**PROCESSORS AND CONTROLLERS**

**TITLE: AUTOMATIC PLANT WATERING SYSTEM**

**ABSTRACT:**

The Automatic Plant Watering System based on the 8051 microcontroller is designed to automate the irrigation process by monitoring soil moisture levels and triggering a water pump as needed. Using a soil moisture sensor, the system continuously measures the moisture content in the soil. When the moisture falls below a specified threshold, the 8051 microcontroller processes the sensor data and activates a relay that switches on the water pump to irrigate the plants. Once the desired moisture level is reached, the system automatically stops the pump, ensuring precise water usage without manual intervention.

This system is an efficient and reliable solution for maintaining optimal soil moisture, making it ideal for home gardens, greenhouses, or agricultural applications. It conserves water by irrigating plants only when necessary and minimizes human involvement in the process. The integration of the 8051 microcontroller allows for easy customization, enabling users to set specific moisture thresholds based on plant requirements. With its energy-efficient operation and simple design, this project provides an affordable yet effective means to automate plant care.

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