IOT Based on Smart Agriculture

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Abstract: Agriculture plays a vital role in the development of the country. In India, 70% of the population depends upon farming. There are many problems in the agriculture field. The paper aims at making agriculture smart using IoT technologies. In this paper, we are trying to implement IoT based services for the agriculture field. The primary component of our undertaking incorporates a GPS based remote- controlled robot that performs errands, for example, weeding, showering, dampness detecting, and so on. And Furthermore, this task would be useful to save real-time. This technology helps the farmers throughout the crop stages.
Keywords: Internet of Things(IoT), smart agriculture, agriculture robot, future food expectation.

I. INTRODUCTION

Agriculture is the main occupation in India. Most of the population is dependent on agriculture directly or indirectly. Agriculture gives the most noteworthy commitment to national pay. It isn't just a wellspring of job however a lifestyle. It is the basic foundation of a monetary turn of events.

Smart farming is a hi-tech arrangement of developing nourishment neatly and maintainable for the general population. the masses. It is the use of ICT(Information and Communication Technologies) into farming.

In IoT based smart farming, a system will be built for monitoring the crop field with the help of sensors like light, temperature, soil moisture, etc. The growers can monitor the field from anywhere. This smart farming is comparably more efficient.

The mix of the conventional strategies with the most recent advancements as the Internet of Things and remote Sensor Networks can prompt rural modernization. There are many other factors affect crop productivity. The crop yield is declining just because of unexpected rainfalls, water scarcity.

II. PROPOSED SYSTEM MODEL
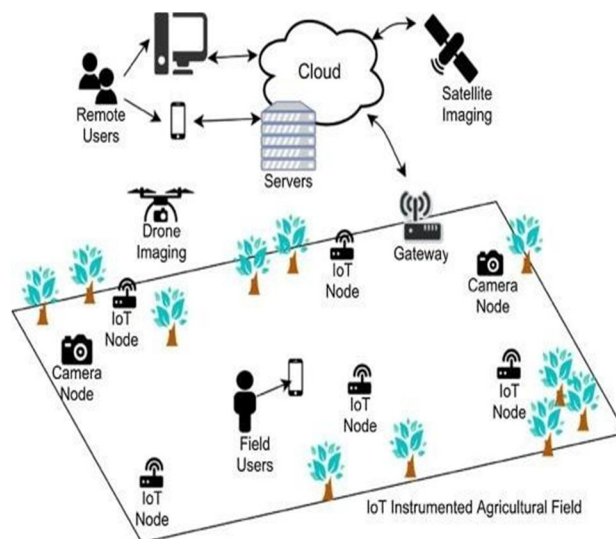
Ecological conditions varieties will influence the general yield of the harvest. Crops require very proper specific conditions for optimal growth and health. Monitoring the condition of the crop field is important and necessary, so sensors are used.
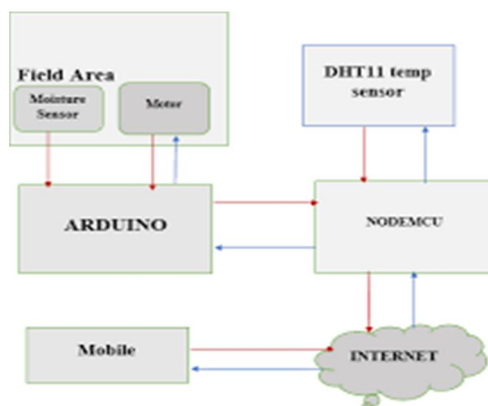
A DHT11 temperature sensor is used, it has built-in digital control. It detects the temperature esteems continuously. The camera is also used to capture the current images of the particular crop field and those images are sent to the farmerthrough GPRS.

III. APPLICATIONS OF IoT IN AGRICULTURE

A. Precision Farming

It is also known as precision agriculture. It can be thought of as anything that makes farming practice more controlled and accurate when it comes to raising livestock. The appropriation of the fast web, cell phones by the producer is a couple of innovations portraying the accuracy agribusiness pattern.

Precision farming is one of the most famous applications of IoT in the agriculture field. Crop Metrics is a precision agribusiness affiliation focused on ultra-present day agronomic courses of action. The items and administrations of crop metrics incorporate VRI advancement, soil dampness tests, virtual enhancer PRO and so forth. VRI maximizes profitability on irrigated crop fields with soil variability, improve yields, and increases water use efficiency.

B. Agriculture Drones

Nowadays, agriculture is one of the major industries in incorporate drones. Drones are used in agriculture practices. The significant advantages of utilizing rambles incorporate harvest wellbeing imaging, ease of use, saves time, and the potential to increase yields.

From the automaton information, we can draw bits of knowledge in regards to plant wellbeing lists, plant tallying and yield expectation, plant stature estimation, nitrogen content in wheat, seepage mapping, weed pressure mapping and, and so forth.

C. Livestock Monitoring

Large farm owners can use wireless IoT applications to collect data regarding the location, well-being and health of their cattle, and farm. This information helps in identifying animals that are sick so they can be separated from others. It also lowers the labor costs while farmers can find their cattle with the assistance of IoT based sensors

This is one of the arrangements which enables the dairy cattle proprietors to watch cows that are pregnant and goingto conceive an offspring. This sends the information to the herd manager. Then the sensor enables farmers to be more focused.

D. Smart Greenhouses

Greenhouse cultivating is a procedure that helps in upgrading the yield of vegetables, fruits, etc. Nurseries control the ecological parameters through manual mediation. As manual intervention results in production, energy losses, and labor costs.

This method is less effective. A savvy nursery can be planned with the assistance of the Internet of Things (IoT). These design monitors as well as controls the climate.

For controlling the environment in the smart greenhouse, different sensors which are helps in measuring the environmental parameters according to the plant requirement are used. We can create a cloud server which is used for remotely accessing the system when it is connected using IoT.

This eliminates the need for continuous manual monitoring. Inside the smart greenhouse, cloud server enables the data processing and applies the control action.

IV. CONCLUSION

Thus, The focus on smarter, better, and more efficient crop growing methodologies are required to meet the growing food demand of increasing world population. This paper includes all the aspects and highlights the role of various technologies and ideas, especially the Internet of Things (IoT), to make the agriculture smarter and more efficient.

This smart agriculture monitoring system serves as a reliable and efficient system. Further, corrective actions can be taken. Wireless monitoring of crop fields reduces the human power and it also allows the user to see accurate changes in fields. It is cheaper and consumes less power.

Based on all these, this can be concluded that every inch of the farmland is vital to maximize crop production. However, to deal with every inch of the farmland accordingly, the use of sustainable IoT based sensors and communication technologies is not optional but it is necessary.

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