

# Seeding Robot For Agriculture Purpose

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**Abstract-** In today's world farmers have recently been facing problems in the field of agricultural activities. The main aim of this project is to reduce a person's power needed in the agricultural field and introducing the programmed vehicle called as automatic robot which is able to do actions such as ploughing, seeding and leveling. The whole assembly is powered using 12V standard rechargeable battery. The microcontroller can be used to control and screen the process of system, motion of vehicle by making use of DC motor. Renesas microcontroller is employed. Embedded C can be used in programming the microcontroller. The appliance can be handled remotely. The vehicle is operated manually by a Smartphone which will be the robot to do the agricultural works in the field. Consequently now it's not necessary to do seeding in sunlight. Through the use of robot technology one can sit in a cool place and can do seeding by monitoring the robot movement.

**Keywords-** Autonomous vehicle, ploughing, seeding, mud leveling, Bluetooth module

## I. INTRODUCTION

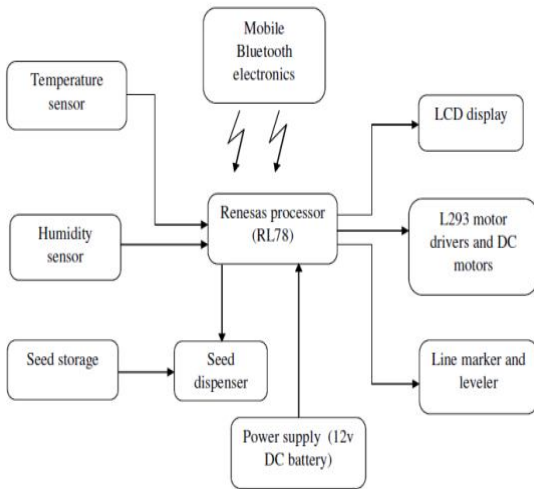
In India, near approximately 70% human beings are established upon agriculture. Globalization in agriculture machine is less when compared with different fields. So, it is necessary to make some improvement in agricultural field. A manned tractor has been replaced in place of bullocks. Because of this the man power can be decreased. To improve the accuracy man less tractors may be added. To overcome this problem and to obtain specific results automated compact robot is developed.

Automation is an elimination of human effort from the running area. From last two decade the commercial automation is developing very unexpectedly. We are applying the idea of robotics technology in agriculture. Agro-technology is the technique of applying the innovation happening in each day existence and applying that to the agriculture quarter which improves the efficiency of the crop produced and also to broaden a better Mechanical system to help the agriculture subject which reduces the quantity and

time of work spent on one crop. Robotic designed for agricultural functions is an agrobot. It's far designed to reduce labor of farmers and growing the price and accuracy of work. Agriculture is the backbone of Indian economy. But agriculture is in its lowering trend. This is because of loss of mechanization. Furthermore there may be a want for a combination of electrical and agricultural scientists working collectively for the improvement. About half of the total population of our country has selected agriculture as their chief career. The development within the invention of agriculture discipline is turning into an essential undertaking, especially due to growing call for on pleasant of agriculture merchandise and exertions unavailability in rural farming areas.

This paper gives development in agro-robotic gadget by way of thinking about a compact robot in order to work automatically through the usage of Renesas microcontroller. The whole assembly is operated on 12V rechargeable battery which then offers the important electricity to a shunt wound DC motor. As the robot moves forward the digging of the ground is completed by way of the use of digging gadgets which digs the floor to the desired intensity and forms a course. The seeds are sown inside the dug hollow. A box is used for holding the seeds. The plantation of seeds is mechanically finished with the aid of using DC motor. The robotic move round the sector and sows the seeds at a given factor. In this technique it examines the moisture content of the soil after which presents the required quantity of water to the plants. This robotic might be a farmer pleasant robotic with the aid of growing his supply of profits.

**II. BLOCK DIAGRAM**



Bluetooth HC-05 module is an easy to use Bluetooth SPP module, designed for transparent wireless serial connection setup. It is used in Master or Slave configuration. SLAVE is the default factory setting. By using AT COMMANDS role of the module can be configured. The person can use for a serial port replacement to establish connection among MCU and GPS, laptop to embedded assignment, and so forth.

