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SD2 IOT Project

Water Level Measurement and Display Project

**1.Project Description**

This project is designed to measure the water level in a tank and display this level on an LCD screen. The ultrasonic sensor measures the water level, and the measured level is displayed on the LCD screen. Based on the measured water level, LEDs and a buzzer provide visual and auditory alerts. Additionally, a button can be used to display messages on the screen.

The purpose of this project is to continuously monitor the water level in tanks and inform users when the water level reaches critical points (either too high or too low). This helps prevent situations such as water overflow or water shortage. This system can be particularly useful in agriculture, water treatment systems, household water storage tanks, and similar applications.

**2. Working Principle**

The project integrates the following components:

*Ultrasonic Sensor (HC-SR04):* This sensor uses sound waves to measure the water level. It sends sound waves to the water surface at regular intervals and calculates the distance based on the time it takes for the waves to return.

*LCD Screen (I2C):* Displays the measured water level to the user.

*LEDs and Buzzer:* Provides visual (LEDs) and auditory (buzzer) alerts based on the water level.

*Button:* Allows the user to display different messages on the screen.

**3. Application Areas**

*Agriculture:* Monitoring water levels in irrigation systems.

*Home*: Monitoring water storage tanks.

*Industry:* Monitoring water levels in water treatment systems.

*Aquariums:* Monitoring water levels in aquariums.

**4. Conclusion**

This project provides an effective method for continuously monitoring water levels and providing instant information to users. By using easily installable and low-cost components, this system can be applied in various fields for water management and control.