

IoT Based Monitoring System in Smart Agriculture

Mantesh H Dollin¹, Meghana Nekar², Meghana S³, Ashwitha Thomas⁴

Students, BE (Appearing), Department of Computer Science and Engineering^{1,2,3}

Associative Professor, Department of Computer Science and Engineering⁴

Alva's Institute of Engineering and Technology, Mijar, Moodbidri, Karnataka, India

Abstract: Agriculture is the most traditional activity over time. Since the beginning of it, agriculture has suffered many changes to improve productivity and quality of crops. Agriculture balances both food requirement for mankind and supplies indispensable raw materials for many industries, and it is the most significant and fundamental occupation in India. The advancement in inventive farming techniques is gradually enhancing the crop yield making it more profitable and reduce irrigation wastages. The proposed model is a smart irrigation system which predicts the water requirement for a crop, using machine learning algorithm. Moisture, temperature and humidity are the three most essential parameters to determine the quantity of water required in any agriculture field. This system comprises of temperature, humidity and moisture sensor, deployed in an agricultural field, sends data through a microprocessor, developing an IoT device with cloud. Decision tree algorithm, an efficient machine learning algorithm is applied on the data sensed from the field in to predict results efficiently. The results obtained through decision tree algorithm is sent through a mail alert to the farmers, which helps in decision making regarding water supply in advance.

Keywords: Irrigation System, IoT, Soil Moisture, Temperature, Humidity, Decision Tree Algorithm, Mail alert.

REFERENCES

- [1] Dishay Kissoon, Hinouccha Deerpaul and Avinash Mungur, "A Smart Irrigation and Monitoring System", The International Journal of Computer Applications, vol. 163, No. 8, Apr. 2017.
- [2] P. Narayut, P. Sasimane, C.-I. Anupong, P. Phond and A. Khajonpong, "A Control System in an Intelligent Farming by using Arduino Technology", Student Project Conference (ICT - ISPC), 2016 Fifth ICT International, 27-28 May 2016.
- [3] K. Benahmed, A. Douli, A. Bouzekri, M. Chabane and T. Benahmed, "Smart Irrigation Using Internet of Things", Fourth International Conference on Future Generation Communication Technology (FGCT), 29-31 Jul. 2015.
- [4] A. N. Arvindan and D. Kartheeka, "Experimental investigation of remote control via Android smart phone of Arduino-based automated irrigation system using moisture sensor", 3rd International Conference on Electrical Energy Systems (ICEES), 17-19 Mar. 2016.
- [5] T. Baranwal, N. and P. K. Pateriya, "Development of IoT based Smart Security and Monitoring Devices for Agriculture", 6th International Conference - Cloud System and Big Data Engineering (Confluence), 14-15 Jan. 2016.
- [6] M. K. Gayatri, J. Jayasakthi and G.S.Anandha Mala, "Providing Smart Agriculture Solutions to Farmers for better yielding using IoT", IEEE Technological Innovation in ICT for Agriculture and Rural Development (TIAR), 10-12 Jul. 2015.
- [7] Openweathermap.com, [2012-2016], Available from: <http://openweathermap.org/api>
- [8] Kiran Shinde, Jerrin Andrei, AmeyOke, "Web Based Recommendation System for Farmers", International Journal on Recent and Innovation Trends in Computing and Communication 2, Volume: 3, Mar. 2014.
- [9] Y. Mohana Roopa, et.al,"A Survey of Fog Computing: Fundamental, Architecture, Applications and Challenges", IEEE International conference on IoT in Social, Mobile, analytics and Cloud ISMAC-19, December 12-14, 2019.ISBN: 978-1-7281- 4364-4, Page No: 498-502.
- [10] Mr. Ravi Kumar Banoth and Dr. A.P. Siva Kumar, "A Review on Machine Learning Algorithm Used for Crop Monitoring System in Agriculture", International Journal of Research, Vol. 7, Issue 12, Dec. 2018.

- [11] Sanyam Gupta Sukriti, K. Indumathy, "IoT based smart irrigation and tank monitoring system", International Journal of Innovative Research in Computer and Communication Engineering, vol. 4, no. 9, September 2016.
- [12] Anuja Chandgude, Nikita Harpale, Diksha Jadhav, Punam Pawar and Suhas M. Patil, "A Review on Machine Learning Algorithm Used for Crop Monitoring System in Agriculture", International Research journal of Engineering and Technology (IRJET), vol. 05, Issue 4, Apr. 2018.
- [13] Y. Mohana Roopa,et.al," Growing Trends in Indian Farming using Internet of Things (IoT)",International Journal of Engineering and Advanced Technology', ISSN: 2249 -8958 (Online), Volume-9, Issue-2, December 2019, Pp-4360-4364.
- [14] Decision Tree For Classification: A Machine Learning Algorithm, Available from: <https://www.xoriant.com/blog/product-engineering/decision-trees-machine-learning-algorithm.html>