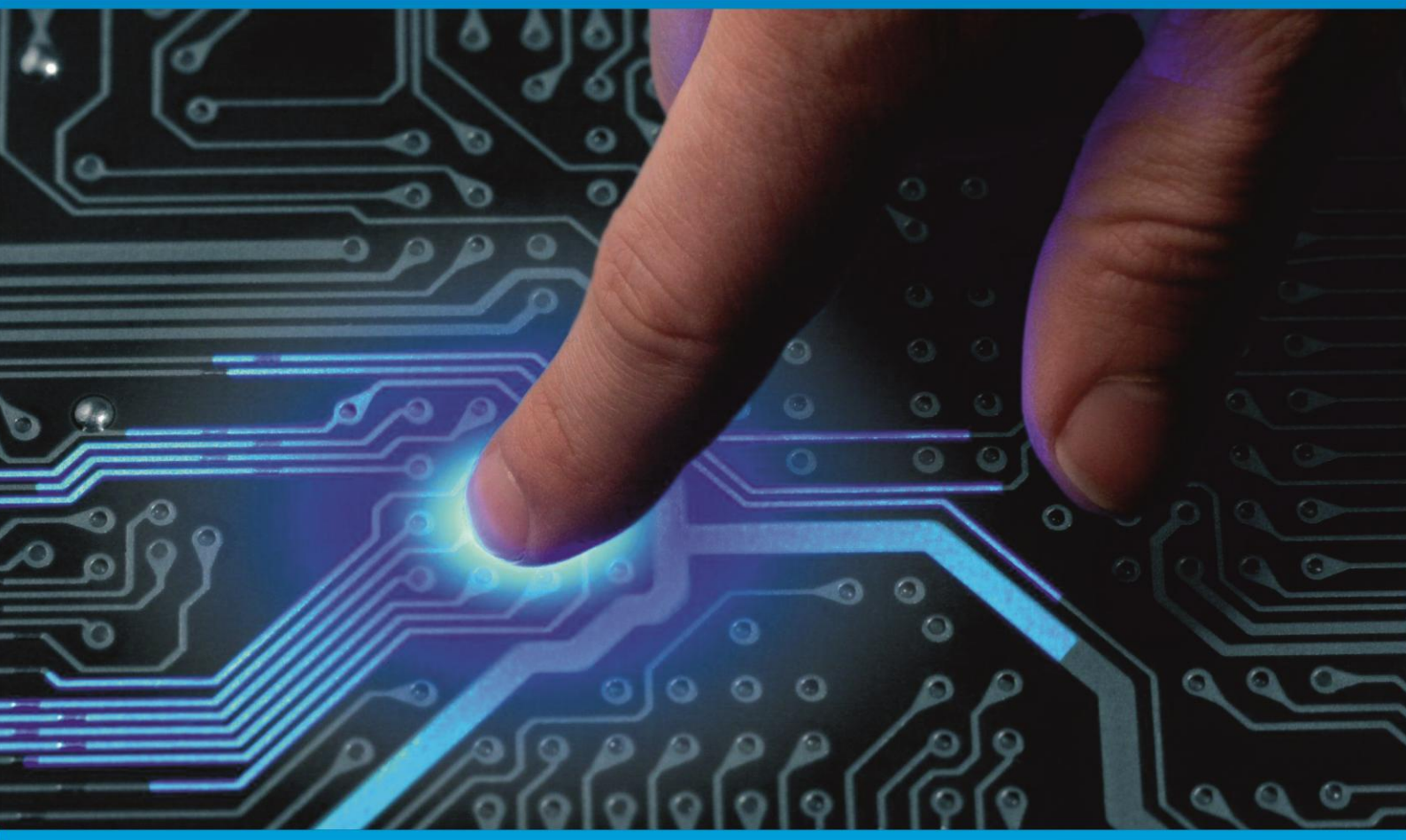
IJIRCCE

e-ISSN: 2320-9801 | p-ISSN: 2320-9798



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 10, Issue 7, July 2022

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 8.165

International Journal of Innovative Research in Computer and Communication Engineering

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165 |

|| Volume 10, Issue 7, July 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1007042 |

