Arduino-Based Automated Watering System for Sustainable Agriculture

By Group 1

Purpose

The purpose of this proposed Arduino project is to develop an IoT-Based Automatic Irrigation System that will monitor soil moisture levels in real-time and automatically control the water supply to plants, ensuring optimal irrigation while conserving water resources. The system aims to reduce human intervention, promote efficient water usage, and support sustainable agricultural practices through smart automation.

Input and output devices

Input	Uses
Soil moisture sensor	Detects the moisture level in the soil.

Input and output devices

Output	**Uses**
Buzzer	Gives alert signals for low water or system errors.
Relay Module	Controls the water pump automatically.
Water pump	Pumps water to the plants when soil moisture is low.

Improvement

1. Add a Water Level Sensor - To monitor the water tank’s level and prevent the pump from running dry.

- Can trigger the buzzer or send a notification when the tank is low.
2.Integrate Temperature and Humidity Sensors (DHT11 or DHT22) -To monitor environmental conditions and adjust watering frequency based on weather conditions.
-Helps prevent overwatering on humid or rainy days.

.3 Automatic Pesticide Sprayer
– Integrate a smart spraying mechanism that automatically dispenses pesticides based on schedule or detected plant health, reducing manual labor and ensuring even application.

THANK YOU