**III. BLOCK DIAGRAM DESCRIPTION**

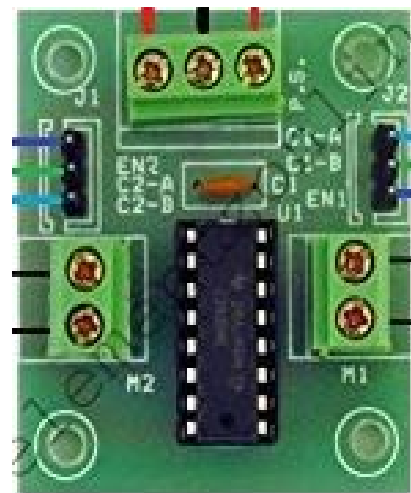
i. Renesas microcontroller:



RL78 own family is a 16- and 8-bit CPU center for embedded microcontrollers of Renesas Electronics brought in 2010. The basis of RL78 circle of relatives is an accumulator-based totally check in-bank CISC architecture with three-level instruction pipelining. The RL78 developed to address extraordinarily low power however integrated microcontroller applications. RL78 covers extensive range of utility area for mechanical machine controls and for user interfaces. RL78 family is supported with a diverse variety of hardware and software development gear.

ii. Bluetooth module:

iii. Motor driver:



An H-bridge motor driver is the most common method to drive DC motors in two directions. Bi-polar junction transistors (BJT) or field effect transistors (FET) may be used to build H-bridge or bought as a single integrated circuit like L293. L293D is a typical motor driving force or motor driving force IC which permits DC motor to drive on both routes. L293D is a 16 pin IC which is handiest and inexpensive for low current motors.

iv. DC motor:



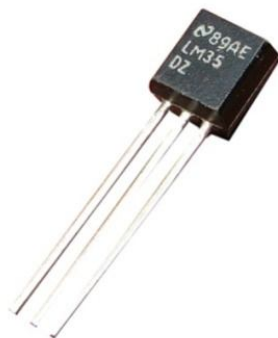
A DC motor is a rotary electrical system which converts electric strength into mechanical energy. DC motors are used to power wheels which can be connected to the robot base.

v. LCD display:



A liquid-crystal displays flat display which uses light-modulating properties of liquid crystals. Backlight or reflector is used to produce images.

vi. Temperature sensor:



Temperature sensor LM35 is a commonly used sensor. Temperature sensor is used to measure temperature with electrical output comparative to the input temperature. It will measure temperature greater efficiently as compared with a thermistor.

vii. Humidity sensor:



Moisture and air temperature is sensed, measured, and reported by the humidity sensor. Amount of moisture at a particular air temperature and the ratio of moisture within the air is called relative humidity.

viii. Power supply:



Power deliver to the robot is given via a lead acid battery, which acts as a heart of the proposed system. A 12v dc battery and a voltage regulator are used for our self sustaining robot. It's used for driving the dc motors. 5 volt supply is used by the controller and liquid crystal display.

#### IV. METHODOLOGY

The basic concept on this examine is to increase a mechanized device that facilitates in on-farm operations like seeding/seed sowing at pre-targeted distances and depths with all applicable sensors for controlling humidity, temperature.

This device has essential sections, tracking station and manipulates station that is inter-communicated using/aided with the aid of the wireless Bluetooth communique technology. The robot station possess temperature sensor, humidity sensor, seed dispenser, seed storage, robot system with automobiles, microcontroller, Bluetooth module and power deliver.

Renasas microcontroller is used as an essential device for agribot. Microcontroller is used as a brain of the robot, which dedicates the order of guidelines received to all networks and sensible elements processed by way of their

corresponding embedded programs. Robotic mechanism performs by using their motors and motor drivers that moves the motor in preferred instructions. The Bluetooth module is used for sign transmitting and receiving functions. Right here the farmer will screen the robot and send the signal. In step with the received signal the robot will pass in the course and it's going to place the seed on targeted distance.

## V. CONCLUSION

This paper has set out an imaginative and prescient of how elements of crop production will be automatic one. Despite the fact that current manned operations can be efficient over huge regions there's a potential for decreasing the dimensions of remedies with self reliant machines which can bring about even higher efficiencies. The agri robot is an agricultural robot which replaces a farmer and is supplied with the superior technology which incorporates Bluetooth module to control each and every activity completed by it. The robotic can operate in any weather circumstance through ploughing, sowing seeds, and mud leveling. India being an agricultural structured this robot will help us to grow in economic sector.

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