IOT Based Smart Gardening Using Mobile Application

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Abstract— Using the thought of IOT they create sensors to speak with one another that square measure powerful in automation. The vital side of this example is that it saves price and ensures safety. When folks tried to form plantings and started their own garden, they were cautious in maintenance solely in their starting stages. As days prolong because of lack of maintenance the plants get destroyed. This example can facilitate folks to mechanically monitor the parameters and guarantee maintenance of the garden. Users also will be able to management the water system to the garden remotely. It plays a significant role and is a decent companion for plants. IOT provides solutions for numerous issues and it permits things to be detected or controlled remotely in network infrastructure.

Keywords: Landscape, Cultivation, Sensor, Measurement, Automation

I. INTRODUCTION

A smart garden could be a device that takes care of plants, a pc silicon chip that receives information from sensors and perform actions, like turning on lights, to supply plants what they need: water, light, nutrients, etc. good gardens could reefers to domestic machine-driven agriculture systems for aesthetic functions and herbs grow. associate degree autonomous garden could be a device which will grow plants with none human interaction since its beginning. It's a self-property system for plant grow with the sole inputs of the atmospherically conditions on wherever it grows, like solar power or atmospherically air. Autonomous garden is often devolving on outside or on encapsulated atmospheres. good gardens aim to hide all the requirements of plants with the sole inputs of energy and water. it's not regarding dominant one method, it's regarding dominant all the routines of plants. good gardens are often built with very little} elements which will be bought with little budget, you may want the subsequent materials. Any Arduino board, soil wetness sensing element, water pumps or/ and valves to regulate the water flow, relay to show on/off sensors and device.

II. OBJECTIVE

Smart garden - An innovative device namely as IoT based Smart Garden is beneficial for the gardener, and mainly used for monitoring and providing a necessary useful resource that can make the growth of the plant faster. Basically, the devices of the smart garden got to have an automatic function and being installed with several sensors for monitoring process. shows comparison of related Smart Garden project, which are Smart Watering System for Gardens using Wireless Sensor Networks [1], Automated Plant Watering System [2] and IoT-based Green House System with Splunk Data Analysis.[3] Weather Station - Weather Station could also be a tool which can help the gardener to determine the humidity and temperature of the air. It also helpful in predicting the probability of the rain that might occur by using the humidity and temperature sensor and measure the present air values. The meteorological observation post can be supportive in determining the present weather and predict the longer-term weather. an honest weather prediction analysis may help in reducing the water usage by turning off the automated pump. shows three projects that are associated with the project of Smart Garden with meteorological observation post, which are Efficient Design of a coffee Cost Portable meteorological lookout [4], Development of a coffee Cost meteorological observation post using Free Hardware and Software [5] and style of a foreign Weather Factors Monitoring System [6]. Many types of sensors for air humidity and temperature monitoring are often exploited in IoT based devices. during this project, a selected model named DHT 11 will be applied to live the humidity and temperature on air surrounding at the research devices. By referring this project [7], it used DHT22 for the automated plant monitoring and controlling system over GSM. The DHT22 main function of this project is to stay tracking the temperature and it states that the speed of plant growth is depended upon the temperature of the plant. On this project, it wants to keep track the temperature and humidity of the plant. this project applied BMP280 for researching the hardware and software architecture of multi mems sensor inertial module by creating the devices. The function of BMP280 in this project is to measure the atmospheric pressure.

A. Blynk Apps

Blynk Apps may be a platform for creating an app for the Internet of Things (IoT). This application is often wont to control Arduino, Raspberry Pi, and therefore the components through the web. it's its own graphical interface and easy to use. The concept of this application is by drop and drags the widgets.

