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AGRIBOT:- AGRICULTURE VEHICAL ROBOT

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Abstract : In this paper, by using Arduino it can monitor all other application like Wi-Fi, digital sensor and DC motor with pump Improving the efficiency of water use and its productivity practiced by farmers are not sufficient nowadays. . By referring to this project it can solve problems like monitoring of water, soil degradation etc. . time the message is sent to the field owner.We can get solution by making use of several real time experiments The device, digital sensor provides you better solution in accurate level measurement and automatic processing water levels.Sustainability of Agriculture is important during the soil degradation, scarce water resource and climate change. A digital sensor measures the moisture content in the soil and is accessed through Arduino.

***Index Terms:*-Arduino Uno,Relay, LCD Display, Sensors,Motor Driver,DC Motor etc.**

1) INTRODUCTION:-

In our country we do not have sufficient machinery factors in agricultural sector and it increases the load of labor on our farmers. Our system is nothing but four tire vehicle which is driven by geared DC motor.The man power shortage is one of the biggest problems faced continuously to all farmers. In India, 70% people depends on agriculture. So, we need to study the agriculture.All the processes are advance to modifying the mechanism in farming which Innovative idea of our Project is to automate the process of Irrigation and inspection of soil nutrients periodically to yield nutritious crops. The farming system like irrigation, fertilization, weeding, etc. is the different process.

works automatically without the man power requirement. Manually irrigation method suffers from various problems. The tendency of manual work is going on reducing. So, it is not economically beneficial for all farmers. Now a day's instrumentation and control system play a more important role. Due to automation the work become easiest, error less and it saves money also. Same operation is repeated after some time delay. So, there is no more labor work. It gives more information about weather casting conditions of soil nutrients. Hence all the problems of conventional method are overcome by using like this system.

1) To establish communication between farmer and AgriBot via Android App for startingthe robot.
2) To developed a Robot with ultrasonic sensor fitted robotic arms.
3) To automate the drip irrigation system via Bluetooth module and relay at the time waterpump side.

2) LITERATURE REVIEW:-

In recent years, robotics and automation in agriculture sector with its implementation based on precision agriculture concept is the newly emerging technology. The main reason behind automation of farming processes are saving the precious time and high energy required for performing repetitive farming tasks and increasing the productivity of yield by treating every crop individually using precision farming concept. Designing of such robots is modeled based on their particular approach and certain considerations of an agriculture environment in which it is going to work. . Also, prototype of an autonomous Agriculture Robot is presented which is specially designed for seed sowing task only. It is a four wheeler vehicle which is controlled by LPC2148 microcontroller. Its working is based on the precision agriculture which enables efficient seed sowing at optimal depth and at optimal distances between crops and their rows, specific for each crop type.Experimental results show that the proposed system can simulate all types of situations under natural conditions. It also increased the efficiency of the test and the research comfort. The proposed

system has high accuracy measurement and is reliable in operation. For further research into the precision spraying of pesticide technology, all of these can lay the first stone.

3) PROPOSED SYSTEM:-

The smart agriculture monitoring system is tested under various conditions. The soil moisture sensor is used to test the soil for all climatic conditions and the results are interpreted successfully. The moisture output reading under at different weather conditions is taken and updated. Wi-Fi is used to achieve wireless transmission. The values of soil moisture sensors purely depend on the resistivity of the soil. The value of the sensor at beginning of the wet condition is 0. The sensed value is sent to the microcontroller through Node MCU the and motor pump gets OFF in this condition. The maximum threshold value upon dry soil is1023. When the sensed value by the sensor reaches the threshold value, the microcontroller trigger the relay the and motor gets ON. When a sufficient amount of water is supplied to plants, the motor pump is turned ON and is turned OFF automatically.

4) PROBLEM STATEMEN:-

To design an agriculture robot to minimize the labor of farmers in addition to increasing the speed and accuracy of the work. Skilled labour are difficult to find. Dependency on Labour is high hence labor is expensive. Probability of frequent errors is more Difficulty in plant detection.

5) METHODOLOGY:-

This project has great future scope. In future we can fully automate the agriculture machines by automatically placing & removing the components which are needed. As the innovation is growing up, it very well may be executed in the agribusiness as well. The utilization of IOT in horticulture gives answer for every one of the issues looked in the customary agribusiness strategy. Controlling the field condition is a tedious task. By the use of wireless system in these field of agriculture various issues will be solved. Due to the introduction of agricultural robots,and automation there would be less labour required and an individual can plan and implement the operations of the farm by himself without depending on the availability of labour.

