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AUTOMATICWATERINGSYSTEM OF PLANTSSPRINKLERUSINGA SENSOR

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ABSTRACT

Presently in the world Farmers are facing the water problem and yield problem, But in olden days the water is more because more rivers are flowing and none of them are not suffering by the water and they are happy but as of now farmers are facing the water problem, for this reason, we are implementing the automatic irrigation system, as of now no one is implementing this system, So by using the three sensors like Moisture, Humidity and Raindrop sensors we can prevent the water problem. By using a raindrop sensor we can store a water in a tank by using this water we can grow the plants.

Keywords: ***Farmer, Irrigation, Raindrop Sensor, Moisture Sensor, Humidity Sensor***

I INTRODUCTION

In the world of advanced electronics, the life of human beings should be simpler hence to make life simpler and convenient, we made an Automatic Plant Irrigation System. A model of controlling irrigation facilities to help millions of people. this modulosensor technology with a microcontroller to make a smart switching device. The model shows the basic switching mechanism of water motor using sensors from any part of the field by sensing the moisture present in the soil. It is a simple system, using Arduino to automatic the irrigation and water in go fall crops. This system does the control of soil moisture. Humidity and raining, doing indications via LEDs, In case of dry soil, it will activate automatically the pumping of water for plants.

II TYPES OF SENSORS

Our project consists of mainly three sensors namely soil moisture sensors. Humidity sensor and Raindrop sensor. The automatic irrigation system is a prototype for a system of irrigation or watering automatically based on the Arduino microcontroller integrated with proximity sensors [1] (moisture, humidity, raindrop). Here we are using a solenoid valve, relay, and sprinkler.

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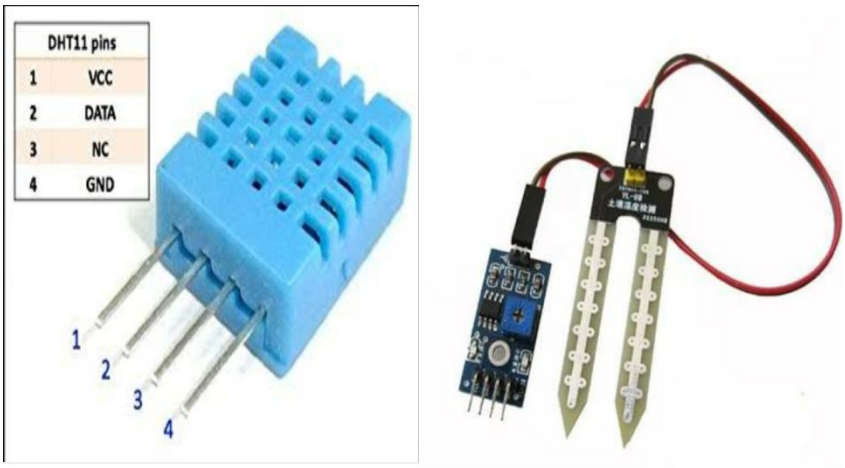

Fig 1: (a) DH11-Humidity sensor (left) (b) Moisture sensor (right)

2.1. MECHANISM OF SENSORS

- Soil moisture sensor measures the water content in the soil. A soil measures probes made up of multiple soil moisture sensors.
- Humidity sensor measures the temperature
- A rain sensor module is an easy tool for rain detection. It can be used as a switch when the raindrop falls through the raining board and for measuring rainfall intensity. The module features, a rain board and the control board that is separate for more convenience, power indicator LEDs and an adjustable sensitivity through a potentiometer.
- Soil moisture sensor has low power consumption and high sensitivity. (Sensitivity should not be confused with accuracy).

2.2. BASIC MEASUREMENTS AND PARAMETERS

DH11 (Humidity sensor) temperature range is from 0-50℃ with ±2℃ accuracy and also the humidity range is from 20-80% with 5% accuracyi.e

Temperature Range: 0-50℃ with ±2℃ accuracy

Humidity Range: 20-80%/±5%

Sampling Rate: 1Hz

Operating Voltage: 3-5V

Soil moisture sensor at the range of +/-1200mv, i.e.

