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# Solar Based Advanced Agri-Robot

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**ABSTRACT**

**A lot of improvisations have been made in the agriculture business to achieve much less labor-intensive work. Since 59 years, farmers were just started to implement various approaches into their farming methods. It is widely believed that people involved in the farming industry were some of the least acceptable for a change. As per the agriculture scenario now, we can see that this is exponentially transforming.**

**One of the ways that farmers are beginning to explore new technologies in farming come from the autonomous tractor. The RF based tractor is something that is very new to the agriculture industry, but is quickly gaining popularity from agriculture research companies around the United States. These tractors are described by Farm Industry News as a tractor that drives its solve with a computer in control. Although still in the research phase of development, auto driven robots are changing the face of traditional agricultural methods.**

**When the machine is travelling on a terrain, it is controlled by a RF user operated module. This can be moved forward and reverse direction using geared motors of 59 RPM and perform various field work.**

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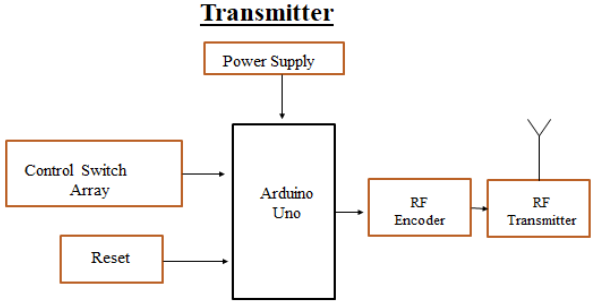
## I. INTRODUCTION

Agricultural robots are the fastest growing technology developed to perform various complex tasks that are difficult for humans to achieve. Recent news claims that the Japanese government has taken an initiative. This "Dream project" was planned to involve unmanned tractors working in the farm on the disaster site. The robotic farmers are capable of cultivating vegetables, fruits, soybeans, wheat and rice, which are then packed in boxes and shipped across the country by this robotic technology. This process is accompanied by recycling of carbon dioxide using machinery in an attempt to reduce the use of fertilizers.A single solution to implement precision agriculture is the development of a single gantry robot that can perform several precision agriculture related operations. The main objective of this system is to implement soil monitoring and precision irrigation on each crop, perform de-weeding and design a cultivated field using accurate robotic crop planning.

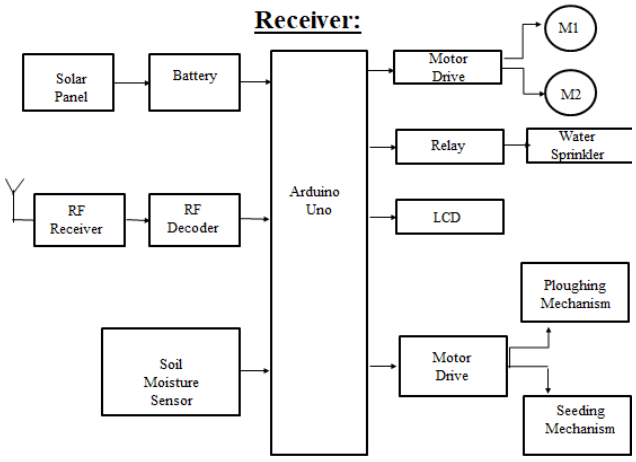
## II.HARDWARE REQUIREMENT

- Arduino uno
- Dc motor
- Rf transmitter
- Rf receiver
- Relay
- Water motor
- Battery
- Solar panel
- Switches

## III.BLOCK DIAGRAM






## IV.BLOCK DIAGRAM DESCRIPTION

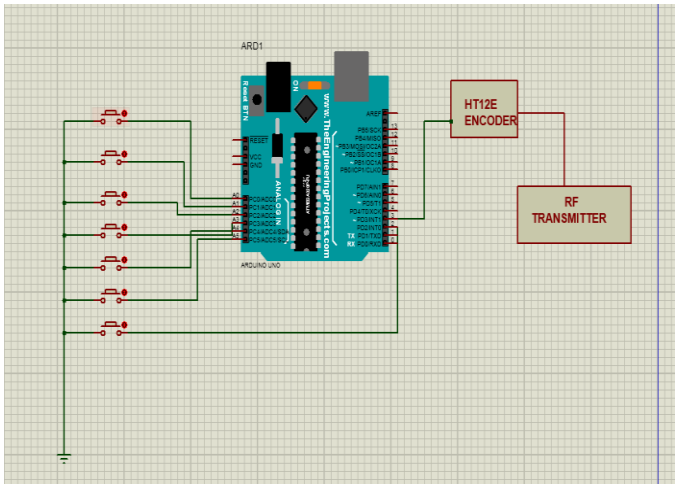
Here we are using arduino uno and arduino uno as acontroller. Which control all operations ,Solar panel used for generation of power which is stored in battery so we control our robot.

Rf module it is a wireless technology for communication of various electronic modules. At input side 8 switches are there when we press 1st switch then robot will move fwd, likewise it will move reverse left right and digging and seeding will be done. By using relay water motor should ON. So when pressing the switch that time rf transmitter send signal to rf receiver. Dc motor is used for seeding as well as digging.

