

Plant Health Analysis and Disease Prediction Using Smiley Gesture Intimation

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ABSTRACT

Advanced plant monitoring system is a method which is used to identify the health and hydration level of plants. The status of the hydration level of a plant is updated through SMS using smiley application. This system has the ability to detect the possibility level of infection of plants and to detect hydration level in plants. In order to make farmers understand the information given by the application, the smiley intimate system is used.

Keywords - Smiley, Farmers, SMS.

I. INTRODUCTION

Plant observing is viewed as one of the most significant undertakings in any cultivating or farming based condition. With the commencement of Ambient Intelligent frameworks, there have been an ascent in surrounding clever based gadgets Smart Homes and other comparable innovations advanced in the course of recent years. Combination of such a surrounding clever framework with plant checking makes cultivating simpler^[1]. In this project, we discuss about the implementation of a smart plant monitoring system which makes use of the concept ambient intelligence with the use of Moisture, temperature and humidity sensors, proactively handles the plant monitoring system the main innovation of this project is the intimates the status of plants through smiley gesture system. The given execution works alongside a cloud-based server and a versatile based gadget which encourages the client to see the status of the plant which is being checked by the equipment gadget. The given circuitry detects

changes in the moisture, temperature and humidity conditions in and around the plant, and also our system handles PH level of the water and soil to detect advanced diseases detection system^[1].

II. METHODOLOGY

The block diagram consist of several sensors like moisture ,temperature, humidity and PH sensors with dynamically monitors the plant status if the plant is in critical condition the notification is sent through gsm to the user and also the GSM access the gprs and send the plant status to cloud through cloud the status of plant is shown through smiley gestures^[2]. If the plant is very active and fresh the smiley will be in happy condition and if the plant is very dull and dehydrated the smiley will be in sad condition. Moreover, Ph sensor detects the acidity level which intern intimates pre-diseases detection to the user.

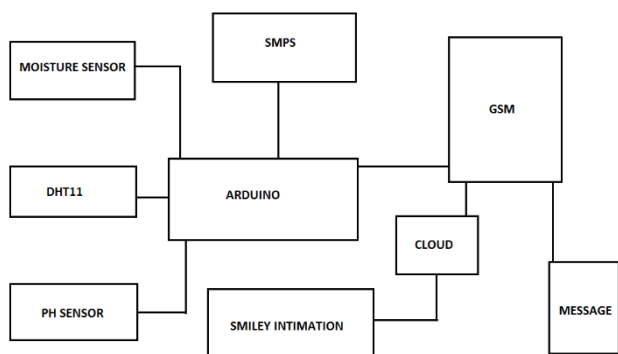


Fig 1: Block diagram of Plant health analysis and disease prediction using smiley gesture intimation

III. HARDWARE DESCRIPTION

3.1 Arduino:

Arduino is an open-source equipment and programming association, venture and customer organize that plans and makes single-board microcontrollers and microcontroller units for building mechanized devices^[3]. Its items are authorized under the GNU Lesser General Public License (LGPL) or the GNU General Public License (GPL), allowing the production of Arduino sheets and programming appropriation by anybody. Arduino sheets are accessible monetarily in preassembled structure or as do-it-without anyone's help (DIY) units.

Arduino board plans use a combination of chip and controllers ^[4]. The sheets are outfitted with sets of advanced and simple info/yield (I/O) sticks that might be interfaced to different extension sheets or breadboards (shields) and different circuits. The sheets highlight sequential correspondences interfaces, including Universal Serial Bus (USB) on certain models, which are additionally utilized for stacking programs from PCs. The microcontrollers can be modified utilizing C and C++ programming dialects. Notwithstanding utilizing customary compiler toolchains, the Arduino venture gives an incorporated improvement condition (IDE) in light of the Processing language venture.



Fig 2 : Arduino

3.2 PH SENSOR:

pH levels are noteworthy in soils, water framework water and shower tank game plans. Soil and water pH is unquestionably the most huge point of view in choosing supplement openness to crops. pH levels in shower tanks choose the suitability of pesticides ^[5]. This multi-reason meter to help give a sound creating condition to all plants. It tests for soil alkalinity/sharpness, soil moistness, and sunshine.

A pH Meter is a device used for potentiometrically assessing the pH, which is either the obsession or the development of hydrogen particles, of a watery plan. It generally has a glass cathode in addition to a calomel reference terminal, or a mix electrode. PH meters are typically used to quantify the pH of fluids, however exceptional tests are now and then used to gauge the pH of semi-strong substances^[6]. 3in1 Moisture PH Light Meter for Hydroponic Plant Soil # Ideal apparatus for both indoor and nursery plants care # Please clean the cathode after each utilization * 1X 3 IN 1 PH light meter for plant soil features.

With this 3 of every 1 soil meter you can check in your nursery, vegetable nursery, yard and pruned plants whether the dirt is appropriate for a specific plant. Utilize the gadget to gauge developing conditions for a wide range of plants inside and outside ^[7]. Likewise, you can check the moistness in the dirt, the temperature and power of daylight utilizing this ground meter.

This 4 out of 1 pH soil meter can be particularly valuable in yard care in deciding the dirt conditions in various territories of your nursery and finding the right grass seed and manure [8]. Terrible spots in the yard can be brought about by poor seepage (wet soil, test the dampness), to an extreme or too little causticity (test the pH), or an inappropriate light level (test light and utilize fitting seed blend (sun/conceal).



Fig 3 : PH Sensor

3.3 GSM

The GSM is a standard made by the European Telecommunications Standards Institute (ETSI) to delineate the shows for 2G automated cell frameworks used by PDAs, for instance, PDAs and tablets. It was first sent in Finland in December 1991 [9]. By the mid-2010s, it turned into a worldwide standard for versatile correspondences accomplishing over 90% piece of the overall industry, and working in more than 193 nations and regions.