Measurement Range: ±1200 0-2.5V

Operating range: -40to+80℃

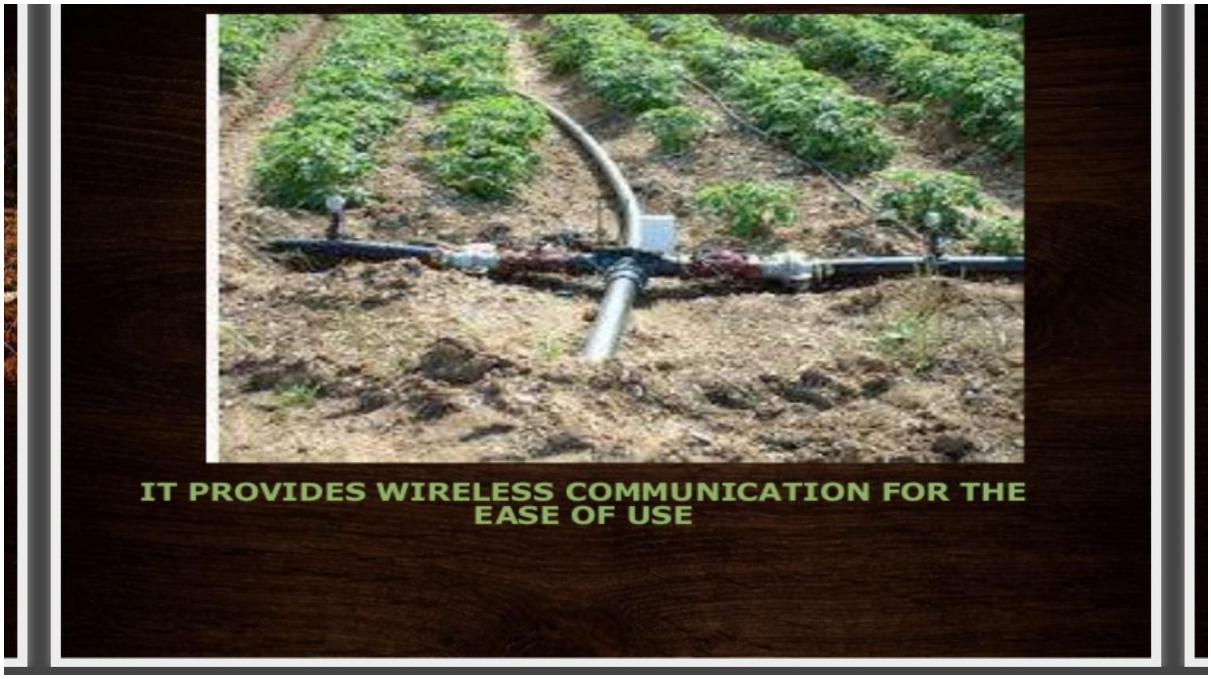

Fig 2: arrangement of the automatic watering system [2]

III WORKING PRINCIPLE OF SENSORS

Firstly, here we are using a soil moisture sensor it will measure the moisture levels and resistivity of a soil. The moisture sensor is attached to the root of the plants. It Senses the requirement of a water and also it will measure whether water is required are not. Secondly the humidity sensors hows the surrounding temperature. Finally, the raindrop sensor will display the weather the rain is falling fully or normally. The alarm starts beeping when the rain comes. Automatically off when the rain stops, and also a LED is ON when moisture content reaches a maximum point. By using a Raindrop sensor we can store a water in a tank, by using this water we try to grow the plants. By using a really we can run the motor automatically and also by using a solenoid valve the flow of water is measured.

Application

- It is useful in agricultural irrigation fields.
- It is also useful for gardens.
- This irrigation system is very efficient for all crops.
- It works according to the soil condition.

