SMART WATER SYSTEM

AUTOMATIC IRRIGATION

BY

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PROBLEM DEFENITION

- The problem of automatic irrigation aims to develop a system that efficiently manages the watering of plants in agricultural settings.
- This system must address several challenges, including optimizing water usage, monitoring soil moisture levels, and ensuring timely irrigation based on environmental conditions.
- The goal is to create a cost-effective and sustainable solution that reduces water wastage while promoting healthy plant growth.

PROJECT DEFINITION

- This project will integrate cutting-edge sensor technology to continuously monitor soil moisture levels, weather conditions, and other environmental factors.
- This project also emphasizes sustainability by reducing water wastage and promoting responsible irrigation practices. Users will have the convenience of remotely monitoring.
- Ultimately, our goal is to provide a cost-effective, eco-friendly, and user-centric solution that enhances agricultural productivity and garden maintenance while conserving valuable resources.

DESIGN THINKING

1.PROJECT OBJECTIVES:

- Our project aims to optimize water usage by delivering irrigation only when necessary, ensuring soil moisture levels are maintained within desired thresholds.
- Complying with relevant regulations and standards, promoting scalability, and optimizing energy efficiency round out our comprehensive project objectives.

2.IoT SENSOR DESIGN

- By integrating sensors like soil moisture, temperature, humidity, and rain detectors, Arduino empowers these systems to collect real-time environmental data critical for optimal irrigation decisions.
- Moreover, Arduino's compatibility with various communication modules and its active open-source community ensure that it remains a go-to choice, offering accessibility, expandability, and ease of customization in the development of efficient and user-friendly automatic irrigation systems.

3.REAL-TIME TRANSIT INFORMATION PLATFORM

- **The data collected from sensors is then transmitted to a centralized database for real-time analysis.**
- **Users gain access to these insights through user-friendly interfaces and manual adjustments.**
- **This platform offers precision, scalability, and adaptability, ultimately contributing to healthier plants, improved crop yields, and responsible resource management.**

4.INTEGRATION APPROACH

Sensor Data Collection: These sensors continuously monitor the relevant parameters, such as soil moisture levels, temperature, humidity, and rainfall. When a sensor takes a reading, it generates data.

Data Processing and Formatting: The sensor data is processed using microcontrollers like Arduino. The data is formatted into a structured format, such as JSON or XML, making it suitable for transmission.

Communication Protocols: IoT sensors use various communication protocols to transmit data to the data-sharing platform.

Wi-Fi: Sensors connect to a local Wi-Fi network and send data over the internet to a cloud-based platform.

Cellular Networks: Sensors with cellular modules can transmit data directly to the platform through mobile networks.


THANK YOU