

Agricultural Robot to Improve Quality of Product and Supervise Farm by Camera and SMS

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Abstract— In now a days in definition of robot it is used to mean automation. And agricultural filed is labor intensive filed. Human cannot work continuously and not observing the temperature and moisture. The robot was capable of performing similar action as human. The need for increase agricultural activity and reduce the labor work is become important to protect agricultural field. And that robot role is animation and science because they are artificially created. As the name “Agricultural robot to improve quality of product” is performing cropping, observing the temperature and moisture display on LCD and SMS. And water sprinkling in the farm. And main work of this robot is work like perfect cropping. Thus this robot is reducing the labor and improves the quality of agricultural filed. And second work is the observing the temperature and moisture both sensors is displayed in LCD and also send SMS over a GSM. And the third part of this project is also wireless camera to supervise the robot. And that robot is useful in green house, cold storage and agricultural research center.

Key words: Autonomous Robot, PWM Technique, ARDUINO Microcontroller IC Atmega328p, Temperature and Moisture Sensing, Camera

I. INTRODUCTION

A title of project is “Agricultural Robot to Improve Quality of Product and Supervise farm by Camera and SMS”. In this project their main aim is to perfect cropping, observing the temperature and moisture sensor and displayed on LCD and send SMS over GSM. This robot is row guidance. It cropping at particular distance. And observe the temperature and moisture both. It also obstacle avoid robot so it cannot damage the product in farming. Human can supervise this robot by the wireless camera. And with a new extra ordinary feature, we are adding one new feature, of this project model.

First cropping feature is the makes it applicable to use in any agricultural filed. By which continue monitoring of robot and its work is possible. By cropping features the using the IC high torque DC motor for plowing, sowing seeds, hopping. Second features is the shows the temperature & moisture in LCD by using the temperature & moisture sensor. In this project the GSM are used for sending a message to camera are used for supervise the farm.

II. BLOCK DIAGRAM

When the power supply will be connected the arduino the robot is start. We have use the DHT11 sensor for the observing the temperature and humidity. When the robot is starts the temperature and humidity is display on the LCD. We have also use the GSM module for the send temperature and humidity by SMS. In this our robot there are two motor drivers are connected to the arduino and it will work as per

the given input by the arduino. The four motors are connected to one motor drivers will perform the same task as forwarding and reversing the robot. And is also display on the LCD that robot

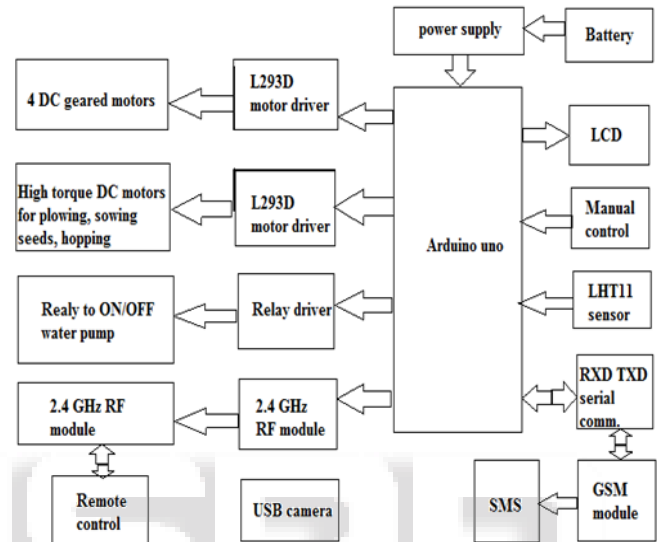


Fig. 1: Block Diagram

Is forward either reverse. The other two high torque motors are connected to the other motor drivers for the hopping, sowing seeds and plowing. Here we are use the RF module at the both transmitter and receiver side. When the switches will be pushed from the transmitter circuit the related command will be send to the microcontroller. The microcontroller is send this command to the RF module at receiver side. By this robot we can do the perfect cropping.

