LITERATURE SURVEY ON THE SELECTED PROJECT & INFORMATION GATHERING

Smart Farmer - IoT Enabled Smart Farming Application

Internet of Things Smart technology enables new digital agriculture. Today technology has become a necessity to meet current challenges and several sectors are using the latest technologies to automate their tasks. Advanced agriculture, based on Internet of Things technologies, is envisioned to enable producers and farmers to reduce waste and improve productivity by optimizing the usage of fertilizers to boost the efficiency of plants. It gives better control to the farmers for their livestock, growing crops, cutting costs, and resources.

The world's total population touched 6.60 billion in 2000 but is projected to grow to 9.32 billion by 2050. Hence, it is necessary to increase the yield on the limited farmland.

It is a high-tech system to grow crop cleanly and sustainably for the masses. It is the application of modern Information and Communication Technologies in agriculture.

Existing solutions:

Smart Farming has enabled farmers to reduce waste and enhance productivity with the help of sensors (light, humidity, temperature, soil moisture, etc.) and automation of irrigation systems. Further with the help of these sensors, farmers can monitor the field conditions from anywhere. Internet of Things based Advanced Farming is highly efficient when compared with the conventional approach. The applications of intelligent Agriculture solutions not only targets conventional, large farming. With operations, but could also be new levers to uplift other growing or common trends in agricultural like organic farming, family farming (complex or small spaces, particular cattle and/or cultures, preservation of specific or high-quality varieties, etc.), and enhance highly transparent Farming.

Challenges:

- A unified solution which can be integrated with different types of Internet of Things devices.
- The most common challenge for the Internet of Things in agriculture is connectivity. Every area doesn’t have proper internet connectivity.
- The second most common challenge for Internet of Things based Advanced Farming is the lack of awareness among consumers.
- Due to various service providers, it becomes really difficult to maintain interoperability between different IoT systems.
- A scalable solution that can be integrated with thousands of IoT devices for large farms.

Technical papers:

[1] Lin Yuanguai. An Intelligent Monitoring System for Agriculture Based on ZigBee Wireless Sensor Network Journal .Advanced Materials Research, Manufacturing Science and Technology, 2011, Vols.383~399:4358~4364

[2] Zhang Chunhong. The Internet of Things Technology and Applications [M].Beijing: Posts & Telecom press, 2011. (In Chinese)

[3] Sachin, Kumar., Prayag, Tiwari., & Mikhail, Zymbler . (2019) Internet of Things is a revolutionary approach for future technology enhancement: a review.Journal of Big Data volume 6, Article number: 111(2019)

[4] Gubbi, J., Buyya, R., Marusic, S., & Palaniswami, M.(2013) Internet of things (IoT): a vision, architectural elements, and future directions. Future Gener Comput Syst. 2013;29(7):1645- 60.

[5] Mohanraj, Kirthika Ashokumar, Naren J., "Field Monitoring and Automation using IOT in Agriculture Domain", 6th International Conference On Advances In Computing & Communications, ICACC 2016, 6-8 September 2016, Cochin, India.