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Agricultural Data Transfer using IoT Technology

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Abstract: We know that the agricultural sector requires manual work for sure due to various reasons. Nowadays farmers are facing many problems to grow up the fruits and vegetables for us. This is because it is very difficult to know the conditions of land such as humidity, soil moisture and many more parameters without the physical presence of farmers at the agricultural farm. During the month of April, May; they find it very difficult to perform agricultural activities as the land dries within a certain period of time. So, here we are implementing a project which will give the whole data about the farm cultivation. By the help of these project farmers gets much relief in farm cultivation and the growth of crops will be not affected by these conditions also the farmer will be able to view the sensor details using IOT

I. EXISTINGSYSTEM

In the time of summer season it is very necessary to maintain the humidity and soil moisture. But sometimes is not understandable by the farmers. So due to this the crops which is growing gets dead or unhealthy. By this case the farmers faces much loss and many farmers suicide due to this loss.

II. INTRODUCTION

Internet of Things (IOT) term represents a general idea for the power of network devices to sense and collect information from the planet around USA, so share that information across the web wherever it is processed and used for numerous attention-grabbing. The IOT is comprised of smart machines interacting and communicating with other machines, objects, environments and infrastructures.

Now a day's every persons are connected with one another mistreatment ample communication method.

Where most popular communication way is internet so in another word we can say internet which connect peoples. Today, we have a tendency to area unit seeing the electrification of the planet around USA . Almost any manufactured good now includes associate degree embedded processor (typically a microcontroller, or MCU), in conjunction with user interfaces, that can add programmability and deterministic "command and control" functionality. The electrification of the world and the generality of embedded process area unit the keys to creating objects "smart." Your recent toaster that mechanically controlled the color of your toast currently has associate degree MCU in it, and therefore the MCU controls the color of your Toast. The toaster completes its task more consistently and reliably, and because it is now a smart toaster, it has the ability to speak with you electronically mistreatment its touchpad or switches.

After a device becomes smart through the combination of embedded process, successive logical step is remote communication with the good device to help make life easier. For example, if I am the office, can I turn on my house lights for security reasons using my laptop or mobile phone? 1.2 Introduction on Smart Agricultural Agriculture, farming or husbandry is a vital occupation since the history of mankind is maintained.

The name agriculture represents all entities that came below the linear sequence of links of organic phenomenon for human beings. As human's area unit the neatest living species on this planet, so their smartness always provokes them to change and to innovate.

This agitating has LED to invention of wheel, advancements in living standards and Styles, languages, life defrayment methodologies and un-numerable additional achievements.

A. Related Work

In earlier have planned some services which will be provided via a sensible field. We looked into those services and located out the thanks to implement those services. In developing a smart campus that implements an e-card for various purposes such as access control and payments and the data generated is analyzed for the human behavior .Our good field additionally generates plenty information of knowledge and that we will implement an equivalent data analysis system to grasp human behavior at our field. By developed the architecture of a smart campus micro-grid .We will be mistreatment an equivalent design with completely different technologies. Authors have used ZigBee but we will be using the Wi-Fi and so on.

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Developed a sensible waste management system however the precise technologies weren't disclosed. We will be employing a raspberry pi, Wi-Fi and distance sensors .

The kind of good cards which will be enforced during a good field. We will be mistreatment chip based mostly cards delivered by MIFARE. By using Arduino mega board, ESP8266 modules and sensors to collect and analyses environment data .We will be mistreatment Raspberry pi, ESP8266 modules and similar sensors to collect the environment data which can later be processed .

Our raspberry pi's are operating as native sensors which is able to method information domestically and send them to the info over Wi-Fi routers .

A detector node employing a raspberry pi and numerous sensors. But this can be terribly valuable, so we tend are to mistreatment multiple ESP8266 modules with one Raspberry pi in a region during a field .This will reduce the costs as well as the power consumption .

In designed a home automation system mistreatment MQTT and ESP8266 modules .We will be mistreatment this analysis to develop a sensible field mistreatment MQTT, Raspberry pi and ESP8266 modules .In compared hypertext transfer protocol with MQTT and gave United States the rationale to use MQTT rather than hypertext transfer protocol.

B. Implementation

The reason for the 8051 microcontroller is that it interfaces every one of the parts related with the Development pack. Number of pins in this controller is 40. Each stick is relegated with specific segment of the unit for performing specific capacity. The edge estimation of the sensors is set in this LPC 2148 processor which is in charge of the programmed ON and OFF of the engine which is combined with the pump for directing water to the horticultural land.

The temperature limit esteem will be refreshed to server or framework, through IoT for each 1 minute from the incorporated advancement pack. LM35 temperature sensors utilize speaker at the accurate supporters outright temperature (estimated in Kelvin) into also Fahrenheit or Celsius rely leading it arrangements. The two resistors are adjusted in the production line to create an exceedingly exact temperature sensor.

The coordinated START Read the information Deployment of Sensor Is Temperature/the Humidity esteems in go Is the water esteems in run Motor on STOP NO YES Data server (IoT passage) circuit has various transistors in it - two in the center, a few in each intensifier, a few in the dependable flow source, and several in the bend give circuit.

