

Literature Survey

TITTLE: Internet of Things (IoT) for Smart precision Agriculture and farming in Rural Areas.

AUTHOR: Nurzaman Ahmed , Debashy De, Iftekhar Hussain

VOLUME : 5.

YEAR : DECEMBER 2018.

JOURNAL: IEEE.

Internet of Things (IoT) gives a new dimension in the area of smart farming and agriculture domain. With the use of fog computing and WiFi-based long distance network in IoT, it is possible to connect the agriculture and farming bases situated in rural areas efficiently. To focus on the specific requirements, we propose a scalable network architecture for monitoring and controlling agriculture and farms in rural areas. Compared to the existing IoT-based agriculture and farming solutions, the proposed solution reduces network latency up to a certain extent. In this, a cross-layer-based channel access and routing solution for sensing and actuating is proposed. We analyze the network structure based on coverage range, throughput, and latency.

ADVANTAGES:

- The Scalable Network Agriculture for Monitoring and Controlling Agriculture and farms in Rural Areas.
- Wi-Fi based on long distance network in IoT.
- Channel access and routing solution for sensing and actuating.
- It also suitable for smart health care and smart grid in rural regions.

DISADVANTAGES:

- Network latency up to a certain extent.
- Traditional approaches is not sufficient.
- Not secure the long distance covering wireless network.

TITTLE : SMART FARMING: IOT Based Smart Sensor Agriculture Stick for Live Temperature and Humidity Monitoring.

AUTHOR : Nirav Rathod, Vijaya Pinjarkar, Shreedhar Panigrahi.

VOLUME: 9,Issued 07.

YEAR: July-2020.

JOURNAL : International Journal of Engineering Research & Technology (IJERT).

Internet of Things (IoT) technology has evolved in each and every field of 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 various different Intelligent Smart Farming IoT based devices is day by day changing the face of agriculture which helps in production of crops by not only upgrading it but also making it cost-effective and reducing wastage. These paper is to propose a Smart IoT based Agriculture Stick that will farmers in getting live Data of Temperature, Soil Moisture, etc and The Agriculture stick being proposed through this paper is integrating with Arduino Technology, Breadboard and mixed with different various sensors and live data feed can be obtained online through mobile phone. The product being proposed is tested on Live Agriculture Fields giving high accuracy in data feeds in different soil condition at different locations.

ADVANTAGES:

- Increase there overall yield and quality of products.
- Gives High accuracy in data feeds at different locations.
- Live data's can be obtained online through mobile phone's.
- Reduce the wastages , and High efficiency.

DISADVANTAGES:

- Not suitable for long acres land in development side.
- It cannot be suitable for any type of soil.
- It take more cost.

TITLE: Internet of Things Monitoring System of Modern Eco-Agriculture Based on Cloud Computing.

AUTHOR: SHUBO LIU, LIQING GUO, HEATHER WEBB, XIAO YA, XIAO CHANG.

VOLUME: 7.

YEAR : 2019.

JOURNAL : IEEE.

In order to enhance the efficiency and safety of production and management of modern agriculture in China , problems ,such as the quality and safety of agricultural products and the pollution of the environment from agricultural activities, should be unraveled. Based on the new generation of information technology (IT), an integrated framework system platform incorporating the Internet of Things (IoT), cloud computing, data mining, and other technologies is investigated and a new proposal for its application in the field of modern agriculture is offered. The experimental framework and simulation design suggest that the basic functions of the monitoring system of the IoT for agriculture can be realized. In addition, the innovation derived from integrating different technologies plays an important role in reducing the cost of system development and ensuring its reliability as well as security.

ADVANTAGES:

- The basic functions of the monitoring system of the IoT for Agriculture can be realized.
- Reduce the cost.
- Is reliability as well as security.

DISADVANTAGES:

- The pollution of the environment from agriculture activities should be unraveled.
- Information Technology(IT) System incorporating to IoT.

