

Survey on Application of IoT in Agriculture

M. Kirubakaran^{1*}, P.Lavanya², George Gabriel Richard Roy³

^{1,2,3}Dept. of Information Technology., St. Josephs college, Bharathidhasan University, Trichy, India

*Corresponding Author: kirubamuthu11111@gmail.com, Tel.: +91 97914-35424

DOI: <https://doi.org/10.26438/ijcse/v7i3.571573> | Available online at: www.ijcseonline.org

Accepted: 10/Mar/2019, Published: 31/Mar/2019

Abstract— The Internet of Things (IoT) is the system of physical gadgets mainly used in vehicles, home apparatuses and different things inserted with hardware, programming, sensors, actuators and availability that empowers these articles to interface and trade information. Agribusiness is the essential occupation in numerous nations for ages. Especially farming assumes imperative job in the advancement of agrarian nation like India, and Internet of Things (IoT) is one of the quickest creating innovations all through the India. However at this point because of relocation of individuals from rustic to urban there is block in agribusiness. So to beat this issue we have a few applications incorporated with IoT which help the general population with less human work in farming. Also, in this paper we are going to see a review give an account of a portion of the gadgets which are utilized in farming alongside IoT like sensors and small scale controllers.

Keywords—: IoT, Agriculture, Sensor, Micro-controller, Survey.

I. INTRODUCTION

The IoT is fundamentally interfacing any gadget with an on and off change to the internet. IoT is the internetworking of physical gadgets associating with each other to collect, control and exchange the information. In agriculture the IoT depends on savvy cultivating framework, which is worked for observing the yield field with the assistance of sensors in the realm of agriculture. People are relying upon agribusiness by utilizing water and land assets ideally in this horticulture arrive we can utilize IoT advances for examine and actuators. This innovation depends on horticultural checking framework extraordinarily required for ranchers in creating nations. It is anticipated that 87% use fresh water for Cultivation and 33% of world's population created nourishment utilizes water system at each year. Hence, most of the general population needs to utilize IoT sensors for creating horticultural field and the vast majority of the sensors are utilized in exactness agribusiness for giving information that causes ranchers to screen and advance harvests. In this paper we are clarifying the sensors scientific and actuators. In the mean of actuator, it is a gadget that changes over vitality into movement. By and large the sensor scientific is the measurable logical of information that is made by remote sensors. The main motto of this paper is to make survey report on application of IOT in agriculture to give a clear picture of uses in agriculture in IoT.

II. LITREATURE SURVEY

Mrs S.Devi and P.Rajalakshmi et.al[1] invented a system using sensors to monitor the crops. This technology is based

on wireless transmission. The sensor data stored in database. Joaquin Gutierrez et.al[2] invented an automated irrigation with use of solar power for organic these are geographically unique.thisworkisbasedonduplexcommunication.heisimplementedARMmicrocontrollerthesetypesoftechnologyisbasedonfindingpuresurfacewater.HeimplementedARMmicrocontrollerhesetypesoftechnologyisbasedonfindingpuresurfacewater.TheWiFitechnologywasintroducedtogiveabetterperformanceforbetterenhancementofproductionincrop.JiaUddinet.al[3] proposed a system for two levels one is on another one is off. to find the valuesof secure and unsecure with use of microcontroller. R.Sureshet.al[4] was also used microcontroller techniques for enhanced method for sends sensor nodes. It is operate the solenoid values.

ZulhaniRasinet.al[5] demonstrated the wireless systems using water pump in farm using technology of Zigbee. This technology monitored water level and soil moisture. Chao Longet.al[6] invented smart irrigation system using 89c51 microcontroller and java based smart controlled irrigation system remotely for temperature. Kabashi and Elmirghfniet.al[8] propose a project for the vessel this is based on dynamic zone based topology.

Multiple research of done to enhanced the performance of agriculture field.Arduino technology to control roofing and watering of the green house. Kalman filter is used to avoid noise from the sensors. These types of research are user to preserve the green house with roofing and watering method. Here we are us using two different technology is based on

ground water surface water; quality products find the water standards with whether to find GSM and WI-FI technology.

III. IOT FOR AGRICULTURE

Now a day's Internet of Things (IoT) is placed major role of distance fields such as medicine, agriculture, auto machine etc.. Especially internet of things (IoT) makes a change to compare ordinary farming between automatic farming. The IoT different microcontrollers and the technology are help to find the surface and ground floor water ranges. Then also find the whether temperature which place is better to farming for identifying with help of IoT. Some examples of IoT based on agriculture are precision farming, agriculture drones, and livestock monitoring, smart greenhouses.

