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REVIEW PAPER ON AGRICULTURAL DROUGHT AND CROP FAILURE DATA ACQUISITION AND TRANSMISSION SYSTEM BASED ON IOT

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ABSTRACT:- *Agribusiness required the devotion of numerous regular asset including, land, water, and ecological condition, The quality and amount of characteristic asset has debased throughout the years because of monetary issues related with expanded cost of info and diminishing ranch salary always declining land, labor, resources, and environmental issue, for example, soil and water contamination putting the suitability without bounds horticulture operation at chance. The solution for this, is to embrace the savvy agribusiness framework in light of IOT with help farming administration and development of products including less utilization of water, compost and pesticide.*

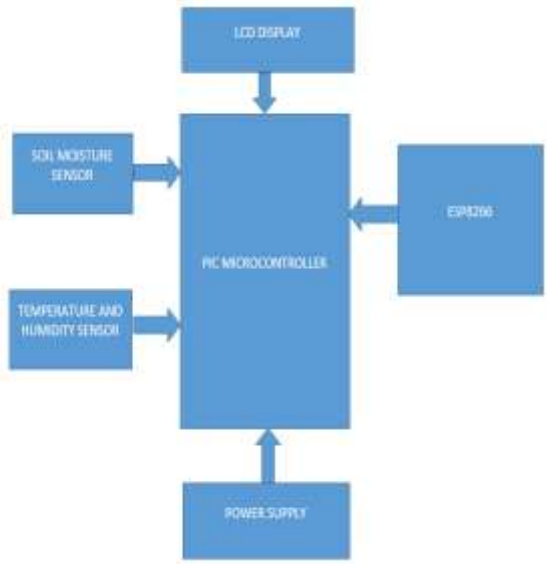
I. INTRODUCTION

Agriculture is the main backbone of Indian economical growth. The most important barrier that arises in traditional farming is climate change. The number of effects of climate change includes heavy rainfall most intense storm and heat waves, less rainfall etc. due to these the productivity decrease to the major extent. Climate change also raises the environmental consequences such as the seasonal change in the life cycle of the plant. To boost the productivity and minimize the barrier in agriculture field there is need to use innovative technology and technique called Internet of things. The technological advances in their areas gather increasing momentum and this means that maintaining as the overview. The most important things of smart farming are environmental measurement and water management. The reason is that the environmental and water management affect plant growth.

The paper aims at making agriculture smart using automation and IOT technologies. The highlighting features of this paper include smart irrigation with smart control based on real time field data. Secondly temperature maintenance, humidity maintenance and other environmental parameters. And finally the recommendation to farmer for smart agriculture.

II. RELATED WORK

The methodology of proposed system is to build up automatic agriculture drought and crop failure using PIC Microcontroller. There is need to use ESP8266 Wi-Fi Module, soil moisture sensor, humidity and temperature sensor to collect crop field data and weather forecast website data for that particular crop field region is taken by the board and verify as per calibrated value then output is displayed.



Fig, Block Diagram of Proposed system

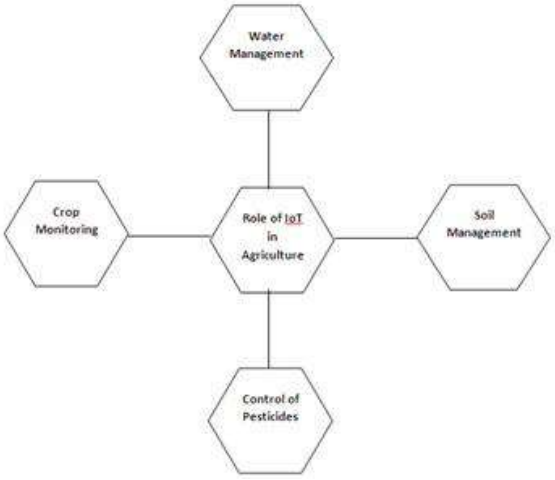
Figure shows Block diagram of proposed system, PIC Controller for which ESP8266 Wi-Fi Module, soil moisture sensor, humidity and temperature sensor are interfaced to collect the crop field data and weather forecast website data for that particular crop field region on that particular time and next few days data is extracted by the program which is dumped in the board then the verify as per calibrated value then output is displaced.

