

# REMOTE CONTROLLED MULTI-PURPOSE AGRICULTURE PESTICIDE SPRAYING ROBOT

**Dr. A. Naga Jyothi**

Department of Electronics and  
Communication Engineering  
Vignan's Institute of Information  
Technology  
Visakhapatnam, India.

**Rohit Chinta**

Department of Electronics and  
Communication Engineering  
Vignan's Institute of Information  
Technology  
Visakhapatnam, India.

**Shaik Shakeer**

Department of Electronics and  
Communication Engineering  
Vignan's Institute of Information  
Technology  
Visakhapatnam, India.

**W.G.S Hari Haran**

Department of Electronics and  
Communication Engineering  
Vignan's Institute of Information  
Technology  
Visakhapatnam, India.

**A.Bala Sai Kiran**

Department of Electronics and  
Communication Engineering  
Vignan's Institute of Information  
Technology

## ABSTRACT:

Farming is the main cornerstone and backbone of India and 60 per cent of the GDP is generated by farming. So the quality of crops which are to be maintained is also important because the worms and insects attack the crops and ruin the plants and the whole farm will be wasted. It's a big loss to the farmer. farmers use pesticides spray to kill the insects which attack the farm by carrying the can on their back which is an physical stress and the

medicine which they spray manually on the farms may mix in the air and absorbed into the body which may lead to diseases and even death of the farmer.

## **INTRODUCTION:**

Chemical spraying is a major concern for farmers as it is hazardous to both human health and the environment. Normally most cultivators use non-automatic rucksack sprayers that take much time to cover a field. Automatic sprayers are implemented that can cover a much larger area in the field in a set-out time. While this process is carried out by the farmers they take a lot of safeguards like wrapping up with gloves, masks and outfits and sometimes even with safeguards leads to some effect on human health by spraying chemicals non-automatically

Thereafter, to overcome these problems robotic sprayers have introduced the use of automated robots to provide a safe environment for farming and as well as for cultivation along with increasing the effective production of bio-products due to the high level of monitoring and control of agricultural fields.

## **REMOTE CONTROLLED PESTICIDE SPRAYING ROBOT:**

These robots are operated between farming and nursery field. Using the remote controller as transmitter connected with a receiver. This transmitter consists of sprinkling devices these sprinklers spray the pesticides.

The robot is designed for a new vital role in the agricultural field this is a remote-controlled robot developed with Arduino Nano, Relay modules, and Nrf modules this major controller are used for controlling.

## **COMPONENTS USED:**

**2\*10 wheels**

**4 channel relay**

**Single channel relay**

**Ribbon wire**

**5kg 100 rpm motors**

**Battery**

**Nrf module**

**Joystick**

**Acrylic sheet**

**Water sprayer**

**Silicon pipe**

**Spst switch**

**SOFTWARE USED:**

Arduino IDE

Easy eda

**WORKING:**

we assured of connections as we designed in easy eda connect according to it and upload the relevant code into the microcontroller

Nano is used as a microcontroller for both transmission and receiving purposes. we used a four-channel relay and 3 single channel relays for the automation of the movement of the motors For forward movement, the joystick is pushed forward all 4motors move in the forward direction.

For backward movement, the joystick is pulled backwards all 4motors move in the backward direction.

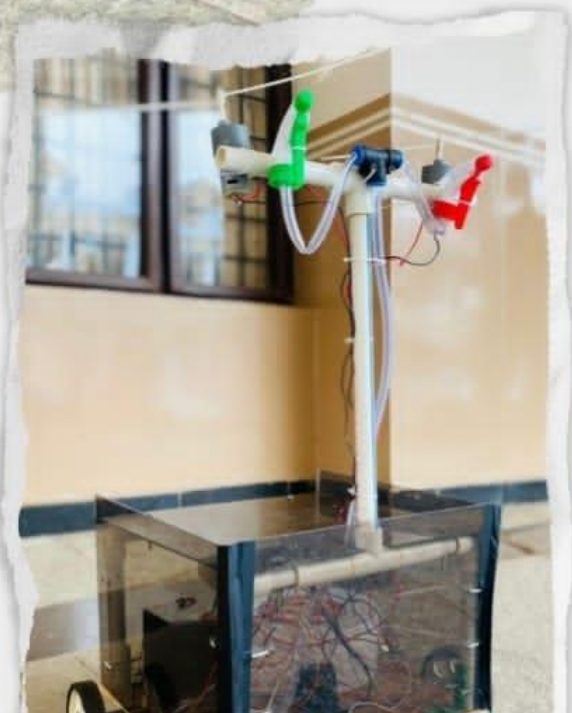
For left movement, the wheels in right moves forward and the wheels in the left moves backward.

