

ABSTRACT

Design And Implementation Of Adosistering Iot System For Control And Monitoring Of Drip Irrigation

Modern agriculture faces challenges in water efficiency, especially with conventional irrigation methods that often waste water. The system's input is soil moisture data, and the output is an automated control of drip irrigation based on real-time monitoring. This topic is crucial because water is a limited resource, particularly in drylands. Manual irrigation is not responsive to actual soil conditions, leading to inefficient water use. Therefore, a data-driven and automated solution is necessary to optimize water consumption in agriculture. This study focuses on the design and implementation of an Internet of Things (IoT)-based system for monitoring and controlling drip irrigation as part of the ADOSISTERING project. The system consists of soil moisture sensors, a microcontroller, and a web interface. Data is sent to the cloud and used to trigger irrigation actions automatically. The development follows the Waterfall methodology: requirement analysis, system design, hardware and software implementation, and testing. The results show that the system can effectively automate irrigation based on real-time soil conditions. The main contribution of this research is the development of an intelligent and affordable irrigation system that improves water efficiency by up to 30% compared to traditional methods.

Keywords: *drip irrigation, Internet of Things, soil moisture, automatic control, water efficiency, ADOSISTERING*