Points can be set in the microcontroller if its goes above past 10 RH% conditions will be unusual generally dampness level will be in ordinary conditions.

The qualities can have refreshed to framework through IoT passage. The highlights of stickiness sensor are excellent linearity, low power utilization, wide estimation extend, fast reaction, against contamination, high dependability, elite value proportion. Water level pointer is utilized to quantify the water level in water system arrive. In the water level sensor esteem measure by utilizing scale level and it's speak to in cm.

On the off chance that the water level achieves the base of the metal bar it demonstrates unusual condition and the control will consequently turn ON, the engine. In the event that the water achieves the specific level the engine can be killing naturally. These statuses can be endlessly revived to the structure using IoT.

The Internet of things (IOT) would be the internetworking [8] connected with brute machinery, transit, architecture and varying things embedded with equipment, programming, sensors, actuators, and framework organize that engage these articles to gather and exchange data. These contraptions hoard critical data with the help of various existing advances and after that uninhibitedly stream the data between various devices.

III. PROPOSED SYSTEM

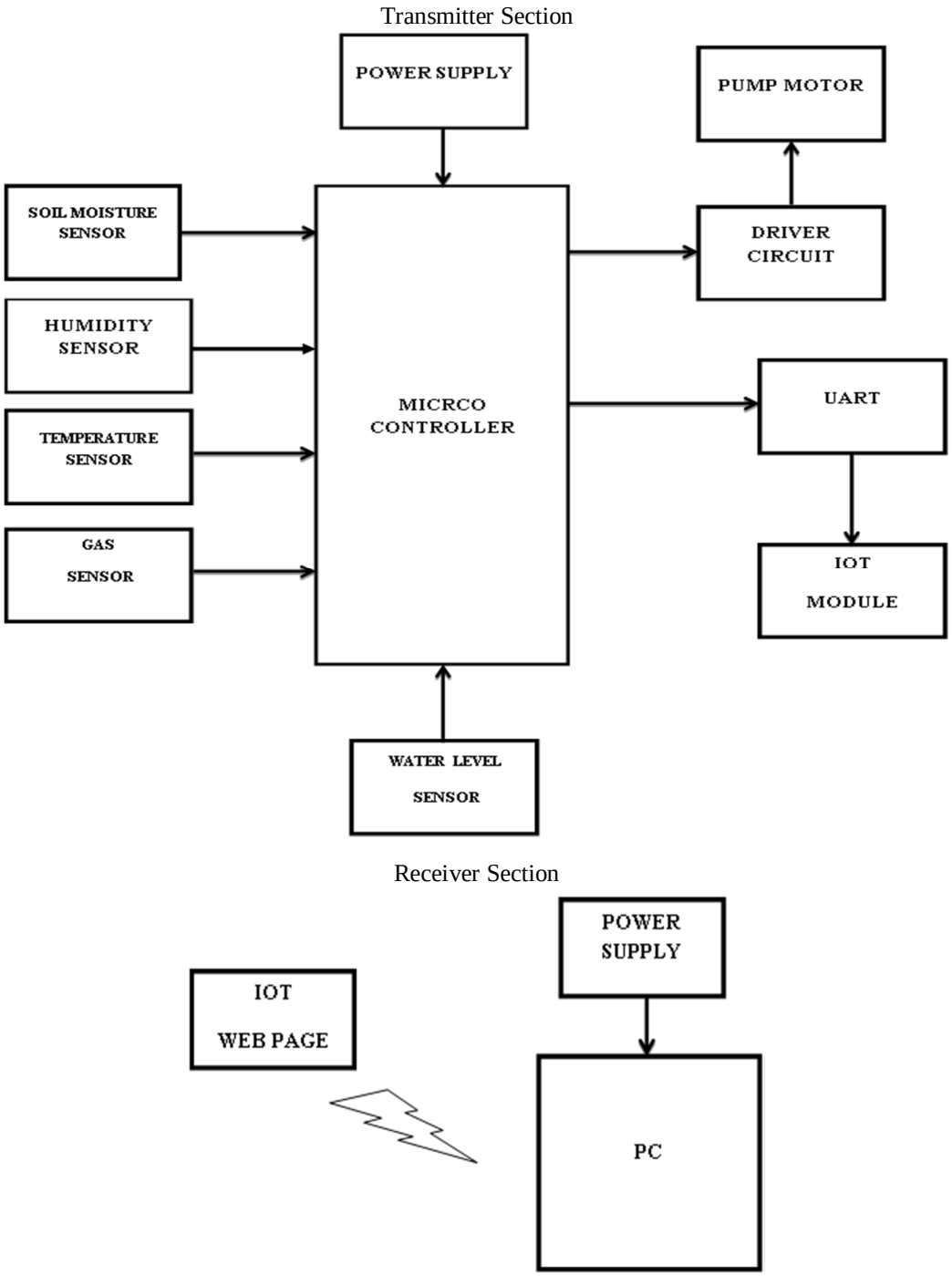
In this proposed system we are overcoming the demerits of existing system. Here we are using microcontroller which will acts as main memory of the project.