Mobile Integrated Smart Irrigation Monitoring System Using Lora WAN

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ABSTRACT: Smart irrigation using Lora Wan and IOT, this will increase the yield of reduce human intervention in agriculture. High accuracy and low power consumption are most important factors this system. In this project we have designed the monitoring and controlling mechanism of the water flow in the agriculture the farm depends on the dampness of soils. It is an automated irrigation system that receives feedback from one or more soils moisture sensor to maintain soil moisture content. that is optimal and adequate for plant growth. Humidity and temperature values are recorded for the specific behavior of farmer. Long distance data transmission of collected data possible as the project adopts Lora technology. Here the Lora modules will be used to transfer nodes data towards the master unit. Lora module is good RF data transceiver module having long range in terms of hundred meters. The collected data will be sent by to server using Wi-Fi module by the master unit with this the user will get soil condition i.e. wet or dry on the mobile application where the user can monitor the data and also control it by pumping the water based on the monitored data.

KEYWORDS: Lorawan, Arduino UNO, WIFI module, Humidity Sensor.

I.INTRODUCTION

India is the country of village and agriculture plays an important role in the development of the country.in our country, agriculture relies on monsoons with inadequate water sources for here is how to use irrigation in the agriculture sector. In Irrigation system, depending upon the soil type, water is provided to plant. In agriculture, two things are very important, first to get information of about the fertility of soil and second to measure humidity content in air.
Nowadays, for irrigation, different techniques are available which are used to reduce the dependency of rain. And mostly this technique is driven by electrical power and on/off scheduling. In this technique, an temperature and humidity sensors are placed near the plant and near the module and gateway unit handles the sensor information and transmit data to the controller which in turns the control the flow of water through the pump.

The effects of increasing population growth, the expansion of industry, and the deprivation of agricultural irrigation have raised concerns. For future availability And groundwater quality. Due to the low water retention capacity of the soil, it also occurs in addition to the irregularity of frequency and depth. Landscape irrigation is commonly used to ensure acceptable plant growth and quality while it is raining ,but the soil may get excess water. An automated irrigation system that receives feedback from one or more soil moisture sensors is dsigned to maintain optimal or optimal soil moisture content. Sufficient for plant growth and / or quality to allow irrigation only when needed.

II.RELATED WORK

Literature survey includes the papers which we have referred for our project. This particular chapter contain about the authors and their contribution on the several concepts. The papers which we have utilized in our project are explained below.

"The research and implementation of Sensor based Automated Irrigation System with IoT", Karan Kansara, Vishal Zaberi, Shreyans Shah, Kaushal Jani, Sandip Delwadkar,"2019 The automatic irrigation system is superior to the pervious and traditional irrigation system like ditch irrigation, terraceIrrigation system, drip irrigation system, sprinkler

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irrigation system. Farmers save energy and water by automatingthe water supply by monitoring soil moisture. Each and each time the pawn can't do it completely in time. You maksome mistakes because people tend to commit them intentionally or intentionally Unknowingly. "The research and implementation of Smart agriculture using Lora wan ", by Mahammad Shareef Mekala, P Viswanathan in 2019 This treatise presents an interdisciplinary one State-of-the-art irrigation transmit the message otherwise message will be dropped. This condition will be checked with threshold value which is dynamically changing. It allows a node with over used battery to refuse to route the traffic in order to prolong technology,approach to using internet Internet of Things communication system, sensor technology, ,machine learning model Improve water management in parks by optimizing irrigation needs. Operating conditions. The project is dual electromagnetic (DUAL -EM) Sensor that scans and visualizes parks Normalizethe moisture content distribution of In contour map the Helps identify points of interest for installing moisture Sensors for creating real-time irrigation profiles for parks. "IoT- Based Smart Agriculture", Toward Making the Fields Talk Published by IEEE author Muhammad Ayaaz and Muhammad Ahmmaduddin in 2019 Despite the perception people may When it comes to agricultural processes, today's agriculture is data-centric and accurate. Be smarter than ever. With the rapid emergence of Internet of Things (IoT) -based technology, almost everyone has changed shape. industry including "smart agriculture". "The research and implementation of Smart Farming using IoT, a solution for optimally monitoring farmingconditions ", by Author Josh Doshi and Santosh Kumar in 2020Internet of Things (IoT) is By making everything intelligent with the,the present and future of all areas that affect everyone's lives. It is a network of various devices that form itself. -Configure the network. Development of new for smart farming using IoT We will rebuild traditional farming methods by not only making them optimal,but also cost-effective for farmers and crop waste. My goal is Technology that can generate messages and notify farmers on a variety of platforms. This product realizes smart farm by receiving live data (temperature, humidity, soil moisture, UV index, IR) from farmland and taking necessary measures to increase yield and achieve savings. We support farmers by being able to do it. Resources (water, fertilizer).

