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AGRICULTURE AND MONITORING AGRICULTURE FIELD USING IOT

[1]D.Pooja, [2] Dr.J.Mohana

Abstract-- *IoT looks like the future of connectivity & IT. IoT is now used in all fields such as smart home, intelligent cities etc. IoT traffic control The IoT deployment area is wide and can be deployed in any country. Suggested work deals with IoT implementation in agriculture. IoT helps to improve crop production by better management of resources, cost-effective cultivation, better quality and quantity, monitoring of crops and fields, etc. In the proposed model, the IoT sensors used includes the air temperature sensor, the ph.-sensor of the earth, the moisture sensor, the water volume sensor, etc. The population is increasing and the land is decreasing on agricultural land due to different factors, such as industrialization, consumer markets and residential areas, and we need to increase production to feed these billions, and this can be done in agriculture through IoT. We need technological progress to get rid of these barriers and make agriculture more competitive, smart and comfortable for farmers.*

Keywords--*Arduino UNO, Power Supply, Soil, IoT.*

I INTRODUCTION

Intelligent agriculture is the implementation of a variety of systems and technologies such as the Internet, cloud and IoT. As the population is increasing in the world today and is expected to reach about 9.7 billion by 2050, we need to increase food production in order to feed these billion people. Population is increasing, while the agricultural land is decreasing because of different reasons, such as industrialisation, the trade markets and the development of residential properties on these agricultural lands and we must increase production in order to supply those trillions and this can be achieved through IoT in the farming industry. Intelligent agriculture is also referred to be precision agriculture.

In the present scenario, the farmers are not enjoying the fruit of the farm due to different factors, such as insect attacks, vegetable disease, inadequate knowledge of the necessary crop supplements, and other obstacles. We need technological advancement in order to remove certain barriers and make farming more competitive, intelligent and comfortable for farmers. Traditional agriculture is very different in all respects from each other. Monoculture farming uses traditional and conventional farming methods and use those old tools for work and growing seasonal crops without Smart Faming uses modern technology such as smart connected devices, IoT devices, web, community talking peasants, timing assessment of several factors such as best plants to rise, how often minerals

[1] *Department of Electronics and Communication Engineering Saveethaschool of engineering, SIMATS Chennai, India,*

[2] *Department of Electronics and Communication Engineering Saveetha school of engineering, SIMATS Chennai, India, Email:mohana@saveetha.com*

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are required, land quality, water resource quality control etc.Smart Livestock simplifies livestock, and so much more.

II LITERATURE SURVEY

In[1] Mr. PinnagdiVenkateswarRao , V. Arvinth , K. Anurag , E. Arun&M. Arun David ,This is why farmers who work on farms depend solely on the rain and the bore wells to irrigate their land. This is the project. In the recent times the farmers have used irrigation technology by manually regulating the water pump ON / OFF, which irrigates the soil regularly.

In[2] Divakar K M ,Arcane , Sushma K R Farming is the bedrock of the Indian market, and plays a key role in the growth of the country.This paper proposes a new methodology for intelligent agriculture through the relation of an intelligent sensing device with wireless communication technology. We focus on calculating physical parameters, such as soil moisture, nutrient content and soil pH, which play a key role in the farming. This paper illustrates the detailed modeling and methods of the intelligent farming system.

In [3]Ranjitha The most important breakthrough for the people of India is sensor networks and their use for farm monitoring. Since farming is the principal source of food, production must be improved by reducing costs, time and human effort. The parameters including temperature, humidity and fire can be defined manually in the current farming system. The soil moisture detector is used to determine the precipitation content, and the water pump is automatically turned on using a relief if the soil moisture is less in the field. The DHT11 Unit measures temperature and moisture. For architecture, in which a single (known as master) system governs single or multiple (known as slaves), a master-slave communication protocol is used.

