

AUTOMATED AGRICULTURE SEEDING AND CUTTING MECHANISM BY UTILIZING ROBOT.

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ABSTRACT

Many countries in Asia including India are agriculture based and most of their rural population depends on agriculture to earn their livelihood. The equipment use for seed sowing are very difficult and inconvenient to handle. The equipment are very heavy, it can't be handle by single man. To increasing the productivity and reducing the labor involved, this robot is designed to execute the basic functions required to be carried out in farms. We aim to create a multitasking agriculture robot which will focus on basic work of plantation. To sow the seeds a robotic arm will dig to a precise depth with equal distance between the seeds, and cutting the excess plant which present in the farm. In this robot direction is provide by using android application we can control the robot with the help of mobile.

1.Introduction

Now a day's most of the countries do not have sufficient human factor in agricultural sector and it affects the growth of developing countries. so it's time to automate the sector to overcome this problem. In India, 70% people depends on agriculture. So we need to study the agriculture. Innovative idea.

Our Project is to automate the process of sowing crops such as groundnut, baby corn, sunflower and etc. The farming system like plugging, cultivating, weeding, harvesting, etc. is the different process. All the processes are advance to modifying the mechanism in farming which works automatically without the man power requirement. Manually seed plantation and crop cutting method suffers from various problems. The tendency of manual work is going on reducing. The man power shortage is one of the biggest problems faced continuously to all farmers. Due to labor shortage the plantation cost should be increased. So it is not economically beneficial for all farmers.

Now a day's instrumentation and control system plays an important role. So we develop a system for "seeding and cutting robot" using microcontroller which is very economical and beneficial. Due to automation the work become easiest and it saves money also. Our system is nothing but the four tyre vehicle which is driven by geared DC motor. According to microcontroller program, after some distance or some time instant the seed should be dropped through the nozzle, which is operated by relay. Nozzle size is depends on the diameter of the seed. Same operation is repeated after some time delay. So there is no more labor work. Cutting operation is for the excessive grown crop as well as the normal crop. Because of that the labor work get reduce. Hence all the problems of conventional method are overcome by using this system.

2.LITRATURE SURVEY

[1] DESIGN AND IMPLEMENTATION OF SEEDING AGRICULTURAL ROBOT [2017] Pooja Arbade, Usha survanshi, Sheetal nerve

In Modern world, Automation robot is used in many of the fields such as defense, surveillance, medical field, industries and so on. In this paper, the robot system is used to develop the process of cultivating agricultural land without the use of man power. The aim of the paper is to reduce the man power, time and increase the productivity rate. All the basic automation robot works like weeding, harvesting and so on. Here the designing systems like plough the land, sowing the seed, watering the plant or spraying the fertilizer and navigate the vehicle motion are preferred by this autonomous robot using microcontroller. Based on movement of this robot in the land, the ultrasonic sensor helps in obstacle detection, thereby performs turning the position of robot either in left or right or forward direction. The navigation part has been done in simulation with the help of proteus.

[2] ROBOTIC AGRICULTURE – THE FUTURE OF AGRICULTURAL MECHANISATION [2009]

Simon Blackmore, Bill stout, Mahout Wang, Boris rumor

Developed agriculture needs to find new ways to improve efficiency. One approach is to utilise available information technologies in the form of more intelligent machines to reduce and target energy inputs in more effective ways than in the past. Precision Farming has shown benefits of this approach but we can now move towards a new generation of equipment. The advent of autonomous system architectures gives us the opportunity to develop a complete new range of agricultural equipment based on small smart machines that can do the right thing, in the right place, at the right time in the right way.

[3] Automatic Seed Plantation Robot.[2017] Deekshita K.P, P. Prassanna, PES college of engineering

This paper presents an Automatic Seed Plantation Robot which is based on electronic and mechanical platform that performs advance agriculture process. We have developed an electromechanical vehicle which is steered by DC motors to drive wheels. The farm is cultivated by the automated system, depending on the crop considering particular rows & specific columns. The spacing between two seeds in a column has to be entered manually. Proximity sensor is used to measure the rotation of wheels. To detect the obstacle in the path of the vehicle IR LED with TSOP receiver is used and turning position is also depend on this sensor. To check whether seed container is empty or not LDR sensor is used. All the operations are monitored and control by PIC microcontroller using sensors. The programming of this microcontroller is done in assembly language. LCD display is used to show seed count.

[4] Multipurpose agricultural robot [2016] Nithin P.V. ,Shivpraksah S.