Here we are use the camera for the supervised the robot and also farm. So by this robot we can help in agriculture field and save human energy and time.

III. CIRCUIT DIAGRAM

Here in the circuit having ATmega8P Adriano board is used LCD is interfaced to Adriano for display the temperature and humidity and also command of transmitter. The LHT11 sensor is used for the observed of humidity and temperature. The LHT11 sensor is used for the control the intensity of display of LCD. There are connected the LED to the Adriano. When the infrared rays are detected both side LED is blinking. The six DC motor for forwarding and reversing the robot is connected through motor driver to Adriano. Operation will be performed, when command is given to receiver by transmitters as a remote.

There is GSM also added in this circuit when the LHT11 sensor sense the humidity & temperature at that time the SMS is send through GSM.

The one more feature added to this circuit is camera to this circuit is camera. It is easy to install the camera. It is

easy to install the camera. It is easy to install the camera to the circuit. It is for the supervision of farm and whole work of the robot.

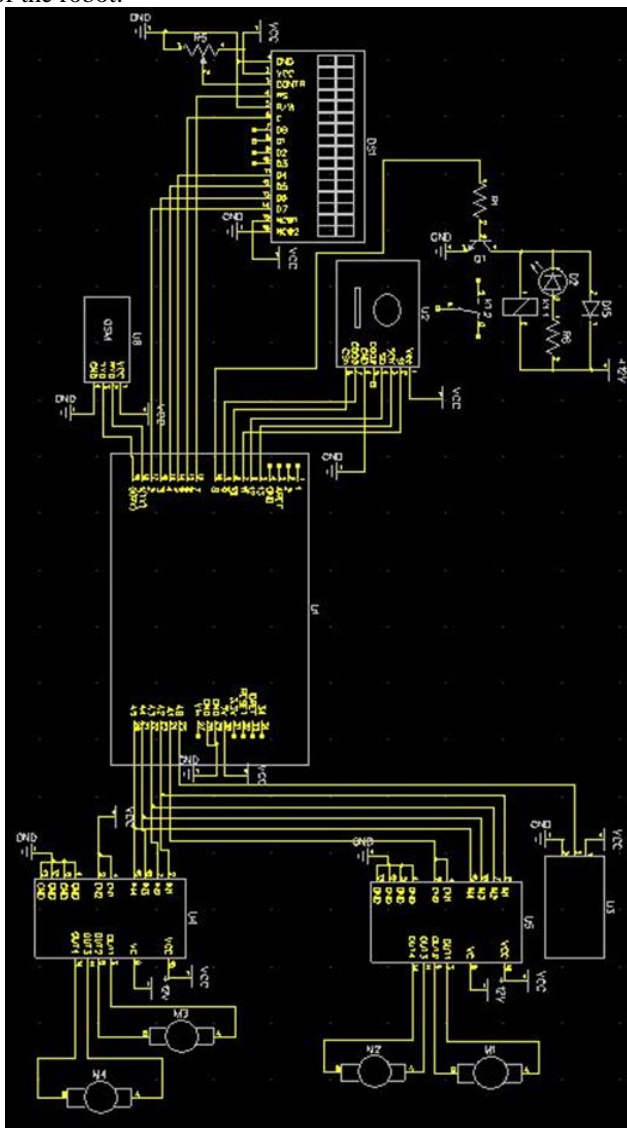


Fig. 2: Circuit Diagram

IV. OPERATION

When the command given from the transmitter it will transmitter through space medium and receiver will follow the command the receiver will send the data to the ARDIONO.

ARDIONO will send the data signal as command is given from transmitter e.g. motor will rotate forward if command is forward motor will be reverse as command reverse of metal wheel other two motor are used for the hopping. We will used the welded wheel. For the cropping features. When the robot is start the four motor is in forward direction. When two other motor for hopping features is in the reverse direction. In this case there are perform the cropping features.