6) SYSTEM ARCHITECTURE OVERVIEW:-

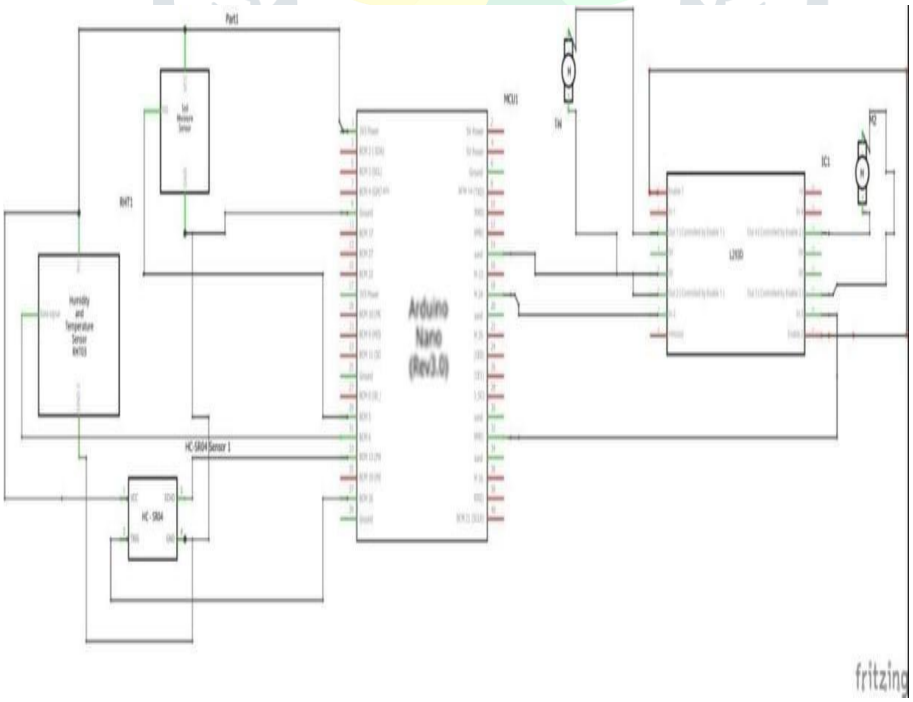
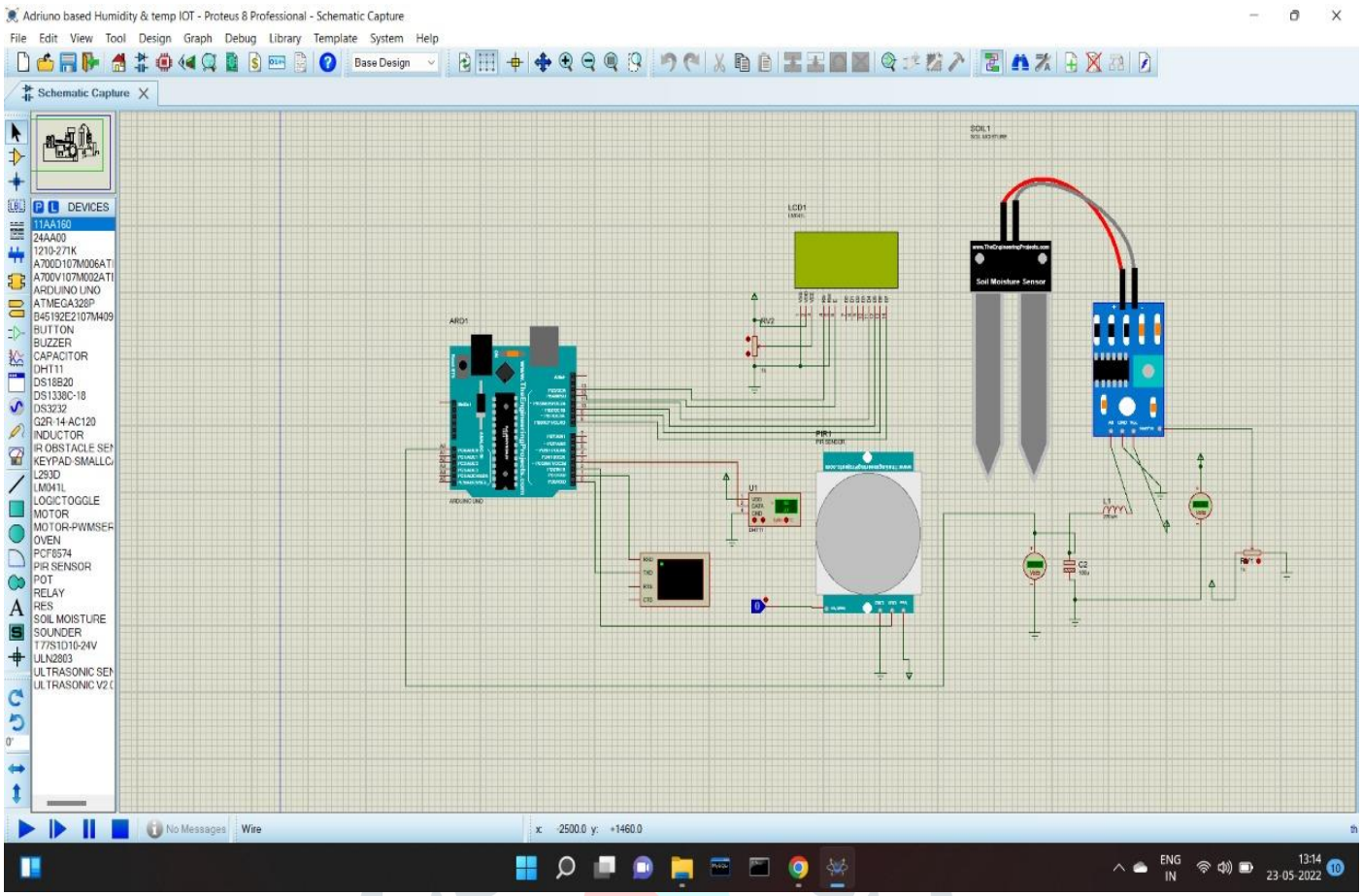
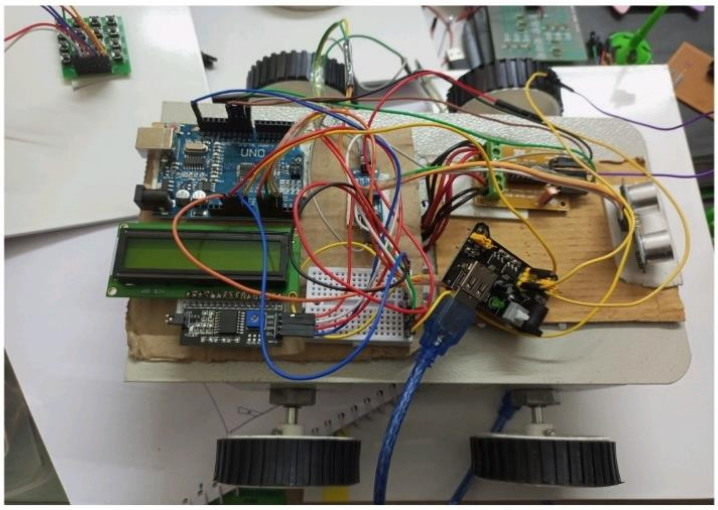