Precision farming one of the most famous application of IoT in agriculture also the no of organization have started this technique around the world. Two types of drones are available such as ground based drones and aerial based drones. this drones being agriculture in many ways such as crop helps assessment, irrigation planning and soil. Drones major benefits are time saving, crop health imaging and ability to increase yields. Livestock monitoring to collect data about the location ,well being and castle health. This data are helps to identify the condition of livestock. This application is used to preventing the spread of disease to entire cattle. Smart greenhouses in technique that improve the yield of crops, vegetables, fruits etc..



Table 1:

| AUTHOR | SENSOR/MICRO CONTROLLER | TECHNOLOGY | OUTCOME |
|------------------------------|-------------------------|-------------------------------|--|
| Mrs S.Devi and P.Rajalakshmi | Transmission | Wireless transmission | Monitor the crops |
| Joaquin Gutierrez | Duplex communication | ARM microcontroller | Finding pure surface water |
| JiaUddin | Diode (ON/OFF) | Microcontroller | To find the value of secure and UN-secure data |
| R.Suresh | Sensor nodes | Microcontroller | Operate the solenoid values |
| ZulhaniRasin | Wireless systems | Zig bee | Monitored water level and soil moisture |
| Chao Longet | 89c51 microcontroller | Java smart controller | Finding the temperature |
| Kabashi and Elmirghfni | Microcontroller | Dynamic zone based technology | Project for vessel |

IV. CONCLUSION

The IoT is becoming trend in the world and the scientist is keep on searching for new inventions in IoT. Likewise the agriculture application in IoT is a kind of invention by some scientist. The primary point of this paper is to make survey report on papers which commence with application of IoT. Here we attach a table to precise the uses of IoT in agriculture.

REFERENCES

- [1]“A Novel Technology for Smart Agriculture Based on IoT with Cloud Computing”, Mahammad Shareef Mekala Research scholar, Dr P.Viswanathan Associate Professor.
- [2]“IoT Based Control and Automation of Smart Irrigation SystemAn Automated Irrigation System Using Sensors, GSM, Bluetooth and Cloud Technology”, Monica M1, B.Yeshika2, Abhishek G.S2, SanjayH.A3,SankarDasiga4 UG Student, Department of Information Science andEngineering, UG Students, Department of Electronics and Communication Engineering, Professor & Head of Department, Information Science and Engineering, Senior Professor, Electronics and Communication Engineering.
- [3]“Cloud Based Data Analysis and Monitoring of Smart Multi-level Irrigation System Using IoT”, Sanket Salvi1, Pramod Jain S.A2, SanjayH.A3,Harshita T.K4, M. Farhana4, Naveen Jain4, Suhas M V4.
- [4]“Wireless Sensor and Actuator System for Smart Irrigation on the Cloud”, Nelson Sales, Orlando Remédios SenseFinity, Artur Arsenio, Universidade da Beira Interior.
- [5] “IoT Based Smart Irrigation Monitoring And Controlling System”, Shweta B. Saraf, Dhanashri H. Gawali
- [6]“SMART AGRICULTURE MANAGEMENT SYSTEM”, Pushpalatha S1, Shreyas B2, Syed Nadeem Hussain3, Sadhan Kumar4, Pramoda CS5
- [7]“International Conference onMicro Electronic and Mechanical Systems” MEMS,Kyoto, Japan, 2012, pp. 65–68.
- [8]Goli, K. M., Maddipatla, K., & Sravani, T. (2011). “Integration of wireless technologies for sustainable agriculture”. International Journal of Computer Science & Technology, 2(4), 83-85.
- [9]Zhenyu Liao; Sheng Dai; Chong Shen, "Precision agriculture monitoring system based on wireless sensor networks," Wireless Communications and Applications (ICWCA 2012), IET International Conference on ,vol., no., pp.1,5, 8-10 Oct. 2012.
- [10] Moummadi, K., Abidar, R., Medromi, H., "Generic model based on constraint programming and multi-agent system for M2M services and agricultural decision support," Multimedia Computing and Systems (ICMCS), 2011 International Conference on, vol., no., pp.1,6, 7-9 April 2011