



An Investigation On Automatic Water Level Controller System

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ABSTRACT

A mechanism that allows us to regulate the water level in any water tank or comparable water storage system is known as an automatic water level controller system.

In this research, we present an Water Level controller chip-based automatic water level controlling system. The water storage system's water level is detected and controlled by the circuit that was created for that purpose. This technique lessens the amount of water wasted in any reservoir. By regulating the submersible pump's or motor's power supply, we may regulate the water level. as the above tank is being filled. It shows the water level and the time when it is at its lowest. After that, the sensors will determine the level and alert the device. The submersible pump's supply is then managed by this system. The tank is then automatically refilled by the pump. The pump is designed to shut off automatically when the tank is full. This project's goal is to solve the issue of water waste and raise the precision.

Keywords: Water Level Controller, Float Switch Sensor, Probe Level Sensor etc

I. INTRODUCTION

All living things require water, making it one of the most essential needs for human existence. Therefore, reducing the issues with water waste is crucial. The overflow of water storage systems results in needless water waste in numerous industrial and residential applications. For this reason, we are developing an automatic water level controller system to address the issue of water waste.

The water storage tank's water level is detected and controlled by the automatic water level controller system. The water level controller is used in this system to track the water level in the water storage tank. This system regulates the water level by regulating the pump's input supply. The pumps are automatically activated to fill the water tank when the water level is at its lowest point. Sensors are used in this system to determine the water level. The pump automatically shuts off when the tank is filled to the brim with water.

To determine the water levels, this system places sensors at various levels of the above water tank. Relays, water level controller, bridge rectifiers, diodes, sensors, and centre tapped step-down transformers are some of the parts used in that system.

In addition to household and commercial uses, this technology has industrial applications to automatically regulate the water flow and water waste.

II. LITERATURE SURVEY

In the literature, numerous approaches have been put out for the water level management system. You may regulate your water levels in a variety of ways. Here, we learn how three distinct kinds of water level controllers operate.

FLOAT SWITCH SENSOR WORKING PRINCIPLE:

On water, paper will always float. As it floats on the water, this gadget will follow suit. The device will rest on the ground or the bottom of the water tank when the water level drops too low. It has an electrical connection to a motor that runs for a predetermined period of time. The motor switch's timing can be changed. The system's sole drawback is that it will activate only when the tank's water is fully empty.

PROBE LEVEL SENSOR WORKING PRINCIPLE:

The motor is turned on and off using a probe that is assigned to different tank levels. The motor will switch on and off whenever the probe reaches certain levels. An LED light on your control board will be activated by a low alarm sensor in a single point probe sensor. A low alarm may activate the LED light and send a signal to activate an automatic water pump, which would replenish the water to the pre-programmed level in a multi-point probe sensor. This system's only drawback is that it may result in problems that need maintenance and further funding.

ULTRASONIC LEVEL SENSOR WORKING PRINCIPLE:

The relay board and ultrasonic sensor are the two parts that this water level controller will use. It is necessary to specify the distance at which the motor will turn on and off. The sensor is operated by a specialized program. Numerous resistors, circuit boards, capacitors, and semiconductors are utilized.

Hotels, factories, residences, apartments, commercial complexes, drainage systems, etc. can all employ automatic water level controllers. When the water level drops below the preset level, the automated water level controllers will "START ON" the pump set, and when the tank is filled, it will "SWITCH OFF." It can be used to detect the water level in large containers used by businesses. Fuel level indicator in vehicles.[1]

An apparatus that reacts to a physical stimulus—such as temperature, sound, pressure, magnetic, or a specific motion—and sends out an impulse in response—for example, to measure something or operate a control—is called a detector. For the microcontroller to receive input from the surroundings, a sensor is necessary. Light, temperature, motion, moisture, pressure, or any of a wide range of other environmental phenomena could constitute the specific input. The output is typically a signal that is either electronically sent over a network for reading or additional processing, or it is turned to a viewable display at the sensor/detector at a specific location. We used a "Reed switch" as a sensor in our project. [2]

In an electric circuit, a switch serves as the drawbridge. The "bridge" is up and there is no current flow when the switch is closed. Therefore, a switch's function is to turn a circuit on or off at a time of our choice [3].

III. PROPOSED SYSTEM

In automatic water level controller system there are two modes operation:

Manual mode: The circuit functions as a non-automatic system in this mode. This indicates that the pump's functioning is manually controlled by a start and stop switch. Pressing the start switch initiates the pump, which subsequently begins to fill the water tank with water. Additionally, the pump is turned off when the stop switch is in working order.

Auto mode: The circuit operates as an automatic system while in this mode. This indicates that the circuit controls how the pump operates. when the tank's water level is at its lowest point. After the sensor detects this state, the pumps are activated automatically. The water tank is then filling with water.

when the water tank's water level is at its highest point. The pump is then immediately shut off after the sensor detects this circumstance.

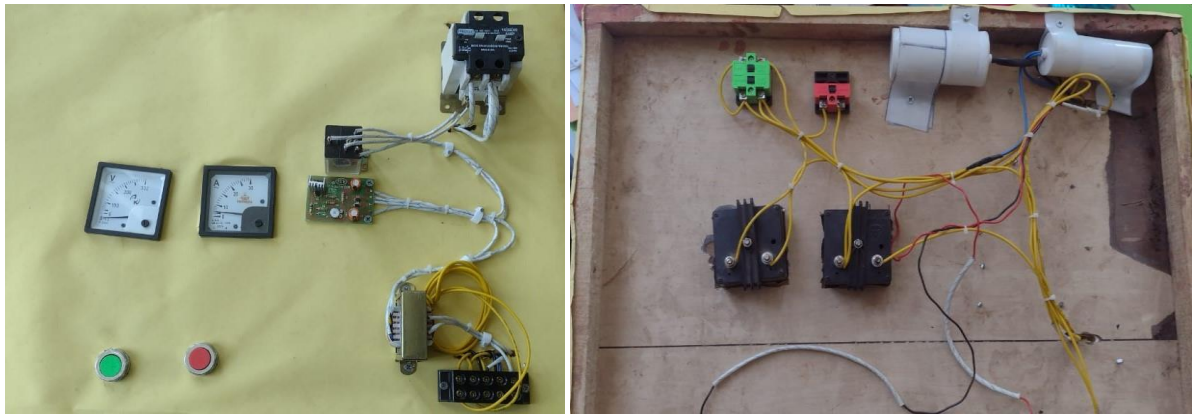


Fig 1. Circuit of the Water Level Controlling System

IV. CONCLUSION

The primary goals of this project have been met. Both the industrial, agricultural, and residential sectors greatly benefit from the automatic water level controller system. Because this system is in use, its operating hours have been shortened.

The water level is detected by the system using advanced sensing technologies. In both urban and rural locations, this approach is quite advantageous. It facilitates the effective use of the water resources that are available. The automatic water level management system can play a significant role in conserving water for future generations if it is implemented widely.

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