TITTLE : Security in IoT-enabled Smart Agriculture: Architecture, Security Solutions and Challenges.

AUTHOR: Anusha Vangala ,Ashok Kumar Das , Vinay Chamola , Valery Korotaev.

YEAR: April 2020.

JOURNAL : IEEE.

Agricultural industry is one of the most vital industries that has a major contribution to the economy due to its share in the Gross Domestic Product (GDP) and as a source of employment. The past few decades have seen immense change in the operation of agricultural sector with the introduction of precision farming in conjunction with Internet of Things (IoT). The application of such advancements is highly based on exchange of messages between various devices in the farming. This paper aims to study the security scenarios applicable in husbandry through the analysis of possible attacks and threats. The testbeds available for agriculture based on IoT have been studied. An architecture for smart farming is proposed which is independent of the underlying technologies that may be used and the requirements of security have been laid out based on the proposed architecture.

ADVANTAGES :

- Higjely based on exchange of messages between various devices in the farming.
- Has a major contribution of the economy due to its share in the Gross Domestic Product (GDP) and as a sours of employment.
- the security scenarios applicable in husbandry through the analysis of possible attacks and threats.

DISADVANTAGES:

- In this Teconology using we have affect the immediate message passing due to internet connection.

TITTLE : Internet-of-Things (IoT) based Smart Agriculture: Towards Making the Fields Talk.

AUTHOR : Muhammad Ayaz, Mohammad Ammad-uddin, Zubair Sharif, Ali Mansour ,
el-Hadi M.Aggoune.

YEAR : April 2019.

JOURNAL : IEEE.

Despite the perception people may have regarding the agricultural process, the reality is that today's agriculture industry is data-centered, precise, and smarter than ever. The rapid emergence of the Internet-of-Things (IoT) based technologies redesigned almost every industry including smart agriculture. which moved the industry from statistical to quantitative approaches. Such revolutionary changes are shaking the existing agriculture methods and creating new opportunities along a range of challenges. This article highlights the potential of wireless sensors .

ADVANTAGES :

- This article highlights the potential of wireless sensors and IoT in agriculture, as well as the challenges expected to be faced when integrating this technology with the traditional farming practices.
- sensors are available for specific agriculture application, like soil preparation, crop status, irrigation, insect and pest detection.
- the use of unmanned aerial vehicles for crop surveillance and other favorable applications such as optimizing crop yield is considered in this article.

DISADVANTAGES :

- Revolutionary changes are shaking the existing agriculture methods and creating new opportunities along a range of challenges.
- This method take more time and cost.

TITTLE : A Survey on the Role of IoT in Agriculture for the Implementation of Smart Farming

AUTHOR : MUHMMAD SHOAIB,FAROOQ,SHAMYIARIAZ,ADNAN ABID.

VOLUME : 7-2019.

YEAR : NOVEMBER-2019.

JOURNAL : IEEE.

Internet of things (IoT) is a promising technology which provides efficient and reliable solutions towards the modernization of several domains. IoT based solutions are being developed to automatically maintain and monitor agricultural farms with minimal human involvement. The article presents many aspects of technologies involved in the domain of IoT in agriculture. It explains the major components of IoT based smart farming. A rigorous discussion on network technologies used in IoT based agriculture has been presented, that involves network architecture and layers, network topologies used, and protocols. Furthermore, the connection of IoT based agriculture systems with relevant technologies including cloud computing, big data storage and analytics has also been presented.

ADVANTAGES :

- Smart farming systems reduce waste, improve productivity and enable management of a greater number of resources through remote sensing.
- In traditional farming methods, it was a mainstay for the farmer to be out in the field, constantly monitoring the land and condition of crops.

DISADVANTAGES :

- It requires an unlimited or continuous internet connection to be successful. This means that in rural communities, especially in the developing countries where we have mass crop production, it is completely impossible to operate this farming method.

TITTLE : Smart Farming System using IoT for Efficient Crop Growth.

