Survey on IOT Assisted Farming and Crop Selection

Nikita Bagul[1], Deepika Shinde[2], Pooja chauhan[3], Alisha Waghmare[4], Prof. Amrin Sheikh[5]

Keystone School of Engineering, Savitribai Phule University, Pune, Maharashtra, India

ABSTRACT: Irrigation in India to a maximum extent is dependent on the monsoons, which is also a reliable source of water. Depending on the soil type, plants are to be provided with water through a proper irrigation system. This project is about the prototype design of micro-controller based intelligent irrigation system controller which will allow irrigation to take place from remote places where manual inspection is not needed. According to moisture and humidity of value of soil, a list of best suited crop is selected from all crops. Values of different monitoring parameters like temperature, humidity, moisture are shown on mobile app. Value of monitoring parameters are adjusted according to optimal condition required for particular crop.

KEYWORDS: Intelligent Irrigation System, Moisture Sensors, Mobile app, WIFI

I. INTRODUCTION

Now a day there is need of farm automation due to lack of resources like man power, water, etc. The system has a distributed wireless network of soil-moisture and temperature, humidity. Automation allows us to control various appliances automatically. The main aim of this project is to measure different parameters of soil and on this parameter control the water supply requirement for farm to maintain ambient conditions for crop. From overview of United Nations – Food and Agriculture Organizations, the overall sustenance generation ought to be expanded by 70% of every 2050 for developing populace. Farming is the reason for the human species as it is the principle wellspring of sustenance and it assumes critical part in the development of nation's economy. It likewise gives vast abundant work chances to the general population. The ranchers are as yet utilizing conventional strategies for agribusiness, which brings about low yielding of harvests and organic products. So the trim yield can be enhanced by utilizing programmed apparatus. There is have to execute current science and innovation in the agribusiness for expanding the yield. By utilizing IoT, we can expect the expansion underway with minimal effort by observing the proficiency of the dirt, temperature and stickiness checking, rain fall observing, composts effectiveness, checking capacity limit of water tanks and furthermore robbery location in farming territories. The mix of customary strategies with most recent advances as Internet of Things and Wireless Sensor Networks can prompt agrarian modernization. The Wireless Sensor Network which gathers the information from various sorts of sensors and send it to the primary server utilizing remote convention. There are numerous different elements that influence the efficiency to incredible degree. Components incorporate assault of creepy crawlies and nuisances which can be controlled by showering the best possible bug spray and pesticides and furthermore assault of wild creatures and winged creatures at the point when the yield grows up. The harvest yield is declining a direct result of unusual rainstorm rainfalls, water shortage and uncalled for water usage. India's significant wellspring of pay is from agribusiness area and 70% of ranchers and general individuals rely upon the horticulture. In India the majority of the water system frameworks are worked physically. Water system prerequisite relies upon soil properties like dampness and temperature and the sort of yield which is developed in the dirt. Advances have been created for effective utilization of water for water system reason. In India, agricultural territory gets control supply generally in non-crest hours; additionally visit control cuts and low voltage supply makes a major issue to agriculturists. The off-crest hours are typically night hours after 11 pm. In the event that rancher neglects to go to the water system, there is shot of wastage of water and power.

II. LITERATURE SURVEY

The results from paper [1] states that The controller shows the number of hours it should work and a number of times it should water the field and the duration between each cycle, after selecting these parameters the status of the motor is to be selected. IOT based smart farming system can turn out to be extremely useful for agriculturists since over and in addition less water system isn't useful for cultivating. Edge esteems for climatic conditions like stickiness, temperature, dampness can be settled in light of the ecological states of that specific district. This framework creates water system plan in light of the detected constant information from field and information from the climate store. This framework can prescribe agriculturist whether or not, is there a requirement for water system [2].

The featuring highlights of this venture incorporates keen GPS based remote controlled robot to perform undertakings like weeding, showering, dampness detecting, feathered creature and creature terrifying, keeping cautiousness, and so forth. Also it incorporates brilliant water system with keen control and smart basic leadership in view of precise ongoing field information. Thirdly, it is a brilliant distribution center administration which incorporates temperature support, stickiness upkeep and robbery location in the stockroom. Controlling of every one of these tasks will be through any remote brilliant gadget or PC associated with Internet and the activities will be performed by interfacing sensors, Wi-Fi or ZigBee modules, camera and actuators with smaller scale controller and raspberry pi [3].

This project has endeavored to present a productive shrewd homestead framework. It has joined mechanization into different parts of the homestead. Another plan for creature walled in areas is advanced to enhance the living states of domesticated animals, and in addition decrease physical work. It incorporates a computerized light, temperature, moistness and sprinkler framework. The moistness and dampness control components ensure the creatures are agreeable in the fenced in areas they are kept in, by altering the settings according to prerequisite. This will bring about accommodation, vitality effectiveness, and quality and wellbeing benefits [4].

For future improvements it can be upgraded by building up this framework for huge sections of land of land. Additionally the framework can be coordinated to check the nature of the dirt and the development of harvest in dirt. The sensors and microcontroller are effectively interfaced and remote correspondence is accomplished between different hubs. All perceptions and test tests demonstrate that this venture is an entire answer for field exercises and water system issues. Usage of such a framework in the field can enhance the yield of the harvests and general generation [5].

