

# IOT Green House Monitoring and Controlling System with Auto and Manual mode using Arduino UNO ESP

Prof. R. C. Dumbre<sup>1</sup>, Shrikant Arvind Kale<sup>2</sup>, Abhijit Balu Kamble<sup>3</sup>,  
MeharAjit Digamber<sup>4</sup>, Ughade Pravin Gorakh<sup>5</sup>

Department of Computer Engineering<sup>1,2,3,4,5</sup>

Sharadchandra Pawar College of Engineering, Dumbarwadi, Otur, Maharashtra, India

**Abstract:** *The implementation of a Vertical Farming Automation System, integrating data logging, offers a technical solution benefiting rural farmers by enabling automated monitoring and control of the farm environment. This automation replaces the need for direct human supervision. The system is designed around a Generic Architecture, adaptable for various automation applications. Vertical farming involves growing plants in a stacked manner within a controlled environment. Due to factors like industrialization and limited land availability, there's a growing necessity to establish vertical farming structures solely dedicated to plant cultivation. With advancements in technology, Internet of Things (IoT) allows for centralized monitoring and control of multiple farms from a central location through internet connectivity. The primary aim of this project is to oversee and regulate environmental parameters such as temperature, moisture levels, and light intensity by employing sensors. The data collected by these sensors is transmitted to a central server via the internet, accessible to users at any time. By managing temperature through LED intensity control and automatic moisture detection, the system ensures plants receive water at the right time and in appropriate amounts, thereby promoting optimal plant growth. The project focuses on leveraging IoT and automation to enhance agricultural practices, ensuring efficient plant growth through precise environmental control, ultimately benefiting farmers by automating farm monitoring and control.*

**Keywords:** E-Voting System, Online voting system, Blockchain, Machine learning, Deep learning.

## REFERENCES

- [1]. G. Eason, B. Noble, and I. N. Sneddon, "On certain integrals of Lipschitz-Hankel type involving products of Bessel functions," Phil. Trans. Roy. Soc. London, vol. A247, pp. 529–551, April 1955. (references)
- [2]. J. Clerk Maxwell, A Treatise on Electricity and Magnetism, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68–73.
- [3]. I. S. Jacobs and C. P. Bean, "Fine particles, thin films and exchange anisotropy," in Magnetism, vol. III, G. T. Rado and H. Suhl, Eds. New York: Academic, 1963, pp. 271–350.
- [4]. K. Elissa, "Title of paper if known," unpublished.
- [5]. R. Nicole, "Title of paper with only first word capitalized," J. Name Stand. Abbrev., in press.
- [6]. Y. Yorozu, M. Hirano, K. Oka, and Y. Tagawa, "Electron spectroscopy studies on magneto-optical media and plastic substrate interface," IEEE Transl. J. Magn. Japan, vol. 2, pp. 740–741, August 1987 [Digests 9th Annual Conf. Magnetics Japan, p. 301, 1982].
- [7]. M. Young, The Technical Writer's Handbook. Mill Valley, CA: University Science, 1989.
- [8]. Akash1, Amit Birwal, "IoT-based Temperature and Humidity Monitoring System for Agriculture", International Journal of Innovative Research in Science, Engineering and Technology Vol. 6, Issue 7, July 2017ISSN(Online): 2319-8753
- [9]. K. Anand, C. Jayakumar, M. Muthu and S. Amirneni, "Automatic drip irrigation system using fuzzy logic and mobile technology", 2015 IEEE Technological Innovation in ICT for Agriculture and Rural Development (TIAR), Chennai, 2015, pp. 54- 58.

- [10]. Tarun Kumar Das, Yudhajit Das, “Design of A Room Temperature And Humidity Controller Using Fuzzy Logic”, American Journal of Engineering Research (AJER), e-ISSN : 2320-0847 p-ISSN : 2320-0936 Volume-02, Issue-11, pp-86-97
- [11]. Keerthi.v, “Cloud based greenhouse monitoring system” ,Int. Journal of Engineering Research and Applications ISSN: 2248- 9622, Vol. 5, Issue 10, (Part - 3) October 2015, pp.35-41.
- [12]. HILALI, “Control based on the temperature and moisture using the fuzzy logic”, Int. Journal of Engineering Research and Application ISSN: 2248-9622, Vol. 7, Issue 5, (Part -3) May 2017, pp.60-64
- [13]. Ramya Koshy, “Greenhouse monitoring and controlling based on IOT using win”, ITSI Transactions on Electrical and Electronics Engineering (ITSI-TEEE) ISSN (PRINT) : 2320 – 8945, Volume -4, Issue -3, 2016.
- [14]. Sharad Shinde, “Automated Irrigation System Using a Wireless Sensor Network and GPRS Module “, Int. Journal of Engineering Research and Application ISSN: 2248-9622, Vol. 7, Issue 4, (Part -6) April 2017, pp.58-63