III. LITERATURE REVIEW

The discussion throughout this paper is based on implementation of recent price effective methodology supported IOT to remotely monitor a star physical phenomenon plant for performance analysis.[2] The planned IoT system has been valid during a real scenario (a vegetable garden) for over a week: the collected knowledge highlighted attainable cause for a unwellness contracted by vegetables so confirmatory Vegliote Garden. [3] The idea is to advance our ancient system to a wise machine-controlled system for provision water in home horticulture.[4] In this paper, the device is provided with a pump, wherever it are often monitored and controlled by employing a smartphone.[5] Environmental parameters together with air temperature, air wetness, greenhouse emission concentration and soil wet were selected to represent the state of the greenhouse.[6] this project is terribly high-ticket if it's applied on an enormous space. It had to put in the sensors for each plant because it is

required to understand the condition of the soil.[7] a system for getting composite growth information in varied environments and crops targeted for home gardens. [8] It is a subdivision of agriculture that deals with plant agriculture beneath controlled setting.[9] the fundamental design consists of sensing/actuation station supported industrial off-the-rack hardware and a mobile application for the interaction with remote users.[10] The elders psychological state has shriveled ensuing from psychological modification. [11]AN analysis was performed however technological acceptance model.[12] Several technology advancements had been remodeled the years additional recently the invention of net of things

IV. METHODOLOGY

A. Microcontroller

sensors and send the info through the apps called as Blynk. 2) Arduino UNO are going to be wont to display the knowledge through the LCD Screen.

B. Actuator –

1) LED Light used for artificial light energy where the plant can do photosynthesis process.
2) pump want to make sure that the plant isn't critically dry.

C. Sensor

Environmental parameters including air temperature, air humidity, soil moisture, illumination intensity and CO_2 concentrations were selected to determine the environmental condition of greenhouse. Soil moisture and illumination intensity parameters were measured by using soil moisture sensor and photo resistance, respectively.
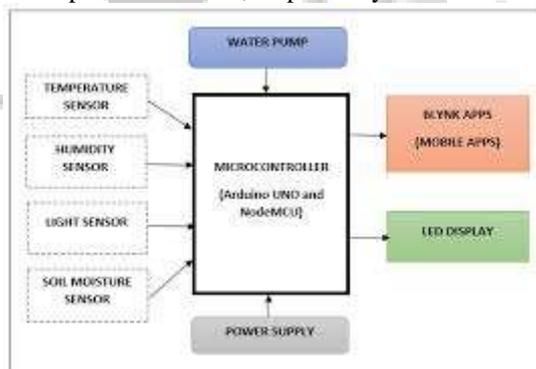
V. EXPERIMENT

It shows that the leaf of the plant become wither. the rationale for this is often often that the LED is simply too near with the plant, therefore the raising temperature around LED make the plant cannot absorb heat alright. Therefore, to form sure the plant can absorb well the warmth from the LED, the space with the plant need to be increase also. it stated the color of LED features an enormous impact on plant growth that the amber light color has redder spectrum than the blue spectrum. Red spectrum will provide heat, while the blue spectrum will provide a light-weight that needed for the plant growth. For amber light color, it has an excessive amount of red spectrum, and it will not make the plant growth.

VI. RESULT

The collected data of Soil Moisture Sensor, Temperature Sensor, Humidity Sensor, and lightweight Intensity Sensor produce an equivalent result because the devices. However, the problem came on the atmospheric pressure. the worth on the devices is much different from a web of Things Data. Although the differences are quite three, in barometric pressure it is a really high impact on the weather.

CONCLUSION

this paper presented an Internet of Things (IoT) based Smart Garden with Weather Station system. the most objective of this scientific research is to invent an IoT-based system which will record data and send the real time result to user through the smartphone application named as Blynk apps. This research is beneficial, and therefore the system is often easily managed by all users such as researcher or farmer, and children. These devices contain many sensors such as barometric pressure, temperature sensor, light sensor, and soil moisturizer sensor. aside from that, these devices contain pump for adjusting the soil moisture, fans for controlling the temperature and LED light for controlling the photosynthesis process during the night. There are two types of main processing unit on these devices, which is Arduino UNO and NodeMCU. The Arduino UNO will be used because the controller of the devices, while NodeMCU will be the controller of the phone devices in order that it can control the devices from distant by using Wi-Fi. All the result shows during this paper provide enough data for creating an actual IoT Devices.

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