

# Automated Irrigation System for Crop Based Agriculture

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**Abstract:** *The use of irrigation in agriculture is crucial for ensuring crop growth and productivity. However, traditional manual irrigation methods employed by farmers in India often lead to inefficient water usage and crop damage. This paper aims to address these challenges by developing a sensor-based automated irrigation system. The proposed system aims to reduce water requirements and enhance productivity, making it particularly suitable for regions where water scarcity is a pressing concern. The current manual control irrigation process often results in excessive water consumption, delayed water supply, and detrimental effects such as increased energy usage and higher water costs. By implementing a sensor-based automated irrigation system, precise control over water management can be achieved. The system utilizes sensors to monitor soil moisture levels, weather conditions, and crop water requirements in real-time. Additionally, the system promotes crop health and yield by maintaining optimal soil moisture levels, minimizing the risk of crop stress and damage.*

**Keywords:** Sensor based irrigation, moisture levels, crop health

## REFERENCES

- [1]. Taneja, K. and Bhatia, S., 2017, June. Automatic irrigation system using Arduino UNO. In 2017 International Conference on Intelligent Computing and Control Systems (ICICCS) (pp. 132-135). IEEE.
- [2]. Devika, C.M., Bose, K. and Vijayalekshmy, S., 2017, December. Automatic plant irrigation system using Arduino. In 2017 IEEE international conference on circuits and systems (ICCS) (pp. 384-387). IEEE.
- [3]. Doraswamy, B., 2016. Automatic irrigation system using Arduino controller. Int. J. Adv. Technol. Innovative Res, 8(4), pp.635-642.
- [4]. Yasin, H.M., Zeebaree, S.R. and Zebari, I.M., 2019, April. Arduino based automatic irrigation system: Monitoring and SMS controlling. In 2019 4th Scientific International Conference Najaf (SICN) (pp. 109-114). IEEE.
- [5]. Prasojo, I., Maseleno, A. and Shahu, N., 2020. Design of automatic watering system based on Arduino. Journal of Robotics and Control (JRC), 1(2), pp.59-63.
- [6]. Shiraz Pasha, B.R. and Yogesha, D.B., 2014. Microcontroller based automated irrigation system. The International Journal Of Engineering And Science (IJES), Volume3, (7), pp.06-09.
- [7]. Kansara, K., Zaveri, V., Shah, S., Delwadkar, S. and Jani, K., 2015. Sensor based automated irrigation system with IOT: A technical review. International Journal of Computer Science and Information Technologies, 6(6), pp.5331-5333.
- [8]. Divani, D., Patil, P. and Punjabi, S.K., 2016, April. Automated plant Watering system. In 2016 International Conference on Computation of Power, Energy Information and Communication (ICCPEIC) (pp. 180-182). IEEE.
- [9]. Kamelia, L., Ramdhani, M.A., Faroqi, A. and Rifadiapriyana, V., 2018. Implementation of automation system for humidity monitoring and irrigation system. In IOP Conference Series: Materials Science and Engineering (Vol. 288, No. 1, p. 012092). IOP Publishing.