed for the production of a large variety of crops. The field of agriculture involves various operations that require handling of enormous heavy materials. For example, in manual ploughing, farmers make use of huge ploughing machines. Additionally, while watering the crops farmers still follow the traditional approach of carrying heavy water pipes. These operations are dull, repetitive, or require strength and skill for the workers. In the 1980's many agrobots were started for research and development. Kawamura and co-workers developed the fruit harvesting robot. Grand and co-workers developed the apple harvesting robot. They have been followed by other works. Over history, agriculture has evolved from a manual occupation to a highly industrialized business, involving a wide variety of tools and machines. Researchers are now looking toward to the realization of autonomous agricultural vehicles. The first stage of development, automatic vehicle guidance, has been studied for many years, with a number of innovations explored as early as the 1920s. The concept of fully autonomous agricultural vehicles is far from new; examples of early driverless tractor prototypes using leader cable guidance systems date back to the 1950s and 1960s.

II. Motivation & Background

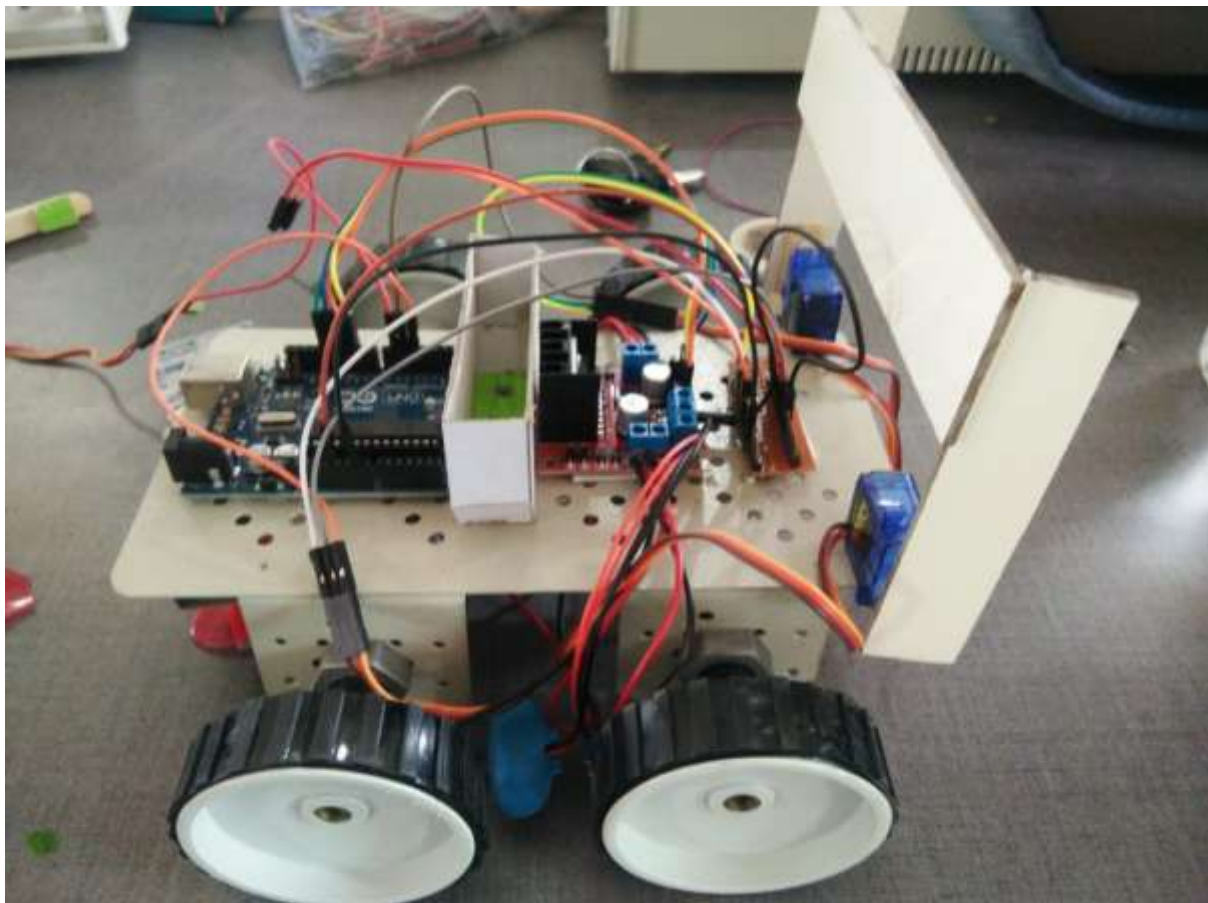
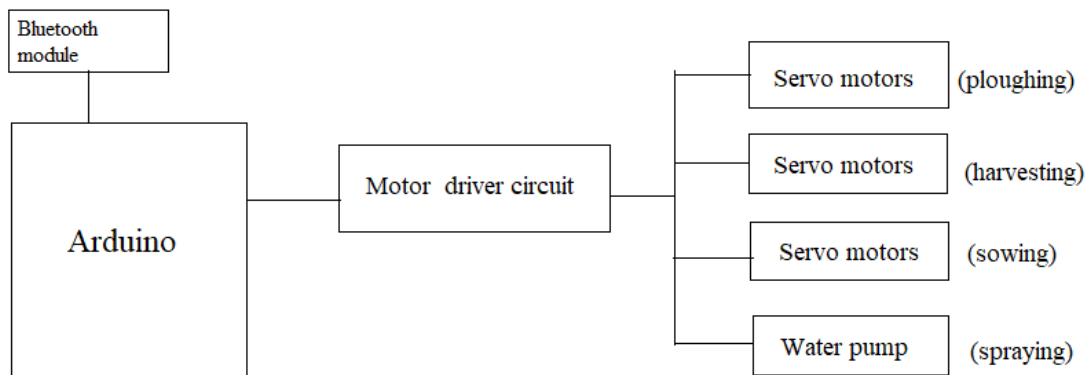
Agriculture has always been the backbone of India. This emphasizes that agriculture plays a vital role in the economy of every nation. Since the dawn of history agriculture has been one of the significant earnings of producing food for human utilization. Small bots are perfectly suited for crawling or rolling along between, and around plants, where they can monitor soil conditions, photograph and transmit results of plants for monitoring and analysis, do some spot tillage here and there, detect insect infestations and diseases before they become widespread and even dispense precise and controlled