III EXISTING SYSTEM

In In the existing system, only sensors and microcontrollers power the mold house. The following indicators are the temperature detector and the humidity detector. The sensors sense the precipitation content and drive the water motor. The temperature sensor detects the temperature in the form house and drives the water engine.

A. Disadvantages

- The use of a long testing process is expected for Diseases.
- Cultivation of vegetable will not be updated through online
- The insect damage on the leaf will not be detected.
- Approximate prediction is difficult to make of greenhouse leaf disease.

IV PROPOSED SYSTEM

The proposed model is a basic IoT sensor design, which collects & transmits the information through the Wi-Fi network to the server. Soil pH sensor is the tool that detects soil pH as we have to maintain a good pH for a

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specific form of plant. Sensor Soil Humidity is similar to a soil pH sensor. The gathered information is then sent back to the hub and hub, so that the correct action is taken such as when moisture is lower than necessary so sprinkling pumps are used to hydrate the soil. Motion detector around the field may be used. Such sensors detect any irregular movement around and send data to the server and then run the computer.

A. Advantages

- Human work is reduced.
- The information is automatically updated by IOT modem. There is no need for monitoring.
- Wastage of water can be reduced.
- It makes framing easy.
- Cost effective.
- It reduces labor cost and improves crop yielding .
- Better production can be achieved.

V BLOCK DIAGRAM

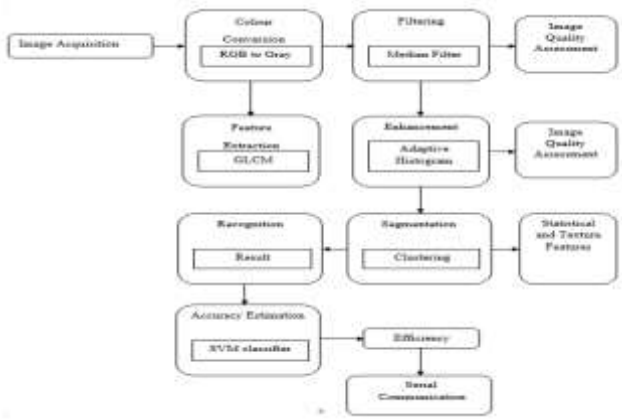

Figure 1: Shows the Block Diagram of Matlab unit

Figure 2: Shows Block Diagram of the Embedded Unit

VI MODULAR DESCRIPTION

A. POWER SOURCE UNIT

Supply of electricity takes place from a standard power source. A device or unit that supplies electric power or other power for an output load or load collection is called a power supply unit or PSU. The word is most often used for energy supplies, less often for mechanical supplies and not often for others