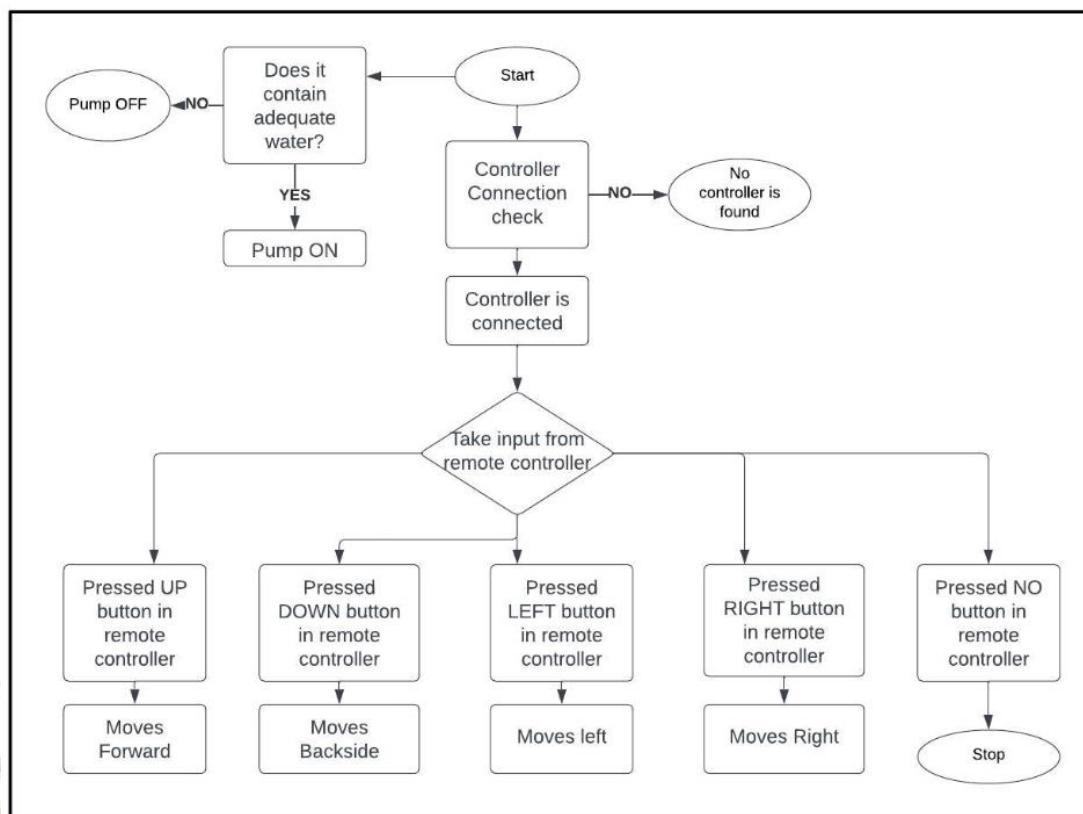
For right movement, the wheels in the left moves forward and the wheels in the right move backward.

And for the spraying purpose we used an 12v solar pump powered by an 12v battery operated manually(on/off) with the help of switch.

And for making it multipurpose i.e, for cutting the weed plants or unwanted plants which grow around the main crop we used to cutters on both sides, connected to motors which are also powered by an 12v battery.







Block diagram

**FUTURE SCOPE:**

Electronics playing a major role in robot automation in agriculture fields.

Day to day the use of robotic gadgets are increasing to reduce the human effort. Similarly robotic pesticide sprayers are invented. The researches are now trying to attain a different type of farming patterns. For that it requires multipurpose robots it designed with combination of multiple discipline.

Further these robots can operate by using solar no greenhouse gas emission are released into the atmosphere and no environmental issues occur.

As new inventions taking place with full flexibility robots in farms these have capability to perform different operations as they were multitasking robots

Performing tasks like seeding, sowing, ploughing, and pesticide spraying

As these are reliable, efficient and less use of chemical and safe for the human to use the scope of these robots would increase in future.

## **CONCLUSION:**

Pesticides are intended for preventing insects, bacteria, fungicides etc in the farm.

Farmers use these prevention substance by using a pesticides sprayer which is of rucksack.

Which is not much safe for the humans in-healing causes internal health problems and External skin problems.

To avoid these problems innovations are taking place as a part this pesticide sprayer one among them which is of remote controlled less interaction with the pesticides.

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