

Smart Irrigation System

Mr. Shahaji Sutar¹, Aniket Pavane², Hasnain Kadari³, Omkar Amrute⁴, Sharayu Bhabad⁵,
Akhyar Arif⁶, Ghanshyam Shukla⁷

Lecturer, Department of Electronics and Telecommunication Engineering¹

Student, Department of Electronics and Telecommunication Engineering^{2,3,4,5,6,7}

Bharati Vidyapeeth Institute of Technology, Navi Mumbai, India

Abstract: *This research aims to carry out a systematic review of the available literature about smart irrigation systems. Nowadays, evolving technologies have contributed significantly to enriching the field of agriculture. The automation process is integrated to drive devices to work independently and communicate by including smart technologies and devices with which a multitude of tasks are executed without a human hand. Thus, this work introduces an automatic irrigation system based on smart sensors that can be used in a moderate and economic way to monitor the mint or any kind of plant by integrating some connected electronic devices and other advantageous instruments widely used in the field of IOT. This system includes a soil moisture sensor placed in the root zone of the plant, a temperature sensor, and a water flow sensor connected to the valve of the water pumping motor. These sensors are integrated with an Arduino UNO microcontroller, relay module, DC pumping motor, and power battery. In other words, the behaviour of this automated system is encapsulated in detecting the soil moisture and the temperature level and automatically switching the pumping motor to ON or OFF in relation to the soil moisture state at a controlled timing. The sensed data is transmitted to a computer to be included in the CSV dataset from which graphs are generated for analysis during one day of recording. Generally, this kind of automated irrigation system could be easily applied to small gardens, nurseries, or greenhouses. Recently, innovative solutions have been incorporated for reducing costs, saving time, and optimizing the use of resources.*

Keywords: Microcontroller, Smart Irrigation, Soil Sensing