2G systems created as a trade for original (1G) simple cell systems. The GSM standard initially portrayed a computerized, circuit-exchanged system streamlined for full duplex voice communication. This extended after some time to incorporate information interchanges, first by circuit-exchanged vehicle, at that point by parcel information transport by means of General Packet Radio Service (GPRS), and Enhanced Data Rates for GSM Evolution (EDGE) [10].



Fig 4 : GSM

3.4 Moisture Sensor:

Soil dampness sensors measure the volumetric water content in soil. Since the direct gravimetric estimation of free soil dampness requires expelling, drying, and weighing of an example, soil dampness sensors measure the volumetric water content in a roundabout way by utilizing some other property of the dirt, for example, electrical opposition, dielectric consistent, or cooperation with neutrons, as an intermediary for the dampness content [11].

The connection between the deliberate property and soil dampness must be adjusted and may change contingent upon natural factors, for example, soil type, temperature, or electric conductivity [12]. Reflected microwave radiation is influenced by the dirt dampness and is utilized for remote detecting in hydrology and farming. Compact test instruments can be utilized by ranchers or nursery workers.

Soil dampness sensors normally refer to sensors that estimate volumetric water content [13]. Other sensors measure other property of moisture in soils called water potential. The sensors are normally alluded to as soil water potential sensors and incorporate tensiometers and gypsum squares.

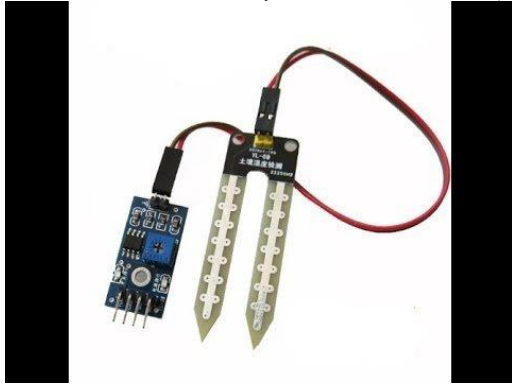


Fig 5 : Moisture Sensor

3.5 DHT11:

The advanced temperature and mugginess sensor DHT11 is a composite sensor that contains an adjusted computerized signal yield of temperature and moistness [14]. The innovation of a devoted computerized modules assortment and the temperature and moistness detecting innovation are applied to guarantee that the item has high dependability and incredible long haul security [15].

The sensor consolidates a resistive sentiment of wet part and a NTC temperature estimation contraption, and is related with a first class 8-piece microcontroller.



Fig 6 : DHT11

IV. NEED OF MONITORING

The programmed plant checking framework has as of late pulled in gigantic enthusiasm because of the potential application in rising innovation [16]. All the more significantly, this strategy is utilized to upgrade the presentation of existing strategies or to create and structure new methods for the development of plants. The plant observing framework is useful for watering the plants and to screen barely any parameters for development of plants. This framework is utilized in barely any zones like nursery ranches and in farming. Right now component is built up to discover the dampness content in the dirt with the assistance of soil dampness sensor and relying on the state of the sensor the water is controlled.

V. RESULT

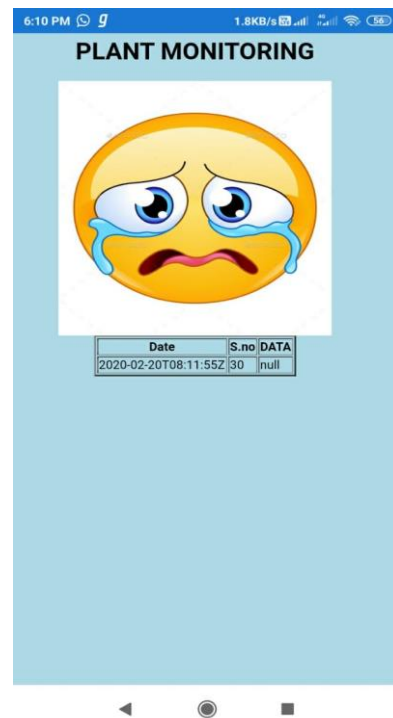


Fig 7 : Image

Fig 7 shows the status of plant through the mobile application.

VI. FUTURE SCOPE

The exhibition of the framework can be additionally improved as far as the working velocity, memory limit, and guidance cycle time of the microcontroller by utilizing other top of the line controllers. The number of channels can be increased to interface a greater number of sensors which is possible done by using advanced versions of controllers. The system can be further be modified by using a graphical LCD panel and data logger showing the measured sensor data over a period of time.

VII. CONCLUSION

The idea of IoT innovation is used to interface gadgets for gathering data. Enhancements in farming for rustic and urban zones are ascending in late decades with the assistance of computerized innovation. By using accessible sensors, conceivable result is obtained. The server based web application is created which is free at anyplace when the framework has association with web. This framework will upgrade the assets in plant zone. The establishment cost is fair when contrasted with huge instruments. The proposed system solves one of the major issues of farming. In the future work, improvement in various agricultural applications will be done.

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Cite this article as :

Naziya Thabassum., Pratibha. S, Revathi. M, Chinduja. S, "Plant Health Analysis and Disease Prediction Using Smiley Gesture Intimation", *International Journal of Scientific Research in Science and Technology (IJSRST)*, Online ISSN : 2395-602X, Print ISSN : 2395-6011, Volume 7 Issue 3, pp. 346-351, May-June 2020.

Journal URL : <http://ijsrst.com/IJSRST207363>