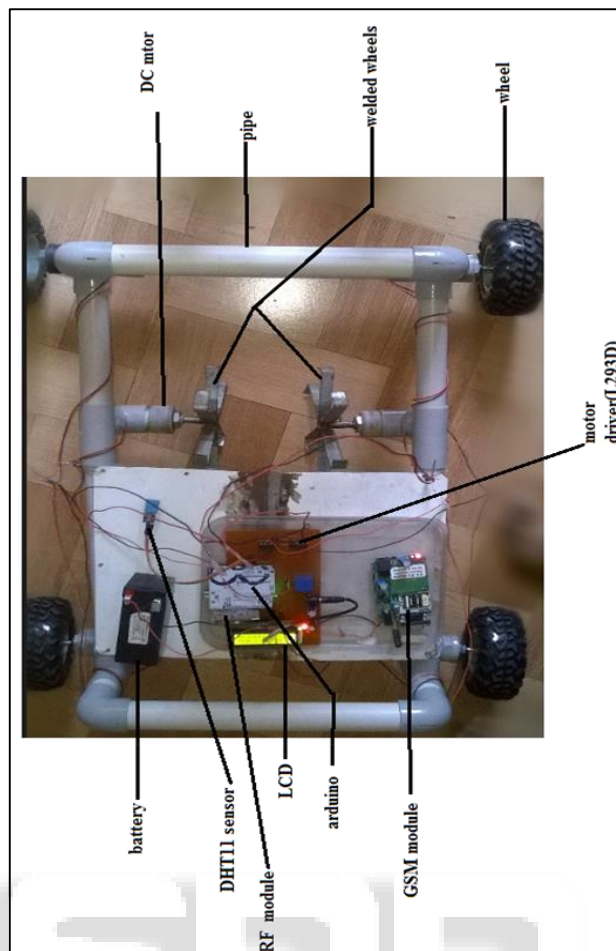


Fig. 3: Working Model of Agricultural Robot

The components description is given wheel for robot movement, LCD for information, motor driver L293D for motor driving, 12volt input socket for power supply, SMS through GSM.

Now in the DH11 sensor used for temperature & moisture sensor worked as a sense the atmosphere and displayed on the LCD and SMS send through GSM.



Fig. 4: USB camera used in agricultural robot [11]

Security is incredibly important for farms and other agricultural environments. Video surveillance can help ensure farm operation run smoothly, making certain that consumers receive a safe quality product in the end, while protecting animals, equipment and facilities from harm and misuse.

V. FUTURE SCOPE

In This project our project model is the Adriano based project. And the coding is done in 'C' language programming. This is

compatible to atmega328p ICs. Our project having three different coding for three different sections. It has coding for interfacing LCD and transmitter and receiver section. The receiver side is the mainly worked as a remote. Another software use in dip trace software professional. This is use in circuit designing.

The agricultural robot supervised by camera is very easy to upgrade as per the requirement of the user. It can perform different task by different techniques. In future robot is used in the reduce labor worked and electronics techniques through farming like a plowing, sowing & hopping are easily used in farm. And the GSM module through send SMS in user mobile. It is very easy in protect farm and plant health indication.

The other problem farmers are facing is the crop destruction by the wild animals. So the future work include the design of the system that may monitor the farm by installing sensors at the boundary of farm and a camera module which may take a snapshot once the sensor detects the entrance and transmit the real time pictures by integrating it with other information

VI. CONCLUSION

After the experience of this working model of "Agricultural robot to improve quality of product" we perfectly able to cropping, observing the temperature and moisture display on LCD and SMS. And water sprinkling in the farm. And main work of this robot is work like perfect cropping. Thus this robot is reducing the labor and improves the quality of agricultural filed. And second work is the observing the temperature and moisture both sensors is displayed in LCD and also send SMS over a GSM. And the third part of this project is also wireless camera to supervise the robot.

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