ISSN No:-2456-2165

Smart Irrigation Monitoring System Using Blynk App

Priyanka S Talekar
Assistant Professor
Dept. of CSE,
Sambhram Institute of Technology,
Bangalore,
Karnataka, India

Abhishek Kumar
Dept. of CSE,
Sambhram Institute of Technology,
Bangalore,
Karnataka, India

Amit Kumar
Dept. of CSE,
Sambhram Institute of Technology,
Bangalore,
Karnataka, India

Manish Kumar
Dept. of CSE,
Sambhram Institute of Technology,
Bangalore,
Karnataka, India

Md. Irfan Hashmi
Dept. of CSE,
Sambhram Institute of Technology,
Bangalore,
Karnataka, India

Abstract:- IoT-primarily based Smart Irrigation monitoring with Blynk app can be taken into consideration to reveal development of herbs, shrubs and trees. Many human beings are fascinated in developing the plant life, but continually neglect about on watering plants. Hence, the tool is prepared with water pump, in which it is able to be monitor and manage with the aid of cellular phone.

In addition, the gadgets additionally encompass 4 primary sensors. This IoT-primarily based Smart Irrigation monitoring with Blynk app can report the information and ship the end result to person via the clever phone application i.e., Blynk App. This study is beneficial, and the machine may be without difficulty controlled with the aid of using all customers such as researcher or farmer, and children.

I. INTRODUCTION

In the generation of IoT, it's now our wish to carry or manipulate the entirety over net. Supervising and controlling devices along with nodes and sensors remotely saves both revenue and time. Many people have garden in their houses. Convenient quantity of water along with normal temperature is essential for plant life. We need to provide preference to water plant life in lawn whilst required. We are going to display the temperature and moisture level of soil. If the water content in soil is much limited than needed through plant life, a self-sustaining transfer will begin the water pump for watering the plant life. User can display and manipulate the lawn now through his mobile or cellular phone, computing device and laptop.

The proposed IoT tool additionally could be carried out with a climate station sensor, in which it may display and expect the rainfall each day. Hence, consumer can transfer the automated water-motor for lowering the usage of water. The accrued statistics also can be given thru on-line cell applications.

II. LITERATURE SURVEY

1. Smart watering system for garden using WSN

The first paper was proposed by Mr. Ahmad Hussain in the year of 2014. This paper discusses the usage of WSN in irrigation management by a sensible watering system during which the irrigation method is controlled by valves. It helps to utilize water resources very efficiently.

2. Efficient Design of a Low-Cost Portable Weather Station

The second paper was proposed by Mr. Asif Imtiaz in the year of 2018. This paper presents the implementation of Arduino meteorological observation post that was designed in order that individuals can monitor real time weather knowledge victimization this weather station. The aim of this project is to style such a weather station at a less expensive value which will take a true data of temperature, pressure, wetness and wind speed from the weather station.

III. PROPOSED SYSTEM

Automation offers consolation to humans through decreasing guide painting and to enhance the general performance device without the consumer interaction. The vital parameters for first-class and productiveness of plant boom are soil and air temperature, humidity, sunlight, soil-moisture.

Information to the consumer approximately the plant fitness and boom can be furnished to the consumer through constantly tracking and recording these lawn parameters. It affords a higher expertise of the way every parameter impacts the boom of plants.

Sensors capable of sensing moisture level, temperature and humidity are used. The lawn may be at once monitored and managed through the proprietor of the lawn thru their clever smart phone with the usage of IoT.

IV. METHODOLOGY

Components of smart irrigation are shown below.

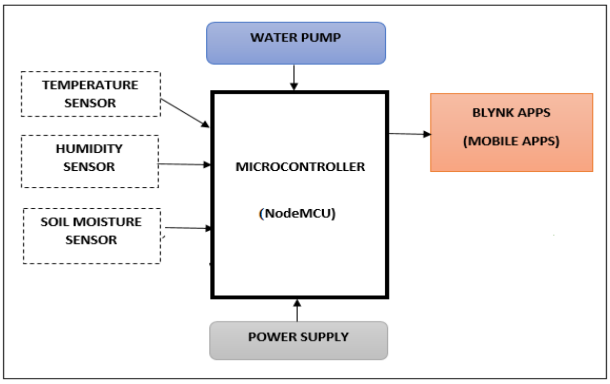

Fig 1: Smart irrigation System-Block diagram.

