



AUTOMATED IRRIGATION SYSTEM-rUrban

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ABSTRACT

The modern advancements in technology have triggered a significant shift in the agricultural industry, propelling it towards improved efficiency and greater ecological mindfulness. A prominent instance of such forward-thinking endeavors is the development of an automated irrigation system. This undertaking combines cutting-edge sensor technology, the Internet of Things (IoT), and advanced automation methods, all with the primary objective of enhancing water distribution and raising crop yields to unparalleled heights.

PROBLEM STATEMENT

In a world of growing population, the need for enhanced agricultural yield and productivity has surged. Farmers are faced with:

- time constraints
- unpredictable weather
- Poor water management

amongst other irregularities that hinder the effective irrigation of crops.

AIMS AND OBJECTIVES

Build a cost-effective automated irrigation system able in real-time:

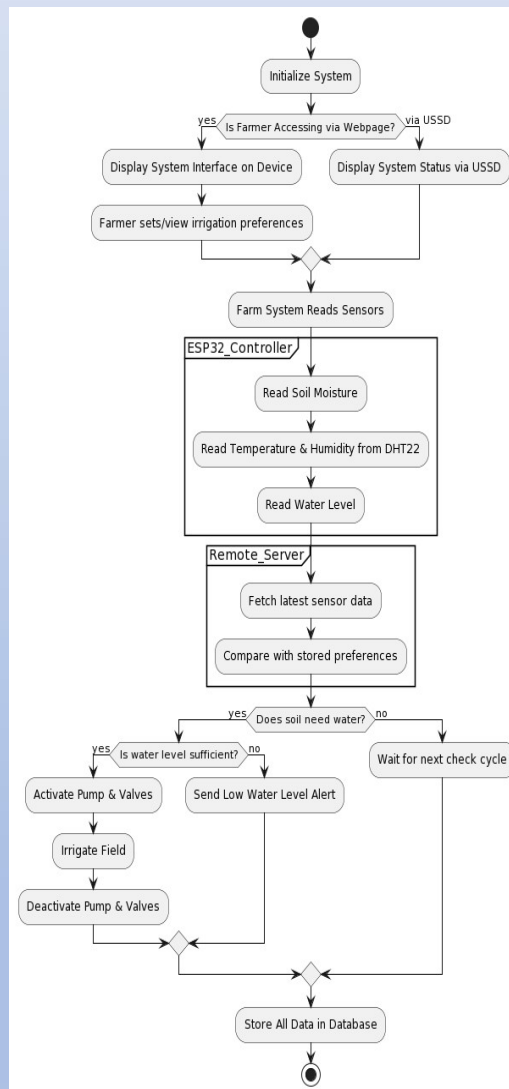
1. To automate crop irrigation processes on farmland
2. To allow remote monitoring and control
3. To provide reliable weather conditions on farm
4. To optimize water usage



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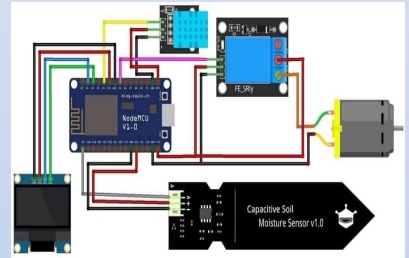
METHODOLOGY

The project was approached using an agile methodology, which involved dividing it into distinct phases. Through iterative processes, continuous enhancements were made to the work, ensuring a well-planned execution.



IMPLEMENTATION

Programmed the ESP32 microcontroller as the central processing unit of the system, utilizing the Arduino IDE. This microcontroller gathers data from sensors, which is then presented through a web interface and/or USSD interface, enabling convenient remote system monitoring and control.



CONCLUSION

Through the integration of ESP32 microcontroller and IoT technology, our automated agricultural irrigation system has been effectively demonstrated in experiments. By incorporating soil moisture, temperature, and humidity data, we have achieved an automated irrigation mechanism. This innovation also facilitates remote control via web and USSD interfaces, empowering farmers to effortlessly oversee and automate their farm irrigation practices.

Further works

- Integrate fertilizer application system
- Dedicated mobile application to for the system
- Implement SMS alerts

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