Sona College of Technology

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LITERATURE SURVEY

TITLE : Smart Farmer- IOT Enabled Smart Farming Application

DOMAIN NAME : Internet of things

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ABSTRACT

The growth of the global population coupled with a decline in natural resources, farmland, and the increase in unpredictable environmental conditions leads to food security becoming a major concern for all nations worldwide. These problems are motivators that aredriving the agricultural industry to transition to smart agriculture with the application of the Internet of Things (IoT).The farming of agriculture has started past 12000 years back, Neolithic age gave birth of civilization, Farming and later being continued as traditional farming practicesThe identification of the techniques of smart farming that can give a boost to the deteriorating traditional agricultural sector. Use of smart techniques like Precision farming, efficient water management, Soil moisture and humidity monitoring are sure-shot methods to increase yield per acre of land. Precision Agriculture avoids the improper and excess application of pesticides and fertilizers and enables the farmer to use land according to its quality and nature. Precision Farming is a potential salvager at a time when the water tables in India are diminishing at a rapid rate due to unprecedented demand by the agricultural and industrial sectors. Recently skill acquired migrants all over the India who had returned to their natives during the Pandemic Covid-19 had chosen farming as their profession and are not interested go back. These migrants can now move closure to smart agriculture systems as it takes lesser time than traditional farmers to convince the adopt for the implementation of Smart agriculture system

Introduction :

In order to meet the current global needs of humanity, new solutions and technologies are constantly being proposed and implemented. This has led to the advent of the Internet of Things (IoT) . IoT is defined as the network of all objects that are embedded within devices, sensors, machines, software and people through the Internet environment tocommunicate, exchange information and interact in order to provide a comprehensive solution between the real world and the virtual world . In recent years, IoT has been appliedin a series of domains, such as smart homes, smart cities , smart energy , autonomous vehicles , smart agriculture, campus management], healthcare, and logistics.IoT smart agriculture products are designed to help monitor crop fields using sensors and by automating irrigation systemsThis planet's resources are not infinite. With the world population continuing to grow, food production globally may struggle to keep pace with demand.According to The Guardian, back in 2011, the UN Food and Agriculture Organization concluded that farmers would have to produce 70% more food by 2050 to meet the needs of a growing population.With time, soil used for agriculture becomes degraded and less productive for future crops.Farmers need to be cautious about using their resources effectively and sustainably.Producers must find ways to use their fields, greenhouses and pasture lands in a way that maintains high quality and high yield while ensuring that future food production capability is protected.

LITERATURE SURVEY

[1] The author describes .The increasing global population demands improved production to provide food in all sectors, especially in agriculture. Still, at certain periods, demand and supply will not match. Managing and sustaining capital and manpower is still a demanding challenge for improving agricultural production. Smart agriculture is a better option for growing food production, resource management, and labour. This research provides an overview of predictive analysis,

[2] The author describes .Farming is the backbone of the economy and it is the fundamental method for occupation. The large population of the world depends on farming for living day to day life. Around 70% of the Indian population depends on cultivation. Most of the cultivation cannot be productive only by physical activities so have to be handled by innovative technologies. Therefore, they use IoT innovation and SMS notification to address the critical part of farming. The past method of incorporating a keen water supply system with smart ideas. This undertaking is a follow up to a past method whose highlight features incorporates a keen water system with excellent control and insightful basic leadership in terms of exact continuous field information which regulates temperature, moisture and soil dampness of a particular crop. Controlling of every one of these activities will be monitored by PC with Internet and the tasks being performed by interfacing sensors and Arduino. With the observation results decisions are to be made.

The author describes .Internet of Things (IoT) technology has brought revolution to eachand every field of the common man's life by making everything smart and intelligent. IoT refers to a network of things which make a self configuring network. The development of Intelligent Smart Farming IoT based devices is day by day turning the face of agriculture production by not only enhancing it but also making it cost-effective and reducing wastage. The aim / objective of this report is to propose an IoT based Smart Farming System assisting farmers in getting Live Data (Temperature, Soil Moisture) for efficient environment monitoring which will enable them to increase their overall yield and quality of products.

