



# Solar Powered Bot for Seed Sowing Pesticide Spraying With Wireless Control

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**ABSTRACT:** The discovery of agriculture is the first big step towards civilized life; advancement of agricultural tools is the basic trend of agricultural improvement. Now the qualitative approach of this project is to develop a system which minimizes the working cost and also reduces the time for digging operation, pesticide spraying and seed sowing operation by utilizing solar energy to run the Farming bot.

In this machine, solar panel is used to capture solar energy and then it is converted into electrical energy which is used to charge battery, which then gives the necessary power to a shunt wound DC motor. Bluetooth HC-05 module interface operated on android application to manoeuvre robot in the field. This brings down labour dependency. Seed sowing and digging robot will move on various ground contours and performs digging, sowing the seed and covers the ground by closing it also performs pesticide spraying on request. Here renewable source of energy i.e. solar energy is used as a power supply to feed the power requirement of the system in the form of solar panel.

**Keywords-AGRIBOT, Solar Panel, Bluetooth Module.**

## I. INTRODUCTION:

Today the environmental influence of agricultural production is very much in focus and the demands to the industry is increasing. In the present scenario, most of the cities in India do not have sufficient skilled man power in agricultural sector and that affects the progress of developing country. Therefore, farmers have to use upgraded technology for cultivation activity (digging, seed sowing, pesticide spraying etc.). The use of pesticides is an integral part of worldwide agriculture. Between 30% and 35% of crop losses can be prevented when harmful insects and diseases are eliminated by use of pesticides. Manual method

includes broadcasting the seeds by hand is used.

Also, a pair of bullocks is used to carry the heavy equipment of levelling and seed dropping. So, it's time to automate the sector to overcome this problem. The main motive for project is doing the processes of digging and seed sowing of crops and covering the land automatically along with pesticide spraying so that human efforts will get reduced up to 90 percent. The Farming bot developed in this project will perform digging, seed sowing and covering seed simultaneously and is powered by solar panel with a control of android application from anywhere. Thus, the Farming bot developed here will contain all in one feature which makes use of solar energy to run the Farming bot and can be controlled.

## II. RELATED WORK:

AGRIBOT uses the renewable energy i.e. solar energy obtained from solar panel powered battery, it also consists of a visual obstacle detector and a Bluetooth module which is paired with a Bluetooth terminal application through which it is easily controlled and the instructions are given to the AGRIBOT for the operation to be performed. Hence this is a low cost AGRIBOT and is easy to operate without the need to go to the field personally. It also helps the farmer to facilitate to ease work by reducing human effort, saving time and energy. By this farming can be done easily in any climatic condition irrespective of day and night. This agribot compared to other robots is very beneficial as it has multitasking functional system and advanced techniques for smart farming.

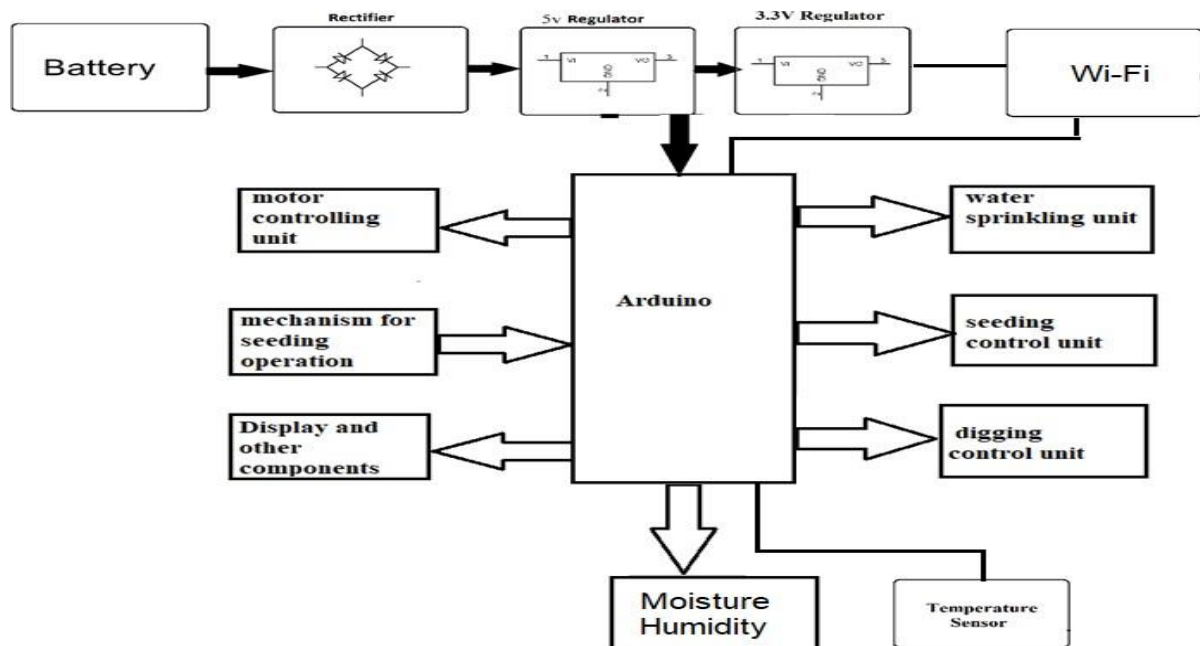
## III. PROPOSED WORK:

This project is a bluetooth controlled robot. For this the android mobile user has to install an application on her/his mobile. Then user needs to turn on the bluetooth in the mobile. The wireless



communication techniques used to control the robot is bluetooth technology. User can use various commands like move forward, reverse, stop move left, and move right. These commands are sent from the android mobile to the bluetooth receiver.

Android based robot has a bluetooth receiver unit which receives the commands and gives it to the microcontroller circuit. Show the **fig.1** Block diagram of the proposed system



○ Here we have selected a RF Robot with moving left right steering feature. After buying this Robot we have replaced its RF circuit with our Arduino circuit. This Robot has two dc motors at its front and rear side. Front side motor is used for giving direction to Robot means turning left or right side (like car steering feature). Rear side motor is used for driving the robot in forward and backward direction. A bluetooth module is used to receive command from android phone and Arduino UNO is used for controlling the whole system.

○ Bluetooth controlled robot moves according to button touched in the android bluetooth mobile app. To run this project first we need to download bluetooth app from google play store. We can use any bluetooth app that supporting or can send data. Here are some apps' name that might work

correctly.

○ After installing app you need to open it and then search Bluetooth device and select desired Bluetooth device. And then configure keys. Here in this project we have used Bluetooth controller app.

- Download and install Bluetooth Controller.
- Turned ON mobile Bluetooth.
- Now open Bluetooth controller app
- Press scan
- Select desired Bluetooth device
- Now set keys by pressing set buttons on screen. To set keys we need to press 'set button' and set key according to picture given below:
- After setting keys press ok.
- When we



touchforwardbuttoninBluetoothcontroller appthen Robotstartmoving in forward direction and moving continues forward until next commandcomes.

○ When we touch backward button in Bluetooth controller app then Robot startmoving in reverse direction and moving continues reverse until next commandcomes.

○ When we touch left button in Bluetooth controller app then Robot start moving inleftdirectionandmovingcontinuesleftuntilnextcom mandcomes.Inthiscondition front side motor turns

front side wheels in left direction and rear motorrunsin forward direction.

○ When we touch right button in Bluetooth controller app then Robot start movingin right direction and moving continues right until next command comes. In thiscondition front side motor turns front sidewheels in right direction and rearmotorruns in forward direction.

○ Andby touching stop button wecan stop the Robot.

