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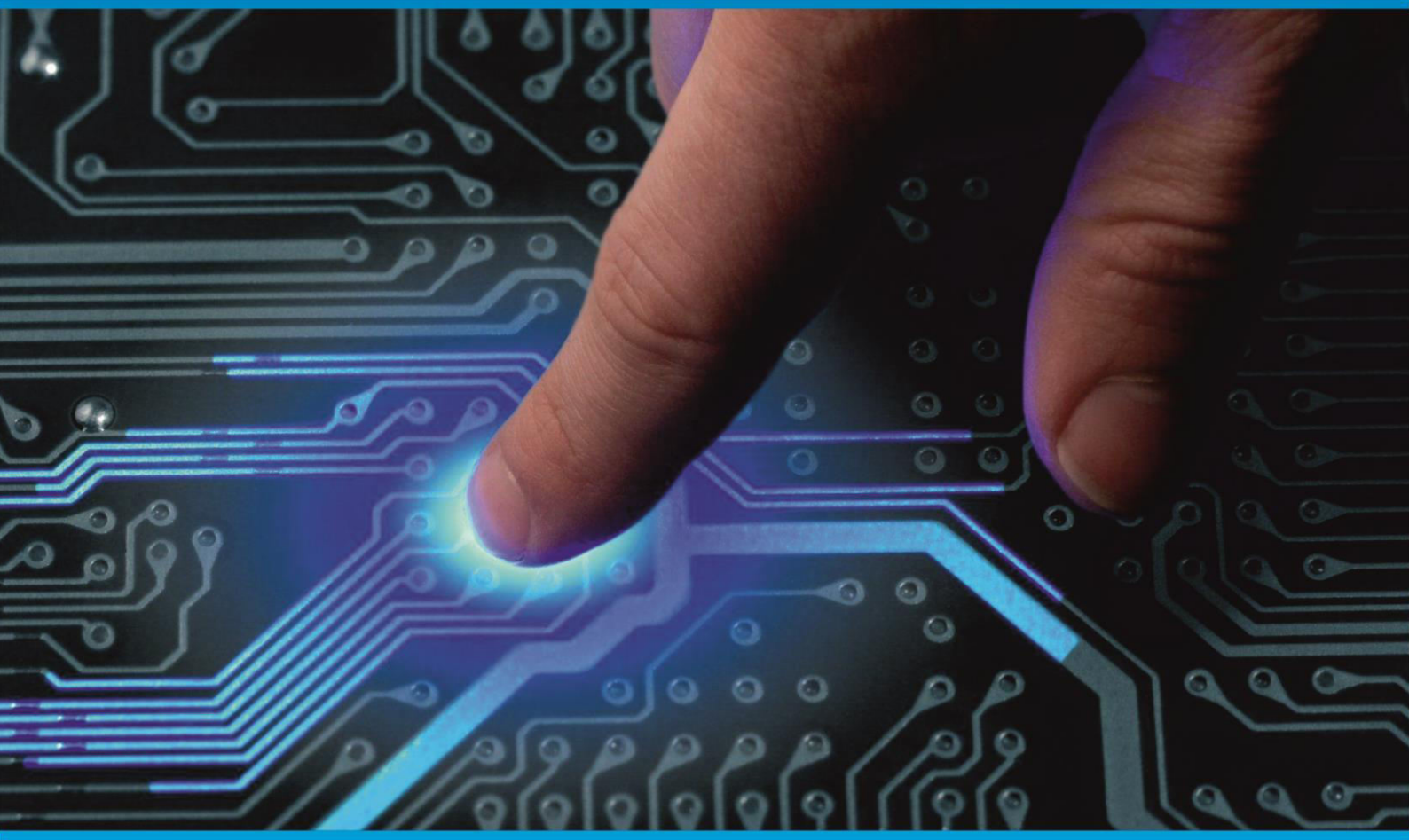

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IOT Based Plant Irrigation System

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ABSTRACT: In the existing era, ingredients shortage and water shortage takes location due to the increase in population.so to maintain away from this hassle we have to promote the agriculture sector.But water wastage is more in this area in the structure of water whilst watering the agriculture fields by way of irrigation. Therefore an automatic plant irrigation machine has to be designed for the ideal water furnish in the fields.The automated Irrigation System senses the moisture content it will measure by examining the temperature and humidity of the soil.The soil fertility will be measured with the aid of the usage of NPK nitrogen phosphorus potassium nutrient of the soil by way of the use of optical transducer.with the help of WIFI module science drip irrigation can be proceed.

