SMART IRRIGATION SYSTEM

OVERVIEW:

The Smart Irrigation System is an automated solution designed to optimize water usage in agriculture. Using Arduino Uno, this system integrates soil moisture sensors, a servo motor, a relay, and a water pump to efficiently monitor and control irrigation. It helps in reducing water wastage and ensuring optimal plant health.

FEATURES:

1.Automatic Watering: Starts and stops irrigation based on soil moisture levels.

2.Water Conservation: Prevents overwatering and minimizes wastage.

3.Improved Plant Health: Maintains optimal soil moisture for healthier crops.

4.Automation & Efficiency: Reduces manual effort and increases farming efficiency.

5.Scalable: Can be expanded for larger agricultural fields.

WORKING PRINCIPLE:

1.The moisture sensors measure soil moisture and send data to the Arduino Uno.

2.If the soil is dry, the Arduino activates the relay, which turns on the water pump.

3.The servo motor directs the water flow to different areas based on moisture needs.

4.Once the soil reaches the desired moisture level, the system automatically stops irrigation.

FUTURE SCOPE:

Wireless Monitoring: Integrate IoT for remote monitoring and control.

Mobile App Integration: Allow users to monitor and adjust settings via a smartphone app.

Weather-Based Automation: Use weather forecasts to optimize irrigation further.