Soil moisture Sensor is directly connected to the microcontroller which will measure the moisture of soil present. If the moisture of soil is less than threshold level, then microcontroller will command the drive circuits to turn ON pump motor .Humidity sensors are used here for sensing the presence of humidity.

Water level sensor detects the level of water present for the farm cultivation. The water level sensor is used to monitor the water level. The Gas sensor is used to monitor whether there is any harmful gas present near the farm. These data's will be transmitted uploaded to the server using IOT.Driver circuit to turn ON the pump motor.

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A. Block Diagram



IV. CONCLUSION

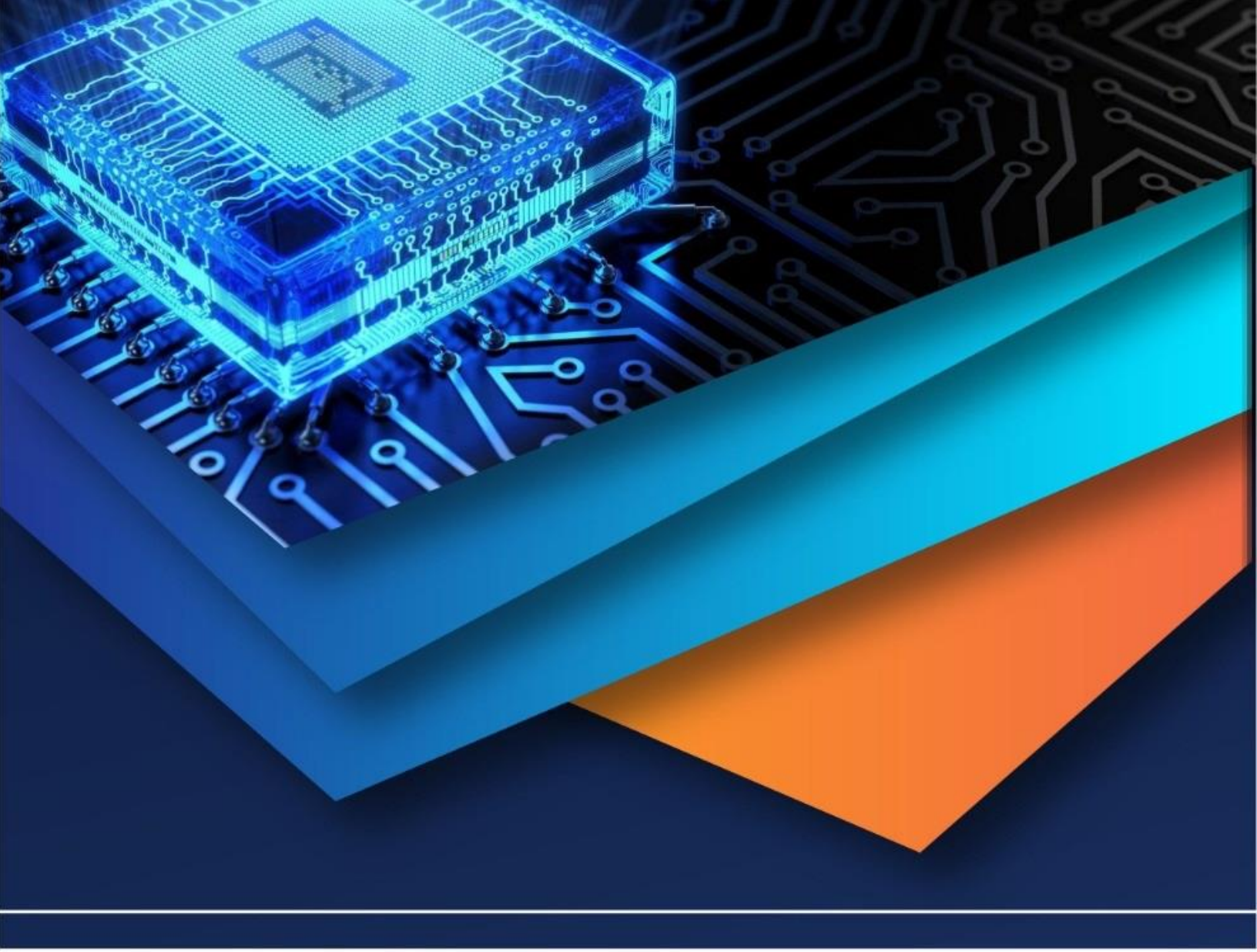
Therefore, the paper proposes a thought of consolidating the most recent innovation into the agrarian field to turn the customary techniques for water system to current strategies in this way making simple profitable and temperate trimming. Some degree of mechanization is presented empowering the idea of observing the field and the product conditions inside some long-separate extents utilizing cloud administrations. The points of interest like water sparing and work sparing are started utilizing sensors that work consequently as they are modified. This idea of modernization of farming is straightforward, reasonable and operable. As relying upon these parameter esteems rancher can without much of a stretch choose which fungicides and pesticides are utilized for enhancing crop creation.

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