The framework includes a custom sensor plan for control productivity, cost adequacy, shoddy segments, and also adaptability end convenience. In future there are a few assignments that ought to be done and would build up the framework to a more develop state. The framework might be additionally reached out for outside usage [6].

'Internet of Things' is far and wide castoff in relating gadgets and social event insights. This horticulture observing framework fills in as a solid and effective framework and remedial move can be made. The created framework is more effective and advantageous for agriculturists. It gives the data about the temperature, stickiness of the air in rural field through MMS to the rancher, in the event that it aftermath from ideal range. The utilization of such framework in the field can propel the collect of the harvests and worldwide creation [7].

The mechanized water system framework has been outlined and executed in this paper. The framework created is valuable and works in financially savvy way. It diminishes the water utilization to a more prominent degree. It needs insignificant upkeep. The power utilization has been lessened in particular. The framework can be utilized as a part of green houses. The System is extremely helpful in territories where water shortage is a noteworthy problem. The edit efficiency increments and the wastage of harvests is particularly decreased utilizing this water system framework. The created framework is more useful and gives more practical outcomes [8].

This paper [9] talked about the improvement of a framework that could address these issues. It likewise talked about the plan necessities and the procedure on the best way to union the outline with promptly accessible devices. The brilliant water system controller was appeared to have the capacity of remote organization of programming. This capacity will give a helpful method to make updates to the framework without pestering the end client. Programming has been made and transferred to the controller for manual utilize. The subsequent stage will be further growing the product's usefulness and begin taking a shot at information stockpiling also, examination for mechanization purposes. With the improvement of innovation, agrarian field picked up significance in limiting the human power.

In that way IOT and Image handling innovation has been utilized to recognize the plant sicknesses. The worldwide water system situation is arranged by expanded interest for higher horticultural profitability, poor execution and diminished accessibility of water for agribusiness. Be that as it may, our plan will build the execution of horticultural field and keeping up the field keeping from illnesses [10].
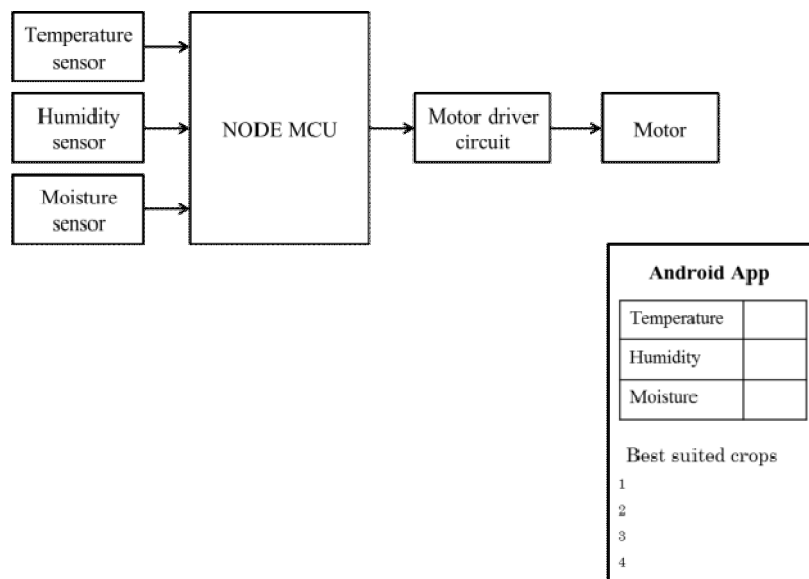
III. PROPOSED SYSTEM

fig 1. Proposed system

Fig shows the block diagram of the proposed system. It consists of sensing unit such as Soil Moisture Sensor, temperature sensor to measure water content of soil and the atmosphere temperature respectively and a Wi-Fi module in the transmission and receiving process for transmitting data from sensors to mobile phone and receiving commands from mobile phone.

According to moisture value of soil, a list of best suited crop is selected from all crops. Values of different monitoring parameters like temperature, humidity and moisture are shown on mobile app. Value of monitoring parameters are adjusted according to optimal condition required for particular crop. All the data is stored on database. Whenever value of moisture goes below threshold value then pump will be automatically sets ON.

IV. APPLICATION

- This project is helpful in agriculture domain.
- It is can be used for environmental monitoring
- It can be also used in geological survey and for monitoring soil for calculating early landslide detection.
- It is possible to monitor the soil parameter as well as water requirement for farm is controlled.
- The implementation is made easier thus this system is economic.
- For instance, a more accurate weather forecast can help better decision making in supplying water and reducing water wastage.

V. CONCLUSION

With the rising need to conserve water and electricity, a more advance watering system need to be developed. An economical system that can tell if watering is required based on weather conditions and or other ambient parameters, tells about market rate and helps in selecting perfect crop for particular type of soil. All sensors monitor the environmental condition and according to this conditions raspberry pi takes its decision. The motor will be turned OFF if moisture of soil is more or adequate. Information about best suitable crop for their field is stored in server as well as message send on mobile number.

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