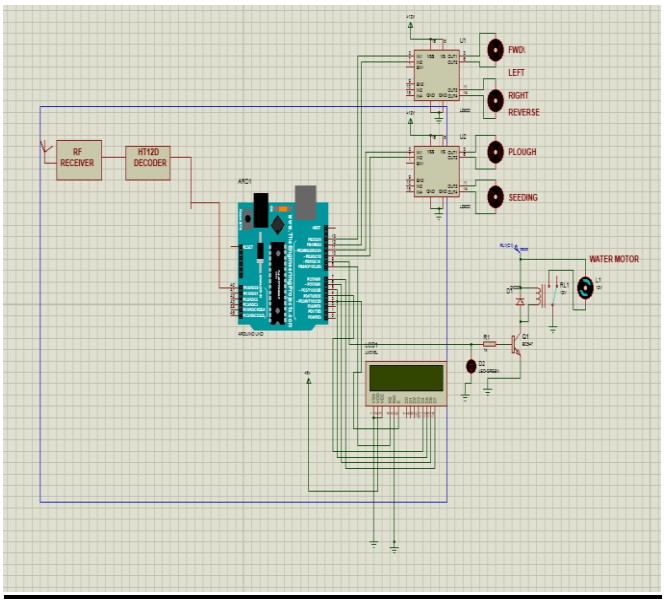
Also here we are using soil moisture sensor to check the moisture content in soil if soil is dry then water motor will on automatically. All information will be displayed on LCD Display.

## V.CIRCUIT DIAGRAM

Transmitter:




Receiver:




## IV. METHODOLOGY

The structuring of the robot isdone using huge torque DC motor, (transmitter, receiver) for wireless communication, Electric-cell, micro-controller which is shown below. It can perform various agricultural processes which are basic necessities of farmers for the living. Solar panel is used to generate the power which is stored in battery.The micro-the wire-less concord used for signal delivering and detecting functions. Here the one will monitor the robot and send the signal. According to the received signal the robot will move in the direction digging and it will place the seed on field for specified distance.

## VI. SCOPE

This is amediocre step but the same can be done with better results in a broader perspective that will be of help to all farmers. Apart from digging, seeding. It can also be compiled in a single robot thus making the machine proficient of doing various tasks at the same time.

## VII. LITERATURE SURVEY

**1.Design and Implementation Of Seeding And Fertilizing Agriculture Robot Shivaprasad B S, Ravishankara M N, B N Shoba**

In modern globalization, many technologists are trying to build a new robot which works very rigidly and is highlyeffective within a short period of time. The progressive invention in agriculture system is becoming an important task especially because of rising demand on quality of agriculture products and declining labor availability in rural farming areas.The aim of the designed

system is to perform tasks like seeding, fertilizing and measuring soil pH, temperature, moisture and humidity.

Instead of using line follower, here we have used obstacle detecting sensor in the proposed system and a camera is used for live streaming. Agriculture robot can be controlled by the internet using raspberry pi.

**2.Agricultural Robot for Automatic Ploughing and Seeding**
**Amrita Sneha. A,Abirami.E, Ankita.A, Mrs. R. Praveena, Mrs. R. Srimeena**
**2015 IEEE International Conference on Technological Innovations in ICT for Agriculture and Rural Development (TIAR 2015)**

This paper strives to develop a robot capable of performing operations like automatic ploughing, seed dispensing, fruit picking and pesticide spraying. It also provides manual control when required and keeps tabs on the humidity with the help of humidity sensors.The main component here is the AVR Atmega microcontroller that supervises the entire process. Initially the robot tills the entire field and proceeds to ploughing, simultaneously dispensing seeds side by side. The device used for navigation is an ultrasonic sensor which continuously sends data to the microcontroller.

**3.Seed Sowing Using Robotics Technology**
**Swati D. Sambare, S. S. Belsare**

In India, near about 70% people are dependent upon agriculture. So, the agricultural system in India should be advanced to reduce the efforts of farmers. Various number of operations are performed in the agriculture field like seed sowing, weeding, cutting, pesticide spraying etc. Very basic and significant operation is seed sowing. But the present methods of seed sowing are problematic. The equipments used for seed sowing are very difficult and inconvenient to handle. So, there is a need to develop equipment which will reduce the efforts of farmers. This system introduces a control mechanism which aims to drop seeds at particular position with specified distance between two seeds and lines while sowing. The drawbacks of the existing sowing machine will be removed successfully in this automatic machine.

## VI. CONCLUSION

In this architype we implemented some ideas to overcome problems in agricultural activities. The exponential growth in the markets is leaving no choice for the labors to move to cities in search of employment. These are creating problems for the cultivators, for an economical and successful solution we have designed such a product which will reduce complexity of the work done and will also reduce the consumed time. This robot can provide substantial help to the farmers to efficiently increase by-products and lower the labors costs.

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