AUTHOR : Abhiram MSD,Jyothsnavi Kuppili,N.Alivelu Manga.

YEAR : 2020.

JOURNAL : IEEE.

Smart agriculture is a farming system which uses IoT technology. This emerging system increases the quantity and quality of agricultural products. IoT devices provide information about nature of farming fields and then take action depending on the farmer input. In this paper, an IoT based advanced solution for monitoring the soil conditions and atmosphere for efficient crop growth is presented. The developed system is capable of monitoring temperature, humidity, soil moisture level using NodeMCU and several sensors connected to it. Also, a notification in the form of SMS will be sent to farmer's phone using Wi-Fi about environmental condition of the field.

ADVANTAGES:

- The system increases the quantity and quality of agricultural products.
- IoT devices provide information about nature of farming fields.
- The notification in the form SMS will be farmer's phone.

DISADVANTAGES :

- The system is not capable of monitoring temperature.
- The soil of the fields is harmed and fertility is reduced as a result of excessive use of technology. Fertilizers and chemicals can boost productivity, but they can deplete soil fertility over time.

TITTLE :Internet of thIngs and LoraWan-enabLed future smart farmIng

AUTHOR : Bruno Citoni, Francesco Fioranelli, Muhammad A. Imran, and Qammer H. Abbasi.

YEAR : December - 2019.

JOURNAL : IEEE.

It is estimated that to keep pace with the predicted population growth over the next decades, agricultural processes involving food production will have to increase their output up to 70 percent by 2050. “Precision” or “smart” agriculture is one way to make sure that these goals for future food supply, stability, and sustainability can be met. Applications such as smart irrigation systems can utilize water more efficiently, optimizing electricity consumption and costs of labor; sensors on plants and soil can optimize the delivery of nutrients and increase yields. To make all this smart farming technology viable, it is important for it to be low-cost and farmer-friendly.

Fundamental to this IoT revolution is thus the adoption of low-cost, long-range communication technologies that can easily deal with a large number of connected sensing devices without consuming excessive power. In this article, a review and analysis of currently available long-range wide area network (LoRaWAN)-enabled IoT application for smart agriculture is presented.

ADVANTAGES :

- The agriculture process food production will have ti increase their output.
- Long -range communication technologicis that can earily deal with a large number of connected sensing device without consuming excessive power.
- Low cost and farmer friendly.

DISADVANTAGES :

- Future research challenges that this will not help to tackle.
- Population growth.

TITTLE : Design and Implementation of an Agricultural Monitoring System for Smart Farming.

AUTHOUR :Jan Bauer and Nils Aschenbruck.

YEAR : 2018.

JOURNAL : IEEE.

The integration of modern information technologies into industrial agriculture has already contributed to yield increases in the last decades. Nowadays, the emerging Internet of Things (IoT) along with Wireless Sensor Networks (WSNs) with their low-cost sensors and actors enable novel applications and new opportunities for more precise, site-specific, and sustainable agriculture in the context of Smart Farming. In this paper, we present a holistic agricultural monitoring system, its design, and its architectural implementation. The system primarily focuses on in-situ assessment of the leaf area index (LAI), a very important crop parameter. Moreover, we introduce real-world challenges and experiences gained in various deployments. Finally, first results are exemplarily demonstrated in order to briefly address the potential of our system.

ADVANTAGES:

- It will be having various development and potential of the system.
- Using low cost sensors and novel applications.

DISADVANTAGES :

- It already contribute to yield increases in the last decades.
- Emerging IoT along with wireless sensor network.

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SUMMARY:

IoT smart farming solutions is a system that is built for monitoring the crop field with the help of sensors (light, humidity, temperature, soil moisture, crop health, etc.) and automating the irrigation system. **The farmers can monitor the field conditions from anywhere.** They can also select between manual and automated options for taking necessary actions based on this data. For example, if the soil moisture level decreases, the farmer can deploy sensors to start the irrigation. Smart farming is highly efficient when compared with the conventional approach.