III.PROPOSED ALGORITHM

It is estimated that about 50% of the irrigation water is wasted by evaporation or spillage. This is because most irrigation systems rely on simple timers. Whether using a dripsystem or a sprinkler system, the most efficient sprinkler approach uses water only when needed, uses the exact amount needed, and is appropriate for the plant. It is to be sprinkled. Currently, Indian farmers are adopting manual control irrigation techniques, where farmers sometimes irrigate their land time. This process sometimes uses more water. IoT technology provides a more efficient approach to managing irrigation water. An automated irrigation system that receives feedback from one or more soil moisture sensorsis designed to maintain a desired soil water content. The project, presented here collects all the sensors data from the field through wireless nodes. Here Lora modules will be used to transfer nodes data towards master unit. With this soil condition that is dry or wet can be monitored on the mobile application.

IV.METHODOLOGY

This chapter include the information regarding the setupof experiment which we have used in the project.
Large area of the land will be covered with remote sensor nodes using Lora transceiver, so there will not be any wire connection between the nodes and the master unit. Each node will be fixed with soil moisture sensor and DHT11 sensor which monitors humidity and temperature. Master unitcollects all sensors data from nodes through Lora transceiver Wi-Fi module ESP8266 is also connected to the Master unit and used to communicate between server and field unit [here project demonstration will be done in LAN mode]. An app has been built using Mit app inventor which monitors the sensor data such as soil, temperature and humidity based on that the farmers can make decision. Water level sensor also connected to the nodes that check availability of the water forirrigation and to eliminate dry-run ofthe pump.

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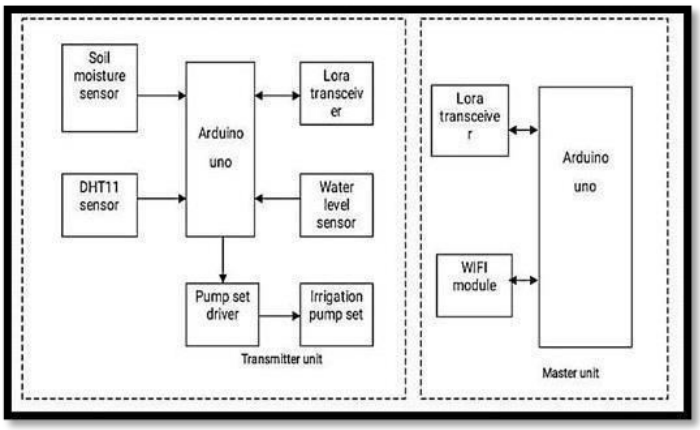
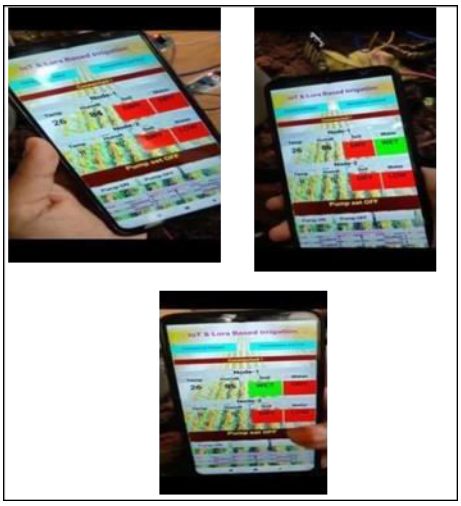


Fig.1 Block Diagram

V.SIMULATION RESULTS



VI.CONCLUSION AND FUTURE WORK

A reliable and efficient system for monitoring the agricultural field parameters such as soil moisture, temperature and humidity. Allow users to see accurate changes through mobile application. With this system, you can save people and water. Improve production and the will ultimately benefit. Agriculture data is monitored and controlled remotely. In future we can use Solar panels in order to provide power to the master and slave units. The Solar Power Smart Irrigation System is the answer to farmers in India. The system consists of a solar power water pump and automatic water flow control with a humidity sensor. This will be the solution to the current energy crisis for Indian farmers. This system can save power.

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INNO SPACE
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Impact Factor: 8.165

doi cross ref

ISSN INTERNATIONAL STANDARD SERIAL NUMBER INDIA

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