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AGRICULTURE ROBOT

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Abstract:- In this project, Arduino uses soil moisture sensor and L293D module to water plants and automate soil moisture sensing. This idea is one type of automatic irrigation system that senses the moisture content of the soil and automatically switches the pump when the power is on. The correct use of agricultural robots is necessary, because the main reason is that the lack of rain water leads to insufficient land reserve water, and the large amount of water use leads to a lot of water wastage. India is a big agricultural country. In the past, the Indian people relied entirely on farming. Agriculture is a backbone of employment of Indians and has huge impact on the economy of the country. Watering plants in arid areas becomes difficult, so automatic watering of plants is required and remote processing by farmers is required.The aim of the implementation of this is to reduce water usage and automatic watering to plants can be used to save time of farmers The aim of the implementation this project was to show that the automatic watering to plant can be using to reduce use of water as well as to save your time

Keywords: - *Automatic Watering System, Arduino board, sensors, relay, motor, Internet of things*

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I INTRODUCTION

In this project, Arduino uses soil moisture sensor and L293D module to water plants and automate soil moisture sensing. This idea is one type of automatic irrigation system that senses the moisture content of the soil and automatically switches the pump when the power is on. A proper use agriculture robot is very necessary because the main reason is the shortage of land reserved water due to the lack of rain, continuous use of water as a result large amounts of water go waste. For this reason, we use this automatic plant watering and soil moisture monitoring system and this system is very useful in all climatic conditions. India is a big agricultural country. Most of our people rely entirely on farming. Agriculture is a backbone of employment of nearly all Indians and has huge impact on the economy of the country. In arid areas, watering plants becomes very difficult, so it needs to be automated to properly water the plants, and time can be saved by watering the plants remotely. farmer. When the soil dries, the pump will start watering. The aim of the implementation of this is to reduce water usage and automatic The aim of the implementation this project was to demonstrate that the automatic watering to plant can be used to reduce use of water as well as to save your time.

II PROBLEM STATEMENT

To design cost effective agriculture robot which can perform automatic watering to plants when needs?

I. Working principle

An automatic plant watering system using Arduino microcontroller UNO is programmed. It gives the interrupt signals to the motor via the motor driver module. Soil sensor is connected to the Arduino board which senses the moisture content present in the soil. Whenever the soil moisture content values goes down, the sensor senses the humidity change, giving signal to the microcontroller so that the pump (motor) can be activated. The circuit comprises a soil moisture sensor, an arduino UNO board a 5V motor pump, a Motor driver L293D (IC1), motor driver IC to run the water pump. You can power the Arduino board using a 5V to 9V wall wart or plug- in adaptor or solar panel. you need a 5V to 9v battery for the pump motor. This concept can be used for automatic plant watering system

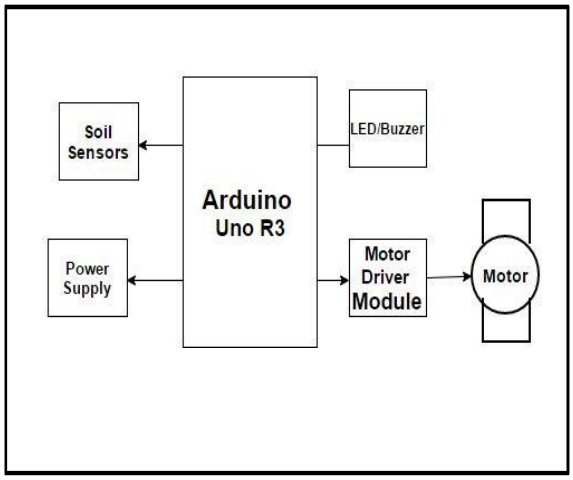
II. Methodology

This agriculture robot can move between two rows of crops. There will be a soil moisture sensor which will sence the

moisture in soil and if soil is dry then it will supply water to plants according to need

III BLOCK DIAGRAM

1.Block diagram



Soil moisture sensor-

Soil moisture sensors measure the humidity of water content in soil. Since the direct hydrometric measuring of free soil wetness needs removing, drying, and coefficient of a sample, soil wetness sensors live the meter water content indirectly by victimization another property of the soil, like electrical phenomenon, non conductor constant, or interaction with neutrons, as a proxy for the wetness content

Power supply- a power supply or PSU (power supply unit) is a hardware component of a computer that supplies all other components with power. The power supply converts a 110-115 or 220-230 volt AC (alternating current) into a steady low-voltage DC (direct current) usable by the computer and rated by the number of watts it generates.

Arduino

an Arduino board is an open source platform used for building electronics projects. Arduino is a programmable circuit's board which we can write a program based on your projects. Arduino program will be uploading with IDE (Integrated Development Environment) software that runs on your computer, it is used to write and upload computer code to the Arduino physical board. Arduino language is merely a set of C/C++ functions that can be called from your code.

Motor driver module

L293D is a commonplace Motor driver or Motor Driver IC which permits DC engine to drive on either heading. L293D is a 16-pin IC which can control a lot of two DC engines at the same time toward any path. It implies that we can control in excess of two DC engine with a solitary L293D IC at same time.

Motor 5 v

An AC engine is an electrical engine driven by Associate in exchanging flow (AC). In figure: 6, The AC engine ordinarily comprises of two essential parts, an open air fixed stator curl having loops outfitted with AC to flexibly a turning transition, and an indoor rotor associated with the yield shaft producing a second pivoting motion. The rotor transition could likewise be made by perpetual magnets, hesitance striking, or DC or AC electrical windings.

2. Hardware Requirements

Moisture sensor, power supply, motor driver, led,Arduino

3.Software Requirement –

Keil compiler,

4. Future scope –

- This agriculture robot can be interfaced with Arduino and if the moisture of soil is low then automatic water supply to plant can be supplied as well as we can also do automatic sprinkle of pestiside to plants.
- This project is basically dependent on the output of the sensing arrangement. Whenever there is need of excess water in the desired field then it will not be possible by using sensing arrangement technology.

IV CONCLUSIONS

. Thus the "Agriculture robot" has been Tested and designed successfully. It has been developed by integrated features of all the hardware components used The Arduino Based Automatic Plant Watering System has been designed and tested successfully. The system has been tested to function automatically. The moisture sensors measure the moisture level (water content) of the different plants. If the moisture level is goes to be below the desired and limited level, the moisture sensor sends the signal to the Arduino board which triggers the Water Pump to turn ON and supply the water to respective plant using the Rotating Platform/Sprinkler. When the desired moisture level is reached, the system halts on it's own and the water Pump is turned OFF. Thus, the functionality of the entire system has been tested thoroughly and it is said to function successfully

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