KEYWORDS: Irrigation, optical transducer ,WIFI module

I. INTROCUCTION

In India about sixty-four percentage of the complete populace is established on agriculture for their live food.The agriculture activities in the world are intently managed by means of physical factors.Indian agriculture is not an exception for this, nowadays India is dealing with two foremost trouble involved with agriculture.The first is assembly the growing demand of meals and other is supplying Argo merchandise for ever increasing populace and the second in uneven improvement of agriculture and altering sample of agriculture land use.India tried to be self-sufficient in agriculture through the year plans.

To enrich the fertility of the soil and identifying the temperature and humidity of the soil, retaining the irrigation procedure furnish supplied with the aid of water and pesticides each time required this IOT primarily based automated technique will assist to satisfy all these components and furnish higher boom in agriculture.

II. COMPONRNTS USED

1. **Atmega8 Integrated sensor -** To collect the input signals that measures the moisture content of the soil through sensing arrangements and it provides required irrigation irrigation to the field.
2. **TEMPERATURE SENSOR DHT11 & MOISTURE SENSOR–**It is a moisture holding substance with the electrode applied to the surface.
3. **INTERNET PROTOCOL ADDRESS 192.168.43.151 –** for transmission and communication that is used to print the values of sensor in local server

III. WORKING MODEL

The proposed design is used to find soil nutrients deficiency in an effective manner by analyzing the pH value of soil using an Atmega8 integrated sensor. In addition, Temperature Sensor and Moisture Sensor are connected with the Node microcontroller unit. All three sensors give input to the Node microcontroller unit. The node microcontroller unit receives the data from the three sensors. each and every component are connected with the Node Micro Controller Unit. DHT11 Temperature sensor isconnected with the Node Micro Controller Unit's D0 Pin and Moisture SensorConnected with the amplifier to enhance the performance of the moisture sensor and amplifier console is connected with the Node Micro Controller Unit's D1Pin and pH sensor is connected with the RX Pin. Because pH sensor contains aprebuilt ATMega8A sensor to Find pH value. So that, TX Pin of the pH sensorisdirectly connected with the RX Node MCU to get Serial Communication from ATMega8A.

ATMega8A has compatibility to read light density and temperature along with the pH sensing, but we need pH value alone, while transmitting through the serial communication Via RX, TX this is not possible to separate the pH value.So that all values such as temperature and light density are sent through theserial communication along with pH value and then the pH value is separated from other values in Node Micro Controller Unit. And Node Micro Controller Unit is connected with the TCP/IP Protocols. Transmission and Communication and Internet Protocols are used to print the

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values of the sensor in local server given ESP Internet Protocol Address – 192.168.43.151 and it uses a 80'th port for transmission as per node controller unit IP communication guidelines.

IV. RESULTS

The expected outcomes of the project are to enrich the fertility of the soil and identifying the temperature and humidity of the soil and maintaining the irrigation provided by water and pesticides. Whenever required this IOT based automatic irrigation process will help to satisfy all these aspects and provide better growth in agriculture.
The study shows that all the plant disease detection works mainly on pest based issues.In this project we have brought a electronic based solutions for soil nutrient related problems

In our project main three aspects are checked a) Moisture level and humidity content
b) Measuring soil fertility
c) Drip irrigation
By checking the above will be the expected output ofour project.