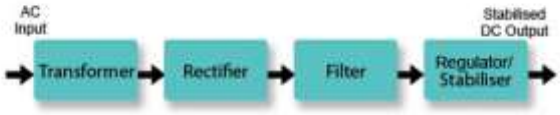

Figure 3: Shows the Power Supply Unit

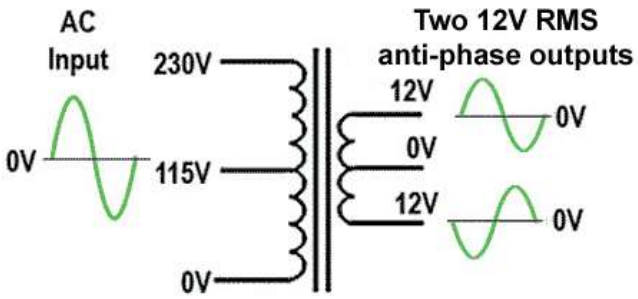

Figure 4: Step down transformer

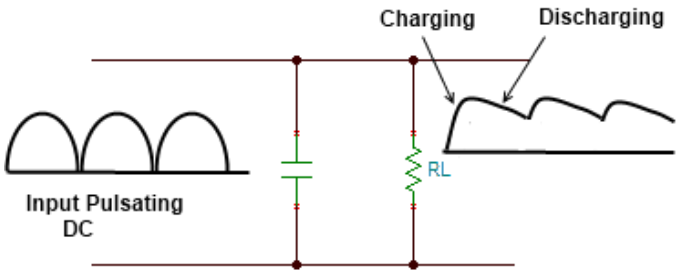

Figure 5: Filter circuit

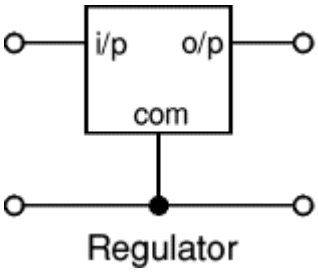

Figure 6: Regulator circuit

B. ARDUINO UNO

An Arduino UNO is an embedded microcontroller system that can be used directly by buying the hardware components from a server. The Arduino Uno is an integrated system-based ATmega328-based micro-control module. There are twenty pins. 14 digital output and input pins and six analog inputs are included. It contains everything you need to support the micro-controller set; just connect it to your PC using a Universal Serial Bus cable or power it with a Current-to-Direct adapter

Figure 7: Arduino UNO

C. RELAY

It can be called an electro-magnetic relay, surrounded by a wire coil, with a heart of iron. The armature is mechanically attached to the jacket with the contacts of the switching point. This with the help of a spring are kept safely

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Figure 8: Relay

D. DC Motor

An electrical DC engine is a mechanical electronic DC conversion unit. The most common styles are based on magnetic field effects.

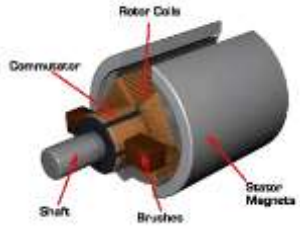

Figure 9: DC motor

E. LED

LED is the material chip impregnated with residue to make a p-n link or doped with LED. Like with many diodes, the current passes to the n-side from cathode p-side or anode rapidly. Transfer of charge – electrons and pants– move into the junction from electrodes with different voltages. Once an atom enters a hole, it reduces its energy, and releases energy as a photon

Figure 10: LED

F. SOIL MOISTURE SENSOR

Soil moisture sensors determine the water content in the soil. Multiple soil moisture sensors are made from a soil moisture sensor. The Soil Moisture Sensor may be used to measure moisture levels or to determine whether there is enough water around the sensor and to enable the crops in your greenhouse to enrich. The sensor can show HIGH / LOW logic when the moisture is higher / lower than the threshold set by the potentiometer.

Figure 11: Soil moisture sensor

G. Pir

An electronic device that detects infrared (IR) light from objects in its field of view is a passive infrared sensors. A PIR sensor is a device. In building PIR-based motion detectors, PIR sensors are often used. Apparent movement is observed when an IR source lies with a person.

Figure 12: PIR

H. PH

The calculation of pH is the determination of aqueous solution's concentration of hydrogen ions. A precise pH calculation, including the acidity of a solution and the degree of a reaction in the solution, can determine many important features of a solution. Various chemical processes and properties, such as reaction speed and compound solubility, can also depend significantly on a solution's pH. It is essential to have accurate and accurate pH measuring for applications ranging from industrial to biological processes

I. BUZZER

A buzzer is an audio signaling device that is mechanical, electromechanical ,magnetic ,electromagnetic, electroacoustic or piezoelectric. An electric buzzer can be powered by an electronic oscillating circuit or any other type of audio signal. You can press the button by clicking, beep or ringing.

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Figure 13: PIR

VII RESULTS AND DISCUSSION

In fig 19, it shows the Hardware Implementation of the proposed system.

VIII CONCLUSSION

In this proposed system, the monitoring of farm management is done by means of WSN and using a controller with the use of various sensors. As an expansion of our research, it is recommended to refine the selected features, and the key features can be compared and analyzed using different techniques.

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