[3] The author describes.Today's different types of technologies, techniques and tools are used in the agriculture sector. To improve productivity, efficiency and reduce the time, cost and human intervention, there is a need for a new technology called the Internet of Things. To automate the agricultural activities like water management, soil monitoring, crop management, livestock monitoring etc. different types of sensor are used. Smart Greenhouses protect the plants from extreme weather. To control all these operations remote smart devices, computers connected with the internet, sensor, camera, micro-controller etc. are used. Growth in the agriculture sector affects the economic condition of the country. This paper focuses on the Role of IoT in Agriculture that defines Smart Farming.

Benefits :

Benefits gained from smart farming using IoT are countless, but we will try to make a list of the top 5 most important ones.

- Increased production. IoT in agriculture allows for optimized crop treatment plans, including accurate planting, watering, and fertilizing. Such advanced care increases harvesting directly.
- Saved water. Sensors used in IoT in agriculture allow to precisely analyze how much water is required to keep an optimal moisture level in the soil. Then, plants are watered only when it is really required.
- Lower operation costs. IoT allows to automate many routine processes and not involve human labor. Automated planting, harvesting, and treatment greatly reduce resource consumption and cut costs.
- Better production quality. IoT solutions analyze treatment plans in correlation to production quality and provide insights into how the whole process could be enhanced. Thus, the quality of production is increased as well.
- Reduced footprint. As you know, farming leaves a huge footprint on the environment, and IoT can help to reduce it. With IoT, farmers can control and reduce water usage as well as increase production per land unit, which will directly enhance the environmental status of the farm

REFERENCES

[1] Farooq, M. S., Riaz, S., Abid, A., Abid, K., & Naeem, M. A. (2019). A Survey on theRole ofIoT in Agriculture for the Implementation of Smart Farming. *Ieee Access*, *7*, 156237-156271.

[2] Farooq, M. S., Sohail, O. O., Abid, A., & Rasheed, S. (2022). A survey on the role ofiot inagriculture for the implementation of smart livestock environment. *IEEE Access*, *10*, 9483-9505.

[3] A Study On Smart Irrigation Systems For Agriculture Using Iot (Dr. J. JegatheshAmalraj, S. Banumathi, J. JereenaJohn)
International Journal Of Scientific & Technology Research
Volume 8, Issue 12, December 2019

[4] IoT-Based Smart Irrigation Systems: An Overview on the Recent

Trends on Sensors and IoT Systems for Irrigation in Precision Agriculture Laura García ,Lorena Parra , Jose M. Jimenez , Jaime Lloret and Pascal Lorenz , Sesnors 2020

[5] Sungheetha, Akey, and Rajesh Sharma. "Real Time Monitoring and Fire Detection using Internet of Things and Cloud based Drones." Journal of Soft Computing Paradigm (JSCP) 2, no. 03 (2020): 168-174.

[6] J.Arumai Ruban, C.Balakrishnan, S.Santhoshkumar, G.Jagan Study of Smart Farming Techniques in Drip Irrigation using IoT ” International Journal of Advanced Science and TechnologyVol. 29, No. 2, (2020), pp. 4595-4613.

[7] An IOT based Smart Irrigation System using Soil Moisture and Weather Prediction, S. Velmurugan , V. Balaji, T.Manoj Bharathi, K. Saravanan, International Journal of Engineering Research & Technology (IJERT) ISSN: 2278-0181

[8] Climate-Smart Agriculture and Smallholder Farmers’ Income: The Case of Soil Conservation Practice-Adoption at Qamata Irrigation Scheme, South Africa, I.D. Ighodaro, A. Mushunje , B.F. Lewu1 and B.E. Omoruyi, JHE, 2020.