amounts of pesticides and fertilizers as needed. With increasing Artificial Intelligence, swarms of such robots will someday act as intelligent agents to provide a level of care, monitoring and data collection that is far beyond what is now economically feasible for any farmer. The cost of such small agribots should be fairly low—once commercial production is in full swing, such machines could be available for around \$500 each, or eventually even much less.

III. Objective

Agriculture is quickly becoming exciting in high-tech industry, drawing new professionals, new companies and new investors. The technology is developing rapidly, not only advancing the production

capabilities of farmers but also advancing robotic-machines and automation technology. This project focuses on advancement in agricultural vehicles. In this dissertation we investigate that farmers spend a lot of man power on field. India is a country where Agriculture is considered the most important occupation. So our objective mainly focuses on reducing their exertion and striving by recreating an advanced irrigation vehicle which can save both, time and effort. Agricultural robots automate slow, repetitive and dull tasks for farmers, allowing them to focus more on improving overall production yields

IV. Figures And Tables



V. Conclusion

This study therefore concludes that if we use a Smart phone operated advanced irrigation vehicle, it will solve many issue related to excessive man power and heavy machines. The new blend of all the trending technologies may reduce human exertion up to an extent. This will help them save time and benefit the yield. This device is like a friend to human. Its easy operation allows every individual to use it efficiently. Also, it is cost efficient to be affordable by most of the people in need of it. So if this project is implemented it will be a gift for the farmers in our country.

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