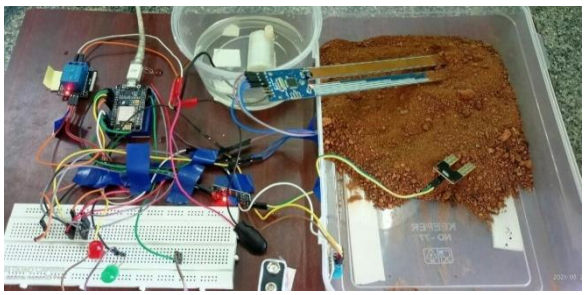

Fig 1.1 IOT BASED PLANT IRRIGATION MODEL

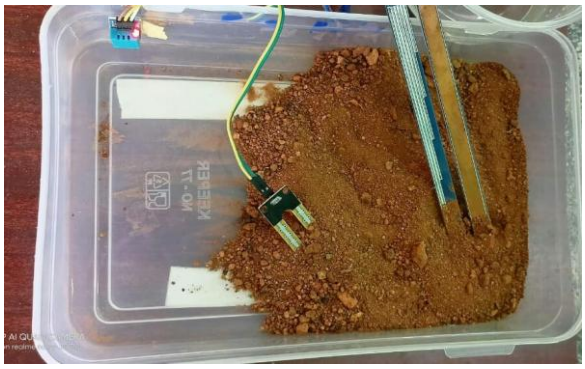

Fig 1.2 COMBINED MOISTURE SENSOR, TEMPERATURE SENSOR, Ph SENSOR

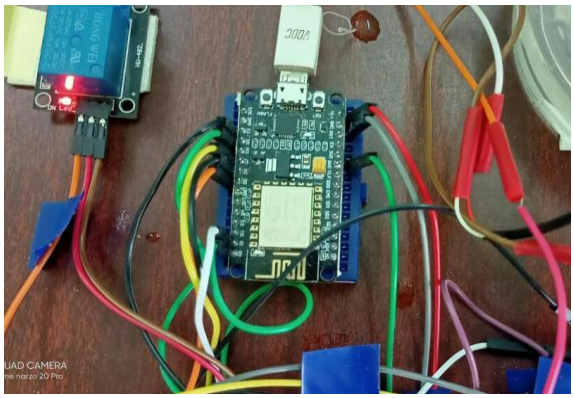

Fig 1.3 NODE MCU – ESP2866

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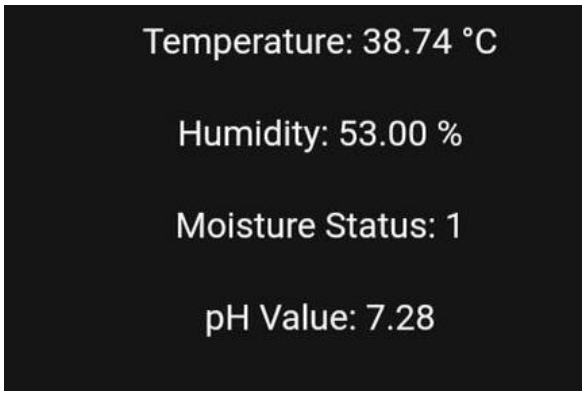

Fig 1.4 Expected output

ADVANTAGES OF THE PROJECT:

Smart irrigation can optimize water level can check various factors such as fertility of the soil humidity of the soil moisture and weather predictions.
All this is done by wireless moisture sensors.
Saves water by minimizing evaporation.
Nutrient losses from leaching is reduced.
No land grading is required.
All the processes are fully automated.
This project is of high efficiency and great benefits to the farmers.
Installation cost and maintenance is affordable .
It also controls the amount of water delivered to the plants.
All the aspects are well monitored and managed automatically by the sensors.

V. CONCLUSION

This IOT based irrigation system is going to be the future for modern agriculture development .it enhances by developing this system for large acres of land. This can be integrated to check the quality and growth of crop in soil. The microcontrollers and sensors are successfully interfaced and wireless communication is achieved between various nodes.All Observations and Experimental tests prove that this project is a complete solution to field activities and irrigation problems. Implementation of such a system in the field can definitely help to improve the yield of the crops and overall production.It will bring a drastic change in the upcoming years.

REFERENCES

1 .M. K. Roberts, “Simulation and implementation design of multi-mode decoder for WiMAX and WLAN applications,” Measurement, vol. 131, pp. 28–34, Jan. 2019.
2 . L. J. Ahmed, “Discrete Shearlet Transform Based Speckle Noise Removal in Ultrasound Images,” National Academy Science Letters, vol. 41, no. 2, pp. 91–95, Apr. 2018.
3 . C. Priya, C. Ramya, S. Dhanasekar,"Aiding Navigation for Visually Impaired Persons", Test Engineering and Managemant,82,pp.10985-10988, February 2020
4 .J.Dhanasekar,"Multimodal Biometric System Based on Dorsal and Palm Vein Images",Journal of Xidian University, vol.14,no.07,pp.1498-1503,2020

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