

Literature Survey on "Smart Farmer – IOT Enabled Smart Farming Application"

Batch NO : B9-3A5E

1. Smart Agriculture Using Internet of Things (Ibrahim Mat,

Mohamed Rawidean Mohd Kassim, Ahmad Nizar Harun, Ismail Mat Yusoff MIMOS Berhad, Kuala Lumpur, MALAYSIA {ibm, dean, nizar.harun, ismail} @mimos.my)

Recent researches hypothetically showed the potential of Internet of Things (IoT) to change major industries for a better world, which includes its impact towards the agriculture industry. Farming industry must grasp IoT to feed 9.6 billion of global population by 2050. Challenges such as extreme weather conditions and rising climate change shall be overcome to fulfill the demand for food. Smart farming based on IoT technologies will enable growers and farmers to reduce waste and enhance productivity ranging from the quantity of fertilizer utilized to the number of journeys the farm vehicles have made. So, what is smart farming? Smart farming is a capital-intensive and hi-tech system of growing food cleanly and sustainable for the masses. It is the application of modern ICT (Information and Communication Technologies) into agriculture. In this paper, the hardware and software of the IoT for smart farming will be presented besides sharing the successful results.

2. IoT Applications in Smart Agriculture: Issues and Challenges (Mohamed Rawidean Mohd Kassim, SMIEEE Kuala Lumpur, Malaysia

dean@mimos.my)

The rapid development of Internet of Things (IoT) technologies created tsunamis almost in every industry across the world and particularly in agriculture. These massive changes are shaking the existing agriculture methods and creating new wave of opportunities. Due to the increase of world population by 30%, agriculture products will have a very high demand by 2050. Human resources for agriculture development is becoming less due to migration of young people to big cities and land use for agriculture cultivation is being used for rapid development. As a

result, most of the agriculture activities need to be automated to fulfill the food demand. IoT and related technologies will be the potential solution to solve the above agricultural and food demand issues. This Paper will explore the latest trends in IoT agriculture applications and highlight the issues and challenges particularly in network and open source software for smart agriculture.

3. Smart Agriculture Using internet of things with raspberry pi”—2020 (Zuraida Muhammad,Muhammad Azri Asyraf Mohd Hafez,NorAdni Mat”)

The term "Internet of Things" refers to the connection of objects, equipment, vehicles, and other electronic devices to a network for the purpose of data exchange (IoT). The Internet of Things (IoT) is increasingly being utilized to connect objects and collect data. As a result, the Internet of Things' use in agriculture is crucial. The idea behind the project is to create a smart agriculture system that is connected to the internet of things. The technology is combined with an irrigation system to deal with Malaysia's variable weather. This system's microcontroller is a Raspberry Pi 4 Model B. The temperature and humidity in the surrounding region, as well as the moisture level of the soil, are monitored using the DHT22 and soil moisture sensor. The data will be available on both a Smartphone and a computer. As a result, Internet of Things (IoT) and Raspberry Pi-based Smart Agriculture Systems have a significant impact on how farmers work. It will have a good impact on agricultural productivity as well. In Malaysia, employing IoT-based irrigation systems saves roughly 24.44 percent per year when compared to traditional irrigation systems. This would save money on labor expenditures while also preventing water waste in daily needs

4. Internet of things for smart agriculture: Technologies, practices and future direction (Partha Pratim Ray Department of Computer Applications, Sikkim University, 6th Mile, PO Tadong, Gangtok, Sikkim 737102, India)

The advent of Internet of Things (IoT) has shown a new direction of innovative research in agricultural domain. Being at nascent stage, IoT

needs to be widely experimented so as to get widely applied in various agricultural applications. In this paper, I review various potential IoT applications, and the specific issues and challenges associated with IoT deployment for improved farming. To focus on the specific requirements the devices, and wireless communication technologies associated with IoT in agricultural and farming applications are analyzed comprehensively. Investigations are made on those sensor enabled IoT systems that provide intelligent and smart services towards smart agriculture. Various case studies are presented to explore the existing IoT based solutions performed by various organizations and individuals and categories according to their deployment parameters. Related difficulties in these solutions, while identifying the factors for improvement and future road map of work using the IoT are also highlighted.

5. “Agro-Sense: Precision Agriculture using Sensor-based Wireless Mesh Networks

(Anurag D, Siuli Roy and Somprakash Bandyopadhyay”, ITU-T “Innovation in NGN”, Kaleidoscope Conference, Geneva 12-13-May-2008)

Water management currently global problem to all of us to tackle them in near future we need to plan it smartly. As we are living in modern world filled with lots of useful sensors from which we can designed systems with water saving capabilities. The work in this paper is focusing on increasing effective use of water using field assist to farmer. Basically it works with soil moisture sensor which gives finding of moisture level in soil and reconnects with Thing Speaks cloud via Wi-Fi module ESP8266 to observation of soil conditions. Proposed system also set with an algorithm such that on soil moisture pattern data it can predict decision on irrigation of crops. System also warns farmer about empty water source if it occurs. Benefits of using this system also include weather prediction through website. The device has the potential to be beneficial in water-scarce, geographically isolated places due to its energy independence and low cost. The fact that the technology is simple to use for farmers adds to its utility

DONE BY

BATCH NO: B9-3A5E (917719D023,917719D011,917719D049,19D069)