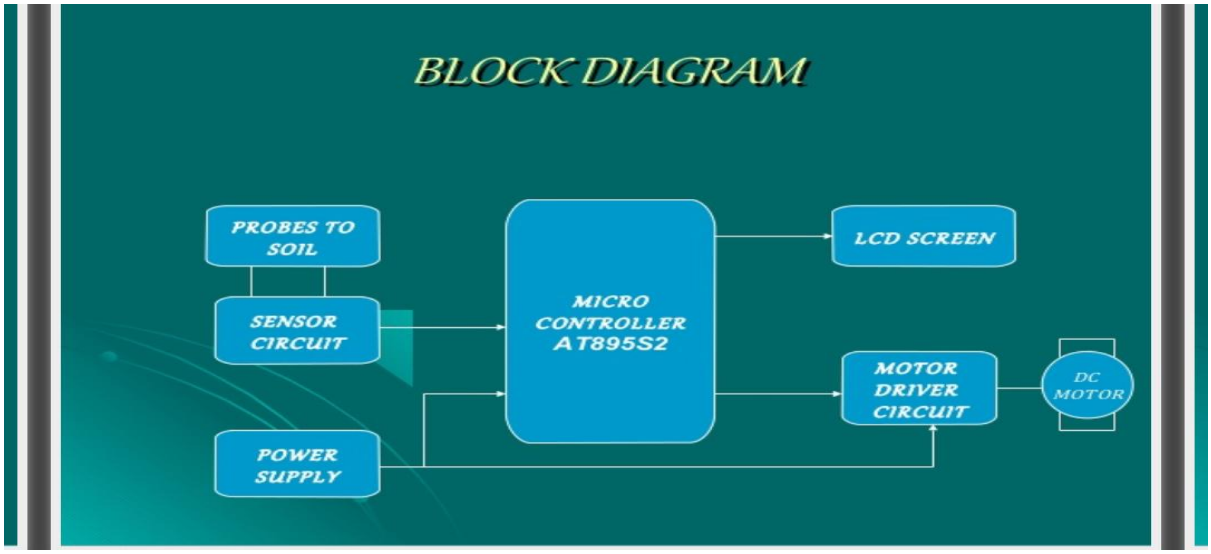

Fig 3: Block diagram of the proposed system

The Fig 4 shows that the problems facing by farmers and nowadays there is no proper water in agricultural fields when compared to 10 years ago .so we are using sensors to overcome this water problem and we also try to store the land water.

IV CONCLUSION

In present days especially farmers are facing major problems in watering their agricultural fields .it's because they have no proper idea about when the power is available so that they can pump water. Even after then they need to wait until the field is properly watered, which makes them stop other activities. Here is an idea that helps not only to the farmers but also for watering gardens, which senses soil moisture and switches the valve automatically when power ON.

Fig 4: Proposed system arrangement

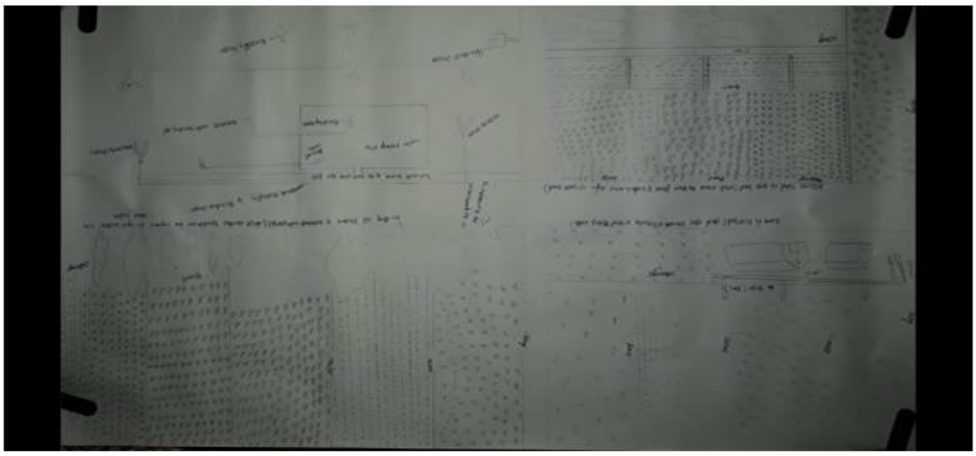

Fig 5: Hadonahalli Madhu farmhouse, we are implementing the sprinkler system but not an automatic watering system

Fig 6: The First Step When Plants Are Starts To Grow In A Farmhouse

Fig7: a carrot which is ready to marketing and the yield is also more and the requirement of pesticides is also less

V ACKNOWLEDGEMENT

Most importantly, none of this could have happened without and inspire of Mr.Srinivasulu, Assistant professor, ECE department who offered their encouragement through phone calls and classes every week- despite our own limited devotion to correspondence. With the own brand of humour, he has been kind and supportive of us over the lasts ever months. To my teachers- it would be an understatement to say that, as a student, we have experienced some up and downs in the past few months. This dissertation stands as a test agent for their encouragement.

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