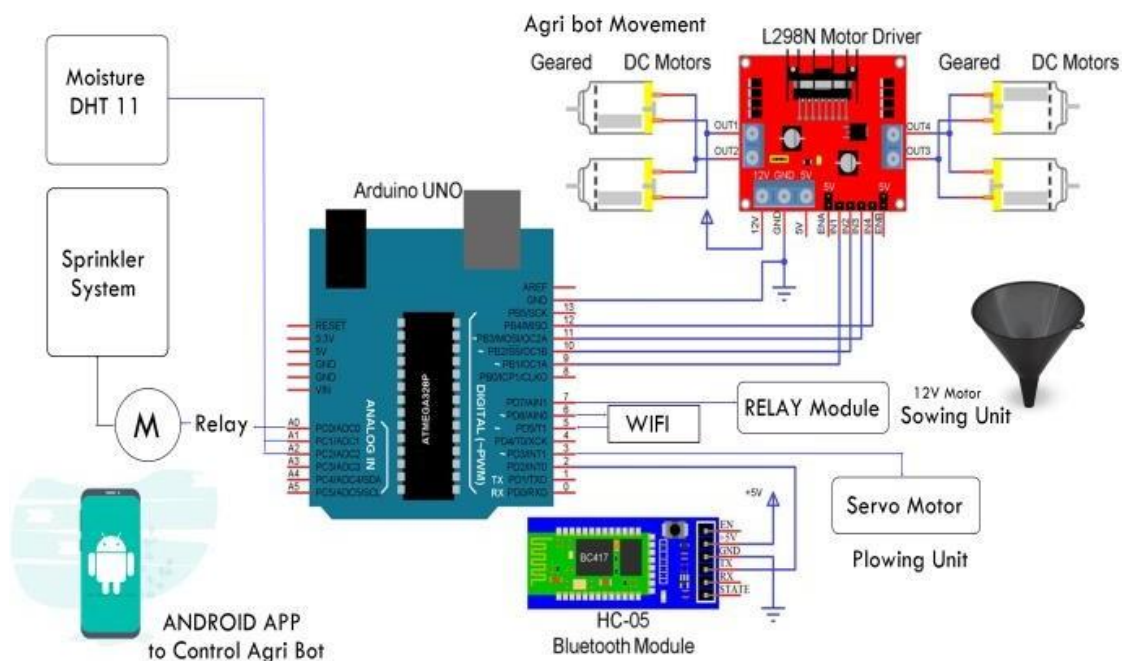


Fig.2 Circuit diagram of the proposed system



### V.RESULTSAND EVALUATION:



Figure.3: Seed sowing



Figure.4: Pesticide spraying

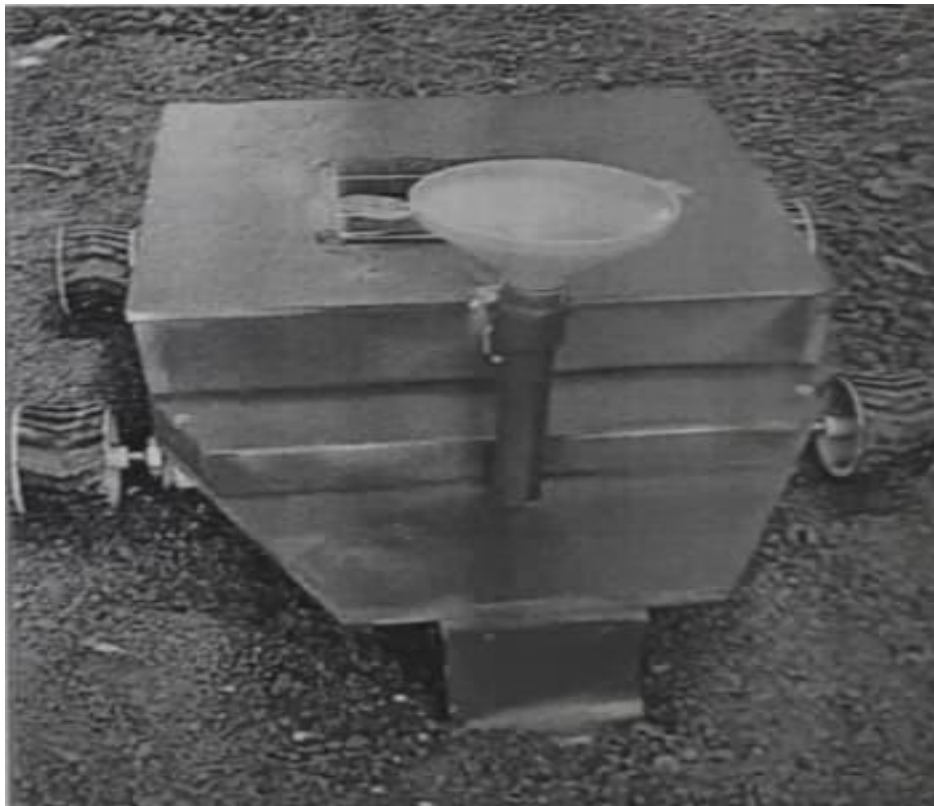


Figure.5: Digging operation

#### VI.CONCLUSION:

Hence the agribot is successfully implemented as per result. This has reduced human participation. System can work autonomously as well as in controlled manner. It has uniform drill depth which is good for same type of crops. Uniformity in the seed placement therefore growth in uniform manner. Increased land utilization and higher productivity can be achieved by our propose method. Also there is increased in yield productivity . Human accident reduced and it is easy to maintain and repair. There is no fear of poison. The method has low maintenance and cost.

#### REFERENCES:

- [1]. SurajChavan, Anilkumar Dongare, Pooja Arabale, Usha Suryanwanshi,SheetalNirve, EtAl., AgricultureBased Robot(AGRIBOT).
- [2]. PavanTV1,Dr.R.Suresh2,Dr.KRPrakash3,Dr. C.MallikarjunaEtAl.,Design And Development Of Agribot For Seeding
- [3]. Mr.V.Gowrishankar,Dr.K.VenkatachalamEt Al.,IotBasedPrecisionAgricultureUsing Agribot.
- [4]. Dr.PremjyotiPatil,EtAl.,Wsn Based Advanced Agricultural Vehicle Operated Using Smart Phone–Agribot
- [5]. AnkitSingh,AbhishekGupta,AkashBhosale,S umeetPoddar.EtAl.,Agribot:An Agriculture Robot.
- [6]. Ms.AditiD.Kokate,Prof.PriyankaD.YadavEtAl.,Multipurpose Agricultural Robot.