

REVIEW ON SMART POLY-HOUSE SYSTEM

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ABSTRACT: In India maximum population occupation is farming. They are doing farming by using traditional methods. They are using permutations combination for crop growth. Feeding Water, Bio pesticides, fertilizer based on logical decision. Sometimes that decision goes wrong and resulting into loss in crop production. This is major problem in India. In developed country farming is done by using so many advance technologies. On other side in our country lack of resources, unplanned management, less budget and traditional methods are very crucial problem. Farmers are taking care of crop by survey in farm and analyzing those problems, regarding that problem which is time consuming and some time the disease is not correctly identify and providing suitable solution as per their knowledge. So we are going to cut this methodology which is followed by farmer since so many years. We proposed a system based on technical platform. This system will provide automatic soil moisture/ water level, disease/ infection detected based on type of crop. Send notification to farmer i.e. Soil water level, temperature, Humidity, light. Also Control the water level, temperature, humidity and light. We also provide a database which contain better schedule for each type of crop. Farmer will no need to go for survey in farm to analyze problem. Farmer will get automatic alert if any changes are occurred. It will provide location wise requirement so that it will provide accuracy. It helps for proper use of water, fertilizer, Bio pesticides. It will provide schedule for different crop which helps for improving crop production.

KEYWORDS: Sensors, Automation and Control system, Smart Irrigator System, Smart Sensing System. Image Processing, Plant diseases, Image processing step, Images classification approaches.

I. INTRODUCTION

Agriculture is the foundation of Indian economy. In India, around 70% of the population gains its job from agribusiness. The current improvement in data and correspondence advances has enabled agriculturists to obtain an immense measure of site-particular information for the fields. The principle exercises included are information accumulation, preparing, and variable rate of use of data sources. We can lessen a ton of manual work in the field of farming utilizing automation. The significant issue looked in numerous horticultural territories is that absence of motorization in agrarian exercises. In India farming exercises is done by difficult work, utilizing customary devices, for example, furrow, sickle and so on. Our Smart Farming System decreases the manual work and mechanizes the horticultural exercises. The ground water is contaminated because of the utilization of manufactured composts and pesticides. In smart cultivating, they are supplanted by natural composts (e.g. compost, creature excrement, green fertilizer) and by utilizing it the dirt structure is upgraded.

With the proceeded with interest for nourishment with an expanding populace, decreases in arable land, environmental change and political shakiness, the agribusiness business keeps on scanning for new ways to enhance efficiency and maintainability. This has brought about specialists from various disciplines looking for approaches to fuse new innovations and accuracy into the agronomic frameworks. There is a requirement for proficient and exact systems of cultivating, empowering agriculturists to put negligible contributions for high creation. In agribusiness we use such strategies which can help to achieve above necessity. It can help with enhancing the cultivating hones by utilizing data innovation instruments, which empowers ranchers to watch survey and control cultivating hones, for example, satisfactory composts, pesticides and water utilization. It additionally gives area particular data to the ranchers about the assets in controlling soil and condition parameters.

The most important things of smart farming are temperature measurements and water management. The reason is that the environmental and water management affects plant growth. In addition, environmental measurements using wireless sensor network and water management technology are much simpler, cheaper and lower running costs. Smart farming is combination of computer science, electrical engineering, electronics and telecommunication engineering and mechanical engineering fields which can improve the productivity, quality and profit. As shown in fig 1, the smart farming system has different terminologies like sensing technology, software application, communications System, hardware and software system, data analytics solution. Smart farming/poly-house system can monitoring and controlling automatically by using that terminologies.

