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Abstract:
The solution to water constraints and the advancement of sustainable resource usage is effective water management. This research presents a cloud-based water tank management system that uses Raspberry Pi, sensors, a Wi-Fi connection, and the ThingSpeak platform for real-time monitoring and control. A Raspberry Pi flexible single-board computer controls the system. To keep updated on how much water is in each storage tank, use various sensors, including ultrasonic and pressure sensors. The data from these sensors is sent to and processed by a Raspberry Pi. Raspberry Pi can now communicate with a cloud server after being connected to a local network through Wi-Fi. The ability to remote access and monitor the water storage system from afar is made possible by this link. The data is stored, analyzed, and shown using ThingSpeak, a cloud-based IoT platform. It has a simple interface that can be used to monitor water levels in real-time, examine data from the past, and develop findings that can be used to manage water resources better. Several benefits can be acquired by using the suggested system. Water levels can be monitored in real-time, making it possible to identify problems like leaks or overflow fast as events occur. Users can check in on their water storage tanks from anywhere the happen to be due to this feature's remote access capabilities. For more effective water management, less water waste, and increased use of available water resources in a sustainable process. Cloud infrastructure helps reduce the problems caused by water shortages by promoting efficient water management and encouraging water use in a sustainable method.

☰ Contents

I. Introduction

The increasing human population and the resulting lifestyle shifts have presented several difficulties. Because water is so fundamental to human survival, managing our access to this resource is a significant concern [1]. The future of humanity depends on water conservation and responsible usage. A developing technology, the Internet of Things, enhances human existence by allowing for the interconnection of previously unrelated systems. Automating the process, this maximizes the effectiveness of available resources. Automating water management to reduce waste and save more water for later use is possible.

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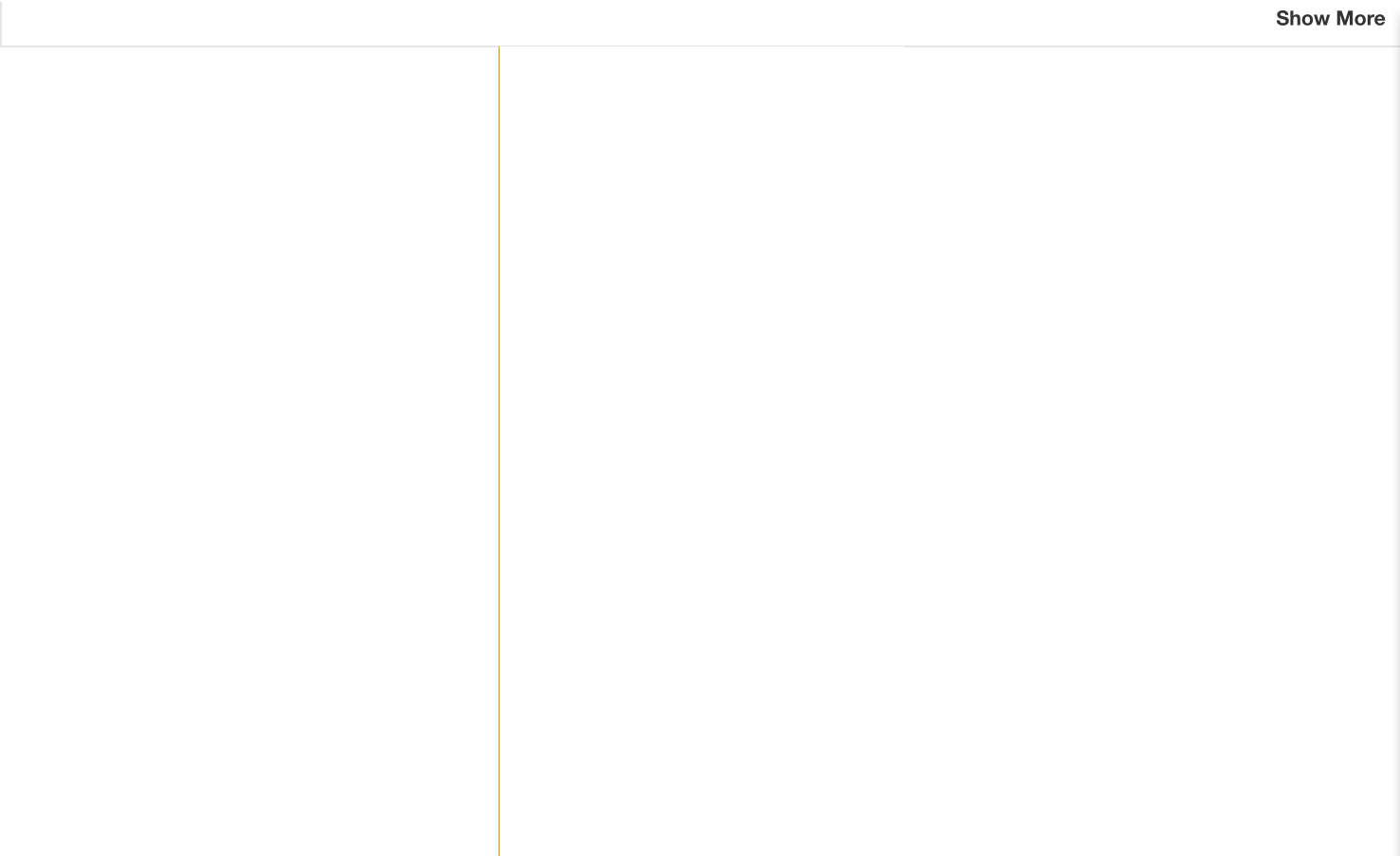
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