

## Automatic Water Level Controller Device

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**Abstract:** Automatic Water Level Control is a project that has been purpose to maintain the water at the certain level. The project has two actuator to control the water, which are pump and valve. The pump draws water to the tank and the valve can enable or disable the outflow from the tank. When the water is higher from the actual level, the valve will automatically on and the water will decrease to the actual level. But when the water is less than the actual level, the valve will off and the pump will draws the water until reach the level. This project uses the PLC as the controller to control the water in and water out. The CX-programmer software in PLC is used to draw the ladder diagram. The instruction such as jump, counter, timer, compare will be used in this system to function the water level control hardware. The Flash Software will be used to display the anime of water flow in the tank controlled by motor and valve.

**Introduction:** Water is very precious. The storage of water for the domestic, industrial, agricultural or other such needs is very important. Taking this issue in consideration.

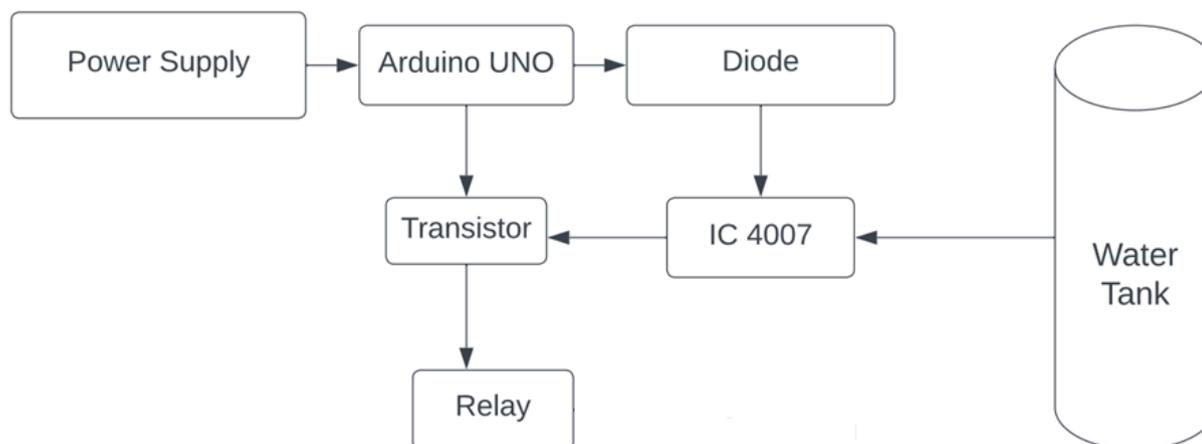
Automatic Water Level Controller is device which prevents further wastage of water as filling of water tanks have been done through electrical pumps in the recent.

Untimely turning off the motor pumps lead to less filled tanks or over flown water from the tanks causing wastage.

In order to avoid such situations we can have an electronic water level controller which can monitor the water level and switch the motor pump accordingly.

The device automatically monitors the water level and hence triggers the relay which in turn triggers the motor. This helps in reducing wastage of water as well as electricity.

## BLOCK DIAGRAM



## Methodology

This device has two level indicators which work in harmony of a power switching relay. This relay is the one which connects the water pump to the mains power supply.

If the system indicates that water level in the tank is Low, then the system turns on the power supply for the water pump.

The pump remains till the system indicates the water level is low. Once the system indicates the water level as high and not low, the power to the water pump is switched off. It remains switched off till the water level is not again to the low level in the tank.

Conductivity of water is what makes the level sensing work. With a reference level at the bottom we attach the rest two of the high and low level sensing wire terminals at their respective positions.

At the time when water isn't the high level the circuit triggers the low level LED and also the relay to turn ON the water pump. Once the water level catches up the high level, the high level indicator is turned ON and the relay is switched to turn OFF the water pump till the next low level trigger.

**POWER SUPPLY:**

Power supply for the complete unit can be derived from the mains using a step-down transformer of 230V AC primary to 0-12V, 500mA secondary. A full-wave rectifier followed by a capacitor filter provides the output voltage and it is fed to the 5-volt regulator (LM7805) whose output is used as the power supply required for the microcontroller circuit and other ICs.

**Objectives:**

- The purpose is to avoid overall wastage of water.
- To develop a product which will be reliable for continuous operation and have long life.
- To encourage people to save water by providing this device at reasonable cost.
- To completely automate the control of water level, reducing human efforts.

**Conclusion:**

This project has achieved the main objectives. Moreover, this project involved designing and development of automatic water level control system had exposed to the better way of software and hardware architecture that blends together for the interfacing purposes. The system employs the use of advance sensing technology to detect the water level.

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