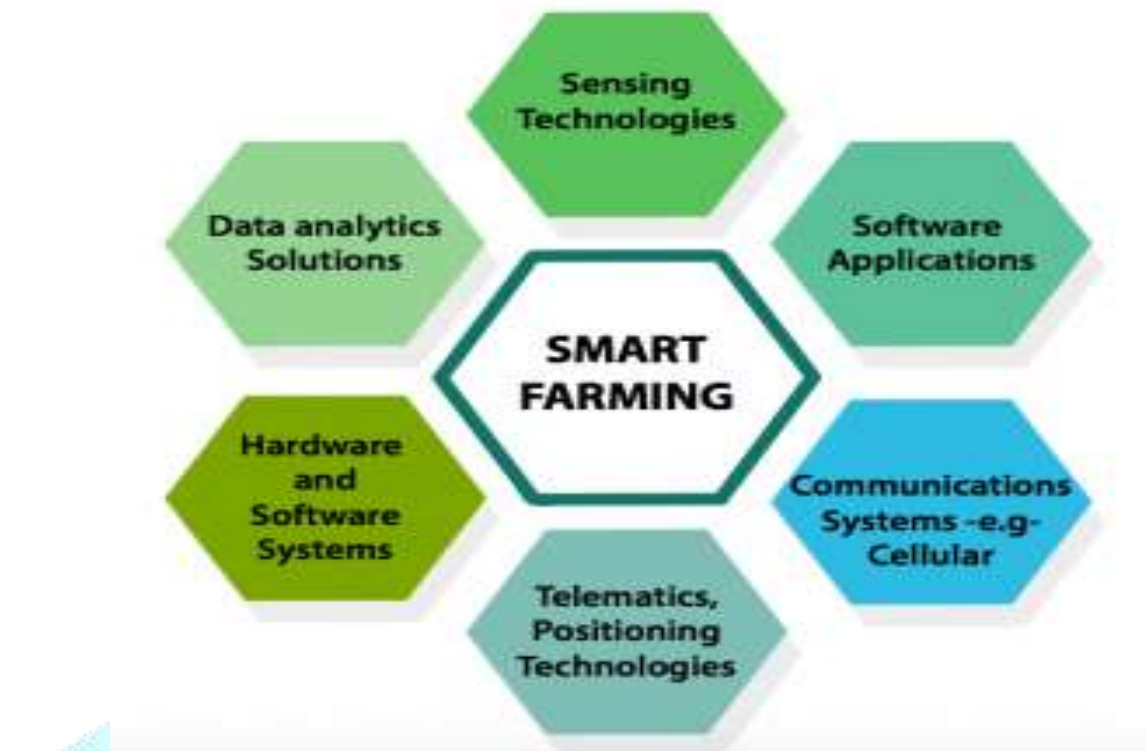


Fig 1: Smart Farming System terminologies.

II. RELATED WORK

1. In [1], from this paper we can analyze an agriculture environment and intervention to maintain its acceptability. The system deals with agriculture challenges like measure the temperature & humidity from environment, pH from soil, and nutrient support. Additionally the system deals with desert-specific challenges such as, dust, infertile sandy soil, constant wind, very low humidity, and the extreme variations in diurnal and seasonal temperatures. The system interventions are mainly intended to maintain the acceptability of the agriculture environment. For a reduced controller complexity, the adoption of fuzzy control is considered. The system implementation relies on state-of-art computer interfacing tools from National Instruments as programmed under Labview.
2. In [2], this paper proposed a methodology for smart farming. It can link a smart sensing system and smart irrigation system through wireless communication technology. This system focuses on the measurement of physical parameters. Such as soil moisture content, nutrient content, and pH of the soil can play vital role in farming activities. From the essential physical and chemical parameters of the soil measured, the required quantity of green manure, compost, and water is splashed on the crops using a smart irrigation system, which is mounted on a movable overhead crane system. The detailed modeling and control strategies of a smart irrigation and smart farming system are demonstrated in this paper.
3. In [3], this paper represents a short survey on image processing techniques to help researchers and farmers to improve the agricultural practices. Image processing can be used to help monitor plant growth and plant nutrition management. This paper focuses on the future potential for image processing for different agricultural industry contexts.
4. In [4], this paper proposed an Agricultural Image Processing. It is one of the core applications of Image processing. Nowadays Image processing is one of the most popular research areas. Where it is having participants in several application areas. Agricultural industry is one of such application areas. In this application area, image processing is being utilized in different ways which can identify the crop, plant, leaves, flower, fruits etc. as well as to identify the disease. Study diseases in agricultural fields. Digital image processing is a technique used for enhancement of the image. Which can be improved the agricultural productivity.