III. BENEFITS

Agriculture with the help of automation and sensor technology, benefits the society in the following ways.

1. Conservation of water
2. Optimization of energy resources.
3. Better crop yield
4. Pollution prevention
5. Eliminate human errors
6. Time efficiency , accurate diagnosis of nutrient deficiency
7. Automation with low power consumption components

On the whole farming refers to data gathering, data processing, analyzing and automatic control system. Overview of smart agriculture system as shown in figure



Overview of Agriculture system

IV. LITERATURE SURVEY

AnjumAwasthi and Reddy[1] proposed a smart agriculture also known as precision agriculture allows farmers to maximize yield using minimal resources such as water, fertilizer and seeds. By deploying sensors and mapping fields farmers can begin to understand their crops at a micro scale, conserve resources and reduce impact in the environment. Advances in sensor technology has also proven beneficial to the agricultural industry through its application for infield soil analysis.

Arunaet al [2] proposed the architectural design to monitor the crops. In this implementation model we used Arduino UNO board, Sensors and ESP8266Wi-Fi module as an embedded device for sensing and storing the data in to cloud.

Barshe and Chitre [3] proposed the widespread of Internet in the last two decades brought countless benefits to citizens and organizations around the world. Arguably the most important benefit was the ability to consume and produce data and services in real time. Recently, the Internet of Things is promising to bring the same benefits to everyday objects, giving us a way to extend our perception and our ability to modify the environment around us.

Farooq [4] For continuously increasing demand of food necessities, it's important to rapid improvement in production of food technology. Agriculture in only the source to provide this. This is the important factor in human societies to growing and dynamic demand in food production. Agriculture plays an important role in economy and development.

Xia et al [5] proposed a automatic irrigation technique irrigated using wireless sensor network i.e. Zig-bee and internet technology. The idea was developed for improve irrigation system and reduced cost of irrigation water. Sensors are placed in farm and sense continuously and collect he information. This information stored at center monitor and also passes to data collection interface and then transmits to the wireless sensor node. Using this information system was control automatically using internet.

Muthupandian [6] A survey on IOT based digital agriculture monitoring system and Their impact on optimal ZigBee and GSM based smart sensor network for agriculture was used for measuring environmental parameter such as temperature, humidity and moisture of the soil. This is ARM processor based technology which is work as a base station, which can collects data from sensors node and transmitted to monitoring system in wireless. In this technology uses internet protocol for data storage and monitoring.

Rekha and muthuselvi [7] Thermal imaging is used for irrigation in the crop field. There is no need for modifications in the surface temperatures when thermal imaging technique is used which is a noncontact and nonintrusive technique water stress, gas exchange, evapotranspiration rate stomatal conductance. As a result of this the canopy temperature increases. The stomata start to close and transpires so that the plants starts heating order to measure stomatal conductance, plant temperature and evapotranspiration rate by determining stomatal responses, thermal remote sensing is used.

Suchitra and Ramkrishnan [8] the main objective of this paper is to design an IoT (Internet of Things) based Temperature and Humidity monitoring system for an agricultural environment. Monitoring agricultural environment for temperature, humidity and soil moisture along with other factors is important for a healthy and wealthy cause, which improves the productivity of farmers by using technology driven farming.

Patilet al [9] A system using sensors that monitor different conditions of environment like water level, humidity, temperature etc., the processor along with IC-S8817BS and wireless transceiver module with Zigbee protocol is used. The field condition is sent to the farmer via mobile text messages and email from the experts. With this system Sensor node failure and energy efficiency are managed.

Parameswaranand Sivaprasath, [10] In the field section, various sensors are deployed in the field like temperature sensor, moisture sensor. The data collected from these sensors are connected to the PIC microcontroller. The PIC microcontroller 16F877A is one of the most popular microcontrollers in the industry. It is user convenient and easier to handle. The coding or programming of this controller is also easy. It is used in security, remote sensors, home appliances and industrial automations

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