1. Components

A. Microcontroller

1) Information can be gathered with help of sensors and can be shipped through Blynk app.

2) To display information through LCD screen, Arduino UNO is used.

B. Actuator

1) As plants need light, artificial light can be used for photosynthesis process with LED Light.

2) For watering plants, pump is used.

C. Sensor

1) Moisture level of soil is detected through moisture sensor.

2) Temperature and humidity is measured with DHT11.

D. Blynk Apps

To work on IoT, Blynk App is used. It has graphical interface. The idea of this utility is via way of means of drop and drags the widgets.

2. The Flow of The System

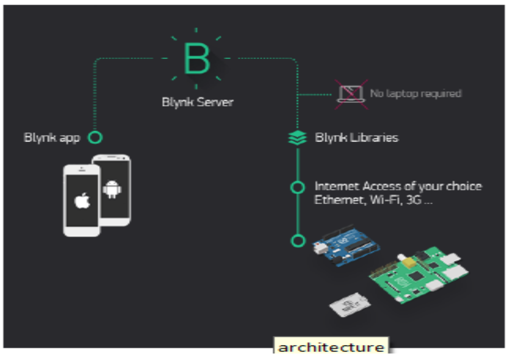

Fig 2: Blynk System Principle

Blynk server will checks for net connection, the NodeMCU code consists of hotspot and pass code. Remaining techniques are simply instructions dispatched from Blynk software to NodeMCU to manipulate masses the ones are related to relay package as proven in diagram below.

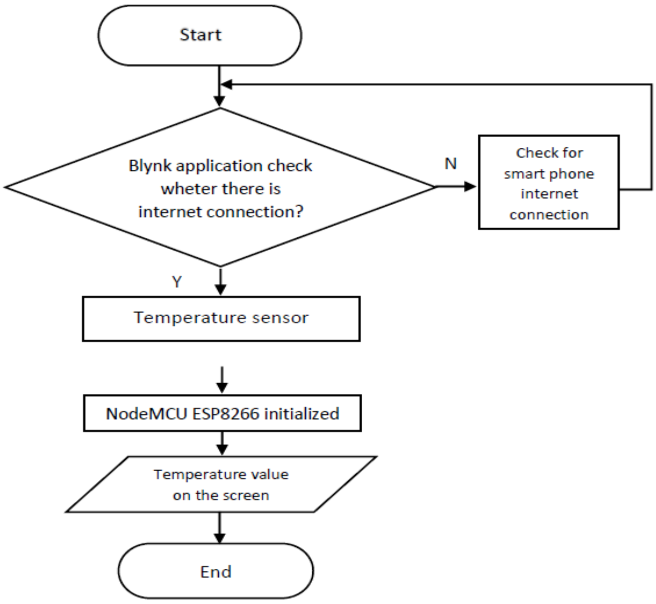

Fig 3: System Flow Design

3. Flow Diagram

Initially, the consumer starts off evolved with the aid of using beginning the tool, and the underlying vicinity are examined with the aid of using a built tool. The tool analyzes the lawn vicinity and attempts to fetch the described real-time parameter values with the aid of using the use of included sensors. If the data are efficiently fetched, the tool gets admission to community. Otherwise, the tool is made to restart, which deals with the problem. If the tool located a community connection, then the retrieved effects are introduced through cellular application. If there's any hassle to connect with the community, it's going to attain out to cease till and except community get admission to is determined.

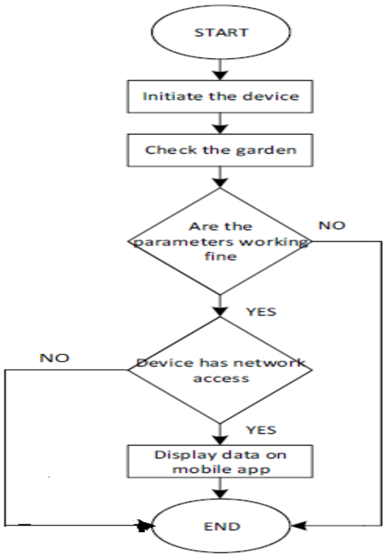

Fig 4: System Flow Diagram

ISSN No:-2456-2165

V. RESULTS AND DISCUSSION

This segment is divided into 3 phases. Phase 1 is related to practical trying out on additives within side the hardware design. Phase 2 plays an important role in integration for all hardware additives. In Phase 3, gadget trying out is accomplished and accumulated statistics from the gadgets may get entry to via the cell apps.