The paper aims on the design, development and the fabrication of the robot which can dig the soil, put the seeds, leveler to close the mud and sprayer to spray water, these whole systems of the robot works with the battery and the solar power. More than 40% of the population in the world chooses agriculture as the primary occupation, in recent years the development of the autonomous vehicles in the agriculture has experienced increased interest. The vehicle is controlled by Relay switch through IR sensor input. The language input allows a user to interact with the robot which is familiar to most of the people. The advantages of these robots are hands-free and fast data input operations. In the field of agricultural autonomous vehicle, a concept is been developed to investigate if multiple small autonomous machine could be more efficient than traditional large tractors and human forces.

3.PROPOSED SYSTEM

To design the robot for the seeding and cutting by android application was not developed. The seeding and cutting was done by hand in sunlight in the field therefore various problem was faced by farmer.Nowdays seed sowing is done manually or by tractor,and cutting is done by only manually. Manually method includes broadcasting the seeds by hand and cutting the grass one by one manually.so to make it easy and user convenient automated robot is there, for that purpose it makes work easy.

4. BLOCK DIAGRAM

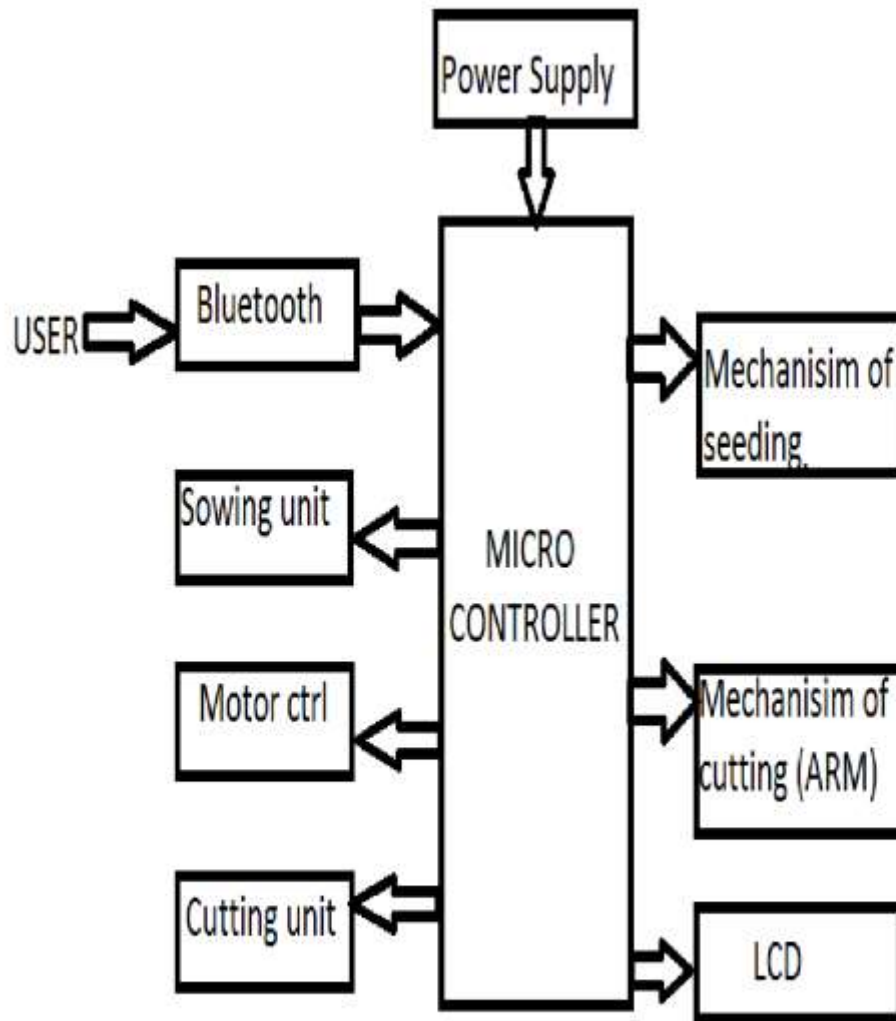


Fig: Block diagram of system

5. CONCLUSIONS

The system is beneficial to the farmers for the basic seed sowing operation. The mode of operation of this machine is very simple even to lay man. Low germination percentage leading to wastage of seeds can be reduced by the use of this system. Creation of gap due to non-germination of seeds can be avoided. Total yield percentages can be increased effectively. Labor problem can be reduced. As compared to manual & tractor based sowing time, energy required for this machine is less. Also wastage of seeds is less. So this system will be a better option for the farmers who want to perform the basic operation in a well-organized manner.

In future this project can be taken to product level. To make this project as user friendly & durable, I need to compact as well as cost effective. Solar panel can be provided for the minimize usage of renewable sources. Bluetooth can be replaced by GSM, Zigbee for longer distance. Temperature sensor, soil moisture sensor & motion sensor can be added for excellent working of the robot.

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