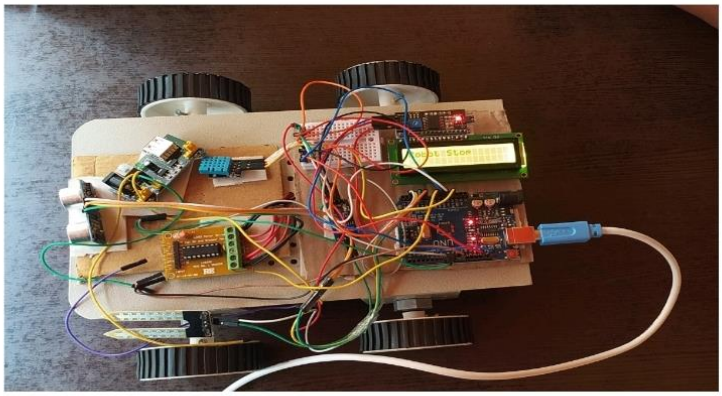
Fig.1 Block Diagram

7) CIRCUIT DIAGRAM:-



8) RESULT AND IMAGES:-





9) CONCLUSION AND FUTURE SCOPE:-

CONCLUSION:-

Our project, "Agribot", can be implemented in various fields such as agricultural, horticultural plants, nurseries,gardens,research centre or shade-net plants.

Agribot checks the soil moisture level of a certain plant, detects if it needs to be watered or not. Microcontroller checks the soil moisture level and gives the required output. If the soil moisture is below 20% or the set standard criteria, relay turns on. Soil moisture sensor again checks the moisture level of the sensor. If satisfied output is observed then the robot moves forward to the next target plant.If we look at the large scale applications,high sensitivity sensors can be implemented for large areas of agricultural and other fields. Along with irrigation, the same unit cam be used for spraying insecticides, pesticides and fertilizers proving to be a multi-tasking system. We have added precision sensors like temperature sensor to enable the system to record atmospheric temperature and decide if a plant needs to be watered due to presence of high humidity in the air. Future hardware improvements can automate the entire system of growing, maintaining and protecting a particular plant/crop and an entire field This will prove very helpful to the veteran farmers as well as new comers who find it difficult to find success in farming. Agribot will also reduce the stress in farmers by eliminating a core issue of find suitable labour according to the plants grown.

FUTURE SCOPE:-

It has more specific mechanisms can be developed. It has manual Control can be provided using Wi-Fi or Bluetooth.It has plant disease detection is possible.It has been precision can be improved.Its design can be optimized.It can be integrated with IOT to completely remove human interaction
Sustainable power supply systems can be integrated into the system itself.

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