

IBM

TITLE :- Smart Agricultural Farming Using IOT

LITERATURE SURVEY :-

Joaquín Gutiérrez, Juan Francisco Villa-Medina, Aracely López-Guzmán, and Miguel Ángel Porta Gándara[1] IoT devices enable all farms to be connected and share knowledge regarding farming from experienced users. The smart farm, embedded with IoT systems, can support a wide range of devices. Due to the deployment of connected farms, it can be easy to detect disease on crop or virus spread over farm using prediction technique. All sensors and actuators who are monitoring and growing the crops are connected through a gateway. The gateway is intern connected to a server called Mobius. It will communicate with expert farming knowledge system and control actuators to make farm suitable to grow crops. Prediction combined with KF: It is used to remove the noise present during communication. For prediction using KF, the nodes form a set of clusters. The cluster head will receive data from different parameters of environment from the leaf node.

F. Viani, M. Bertolli, M. Salucci [2] Managing the moisture in the soil can reduce risk and deliver the production of crops effectively. RADARSAT-2 uses rick reduction strategies and soil moisture sensors in the agricultural sector. Here 5 data sets is first obtained to determine the accuracy of soil moisture in the soil. This can be done using C-B and SAR. The soil moisture mean value errors and index dataset is calculated by IEM

depending on the dataset evaluated. Row direction and residue cover make it complex for calculating the moisture in the oil field.

Jan Bauer and Nils Aschenbruck[3] The device that detects and replies to an input from any sources is called sensor. A motion sensor that uses one or more technologies to detect movement in an area. If a sensor is tripped the light floods surrounding the area and illuminates anything in its path. Key components of a sensor nodes are analog to digital converter, transceiver, microcontroller and memory. The sensor can take various inputs using these components the input can range from various physical factor.

Soumil Heble, Ajay Kumar, K.V.V Durga Prasad, Soumya Samirana, P. Rajalakshmi, U. B. Desai[4] This is an information technology resource that helps farmers to tackle complex problems in crop production. The inputs for DSS are water, climate, energy, economy and human resources and give an output of these factors, improving the production.

Ravi Kishore Kodali, Vishal Jain and Sumit Karagwal[5]

The irrigation sensor consist of a camera embedded in a waterproof and closed chamber. Camera takes image of the soil to determine the water content in it. A gray scale analysis is used to differentiate between light pixel and dark pixel. The contents are forwarded to gateway router. An app is developed on a smartphone which has computation and connectivity capabilities.

R. Nageswara Rao, B.Sridhar[6] The system focuses on protection of the farm from rodents or insects in the field, the system provides real time notification on detecting the problem. The PIR sensor is used to sense and detect animals using their body heat, we can improve and integrate this system even in the grain storage area. we have three nodes in this system sink node, a sensor node and an actuator node. acquisition, collection and analysis of information like temperature and soil moisture is done from the sensors and the system identifies an ideal period to start the irrigation process, this saves the time and resources of the farmer, and helps us conserve water and protects the environment. We use cloud computing to deal with the high storage and processing requirements.

Prof. K. A. Patil, Prof . N.R Kale[7] Using Raspberry Pi we can advance the methods and production of crops. Our main objective is to obtain productivity of crops by minimal water consumption. Efficient ways of managing the water supplied to the crops is done by using two sensors: humidity and temperature sensors. The system made precise with cloud computing as it provides us with real time data. Here the complexity of the algorithm is reduced when compared to other algorithms.

Chiyurl Yoon, Miyoung Huh, Shin-Gak Kang, Juyoung Park, Changkyu Lee [8] In the authors proposed a model for smart agriculture using iot. This model has been proposed by studying the current agricultural system and its problems. This smart model enable the farmers to have the Remote

Monitoring System(RMS). This is used to handle the agriculture activities remotely and also used for collecting data of agriculture in real time. This has been done by using various sensors, smartphone and Wi-Fi network. Monitoring based on WSN which make use of environment factors such as temperature, humidity etc.

S.S. Sarmila, N.B. Harshini, S.R.Ishwarya, C.R.Arati [9]

To reduce the power consumption and problem of using wires for connection, the use of wired communication system is replaced with IoT technology . The node, server and the database are made to communicate via Bluetooth and LPWAN.

Gauri Garg, Shilpi Sharma, Tanupriya Choudhury, Praveen Kumar[10]

In authors have proposed the use of sensing devices in smart agriculture system. The sensors have the RF transmitter. All the sensors are connected to Aurdino. Moisture Sensor used to detect soil moisture level which turns the pump on and off. Motion Sensor which is used detect the animal intrusion and alerts the farmer via buzzer. This sensor is connected to Aurdino UNO Aurdino is connected to PC using Aurdino software data are monitored continuously and they are transmitted to RF transmitter.

Chayapol Kamyod[11] Using sensors along with multispectral imaging technology detects most of the problems in the agricultural farm. Sensors like the ultrasonic sensor to determine the growth of the crop and also detect the pests intruding the crops. The multispectral camera is a

lost effective way to monitor the crop. The accuracy of these technologies is commendable.

[1] Joaquín Gutiérrez, Juan Francisco Villa-Medina, Aracely López-Guzmán, and Miguel Ángel Porta Gándara, "Smartphone Irrigation Sensor", Proceedings of IEEE Sensors Journal Sensors 2015.

[2] F. Viani, M. Bertolli, M. Salucci, "Low-Cost Wireless Monitoring and Decision Support for Water Saving in Agriculture", Proceedings of IEEE Sensors Journal, Vol 0, 2017.

[3] Jan Bauer and Nils Aschenbruck," Design and Implementation of an Agricultural Monitoring System for Smart Farming", Proceedings of IEEE IoT Vertical and Tropical Submit on Agriculture, 2018.

[4] Soumil Heble, Ajay Kumar, K.V.V Durga Prasad, Soumya Samirana, P.Rajalakshmi, U. B. Desai, "A Low Power IoT Network for Smart Agriculture", Proceedings of Data Science Based Farming Support System for Sustainable Crop Production Under Climatic Changes, 2016.

[5] Ravi Kishore Kodali, Vishal Jain and Sumit Karagwal, "IoT based Smart Farming", Proceedings of IEEE Conference, 2017.

[6] R. Nageswara Rao, B.Sridhar, "IoT Based Smart Crop-Field Monitoring and Automation Irrigation System", Proceedings of the Second International Conference on Inventive Systems and Control, 2018.

[7] Prof. K. A. Patil, Prof . N.R Kale, "A Model for Smart Agriculture Using IoT", Proceedings on Global Trends in Signal Processing and Information Computing and Communication, 2016.

[8] Chiyurl Yoon, Miyoung Huh, Shin-Gak Kang, Juyoung Park, Changkyu Lee, "Implement Smart Farm with IoT Technology", Proceedings on International Conference on Advanced Communications Technology, 2018.

[9] S.S. Sarmila, N.B. Harshini, S.R.Ishwarya, C.R.Arati, "Smart Farming: Sensing Technologies", Proceedings on Second International Conference on Computing Methodologies and Communication, 2018.

[10] Gauri Garg, Shilpi Sharma, Tanupriya Choudhury, Praveen Kumar, "Crop Productivity based on IoT", Proceedings on International Conference On Smart Technology for Smart Nation, 2017.

[11] Chayapol Kamyod , "End-to-End Reliability Analysis of an IoT Based Smart Agriculture", Proceedings of Third International Conference on Digital Arts Media and Technology, 2018.