III. ARCHITECTURE

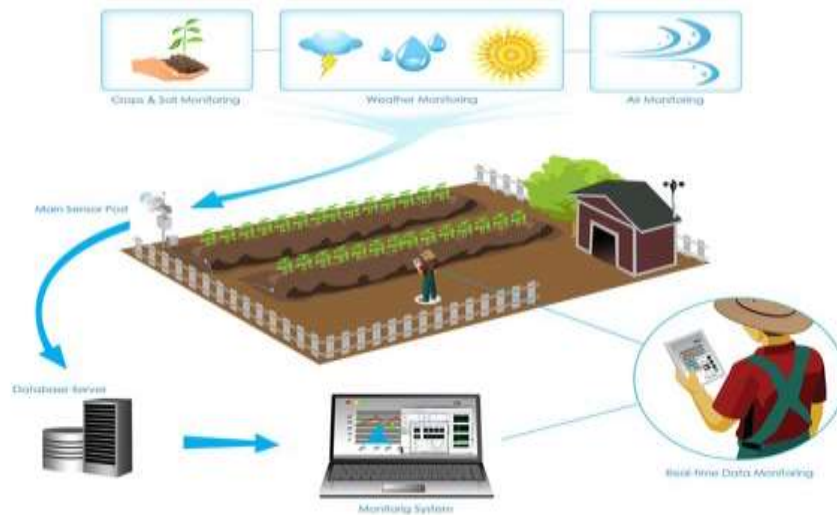


Fig 2: Architecture of Smart Farming.

The major problem faced in many agricultural areas is that lack of mechanization in agricultural activities. In India agricultural activities is carried out by manual labor, using permutations and combinations for crop growth. As shown in above fig 2, architecture of Smart Farming/Poly-house System reduces the manual work and automates the agricultural activities. We use sensors for collecting data from farm. Control system by microcontroller and collected real time data will be send to database which make system more effective and real time.

IV. ADVANTAGES

1. **Save water:** We proposed a system which can be monitoring the level of water in soil. System can take real time measurement and automatically on or off irrigation system. Which can properly feeding the water for crop and avoid the less or over dose of water. System can help to save water.
2. **Feasible Use of Pesticides and Fertilizer:** In our system we use authorized data of plant/crop like- healthy images of crop, images/data of paste on crop, images/data of different disease on crop. So system can be provide a proper notification of which pesticides and fertilizer is use for controlling the pest and disease on crop also improving the growth of crop.
3. **Automation and Control:** Our system can be without human involvement monitoring the field and send the real time measurement/information of field to the user/farmer. We proposed a system which can be automatically collecting data from field and also controlling the light, temperature, humidity and water level of soil which leads faster and timely output.
4. **Increase Crop production:** Sometimes Farmer's decision(permutations and combinations) of feeding water and fertilizer, spray of pesticides goes wrong. It can be in result is loss in crop production. But our systems monitoring part can be take real time data/information. And controlling part can be take a proper action likes on/off irrigator, on/off light controller, on/off humidifier/dehumidifier, controlling temperature. Our system can send notification of proper use of pesticides and fertilizer. Which can be surely helps to improving crop production.

V. CONCLUSION AND FUTURE SCOPE

The microcontroller based drip irrigation system proves to be a real time feedback control system which monitors and controls all the activities of drip irrigation system efficiently.

In future work we can use model to modernize the agriculture activities. System provide a feasible solution for use of water, fertilizer, pesticides and also control light, temperature, Humidity Which helps for improving crop production.

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