A. Phase 1: Sensor check with Data Analysis

Phase 1 is wherein the all-hardware additives might be examined and a few evaluations is achieved primarily based totally at the end result from the additives. There are 4 assessments implemented to the hardware design.

B. Phase 2: Smart Garden with Weather Station without Online Apps-Integration Test

For phase 2, all of the gadget might be incorporated however now no longer but related to the internet. Figure indicates the prototype of the IoT primarily based totally Smart Garden with Weather Station devices.

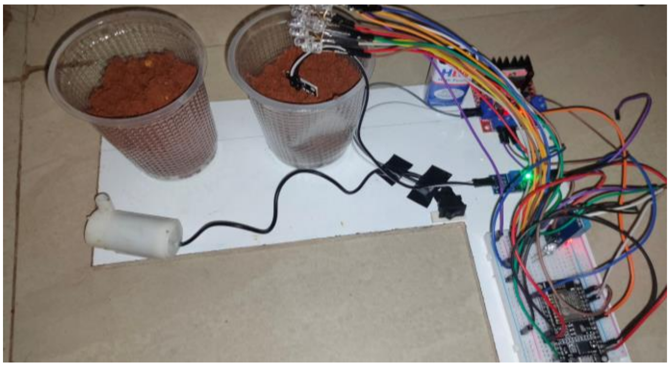

Fig 5: Sensor data reading in Blynk App.

C. Phase 3: IoT based Smart Garden with Weather Station.

At this segment, the relationship among gadgets and cellular apps is carried out the use of NodeMCU. The microprocessor can be used as a tool to attach among the cellular apps and the sensor. Hence, all accumulated facts from the sensor may be dispatched to the cellular apps particularly as Blynk Apps. This utility may be downloaded and utilized in each Android and IOS smartphones.

In this project, an android telephone can be used. The accumulated facts of all sensors produce the identical end result because of gadgets. However, the hassle got here at the barometric stress. Although the variations are greater than three, in barometric stress it has a totally excessive effect at the climate. The facts on stress sensor at IoT gadgets nevertheless stay with 1015 MB, because of this that that the climate can be constantly Hot Weather. It cannot expect the climate. The figure below shows the result from all sensors on Blynk apps.

Fig 6: Sensor data reading in Blynk Apps.

VI. CONCLUSION & FUTURE WORK

The proposed approach of smart irrigation monitoring is based upon mobile computing, microcontroller and NodeMCU and the internet of things. It provides real-time statistics of garden environmental factors, so the local users and gardeners treat their garden or farm in a well manner. The results are delivered through a mobile application. Smart garden with Internet of Things (IoT) based NodeMCU ESP8266 Module can be designed with various components hardware and software support so that it can be arranged into a smart garden system that is controlled with the Blynk android application according to what is intended.

In the future, we will enhance system functionality by adding an interface for archiving all the historical records.

REFERENCES

[1]. H. Abbas, G. M. Ahmed, E. A. Ahmed, R. Ahmed, “Smart Watering System for Gardens using Wireless Sensor Networks,” 2014.

[2]. A. Imtiaz, S. G. Omar, and T. A. Ali, "Efficient Design of a Low- Cost Portable Weather Station," pp. 2–8, 2018.

[3]. R. C. Brito and E. Todt, "Development of a Low-Cost Weather Station Using Free Hardware and Software," 2017.

[4]. I. Srilikhitha, M. M. Saikumar, N. Rajan, M. L. Neha, and M. Ganesan, “Automatic irrigation system using soil moisture sensor and temperature sensor with microcontroller AT89S52,” 2017 Int. Conf. Signal Process. Commun., no. July, pp. 186–190, 2017.