Water Level Controller

Abstract

Water Level Controller using Microcontroller project will help in automatically controlling the water motor by sensing the water level in a tank. This article explains you how to detect and control the water level in an overhead tank or any other container. This system monitors the water level of the tank and automatically switches ON the motor whenever tank is empty.

The motor is switched OFF when the overhead tank or container is FULL. Here, the water level of the tank is indicated on LCD (Liquid crystal Display). Using this system, we can avoid the overflow of the water.

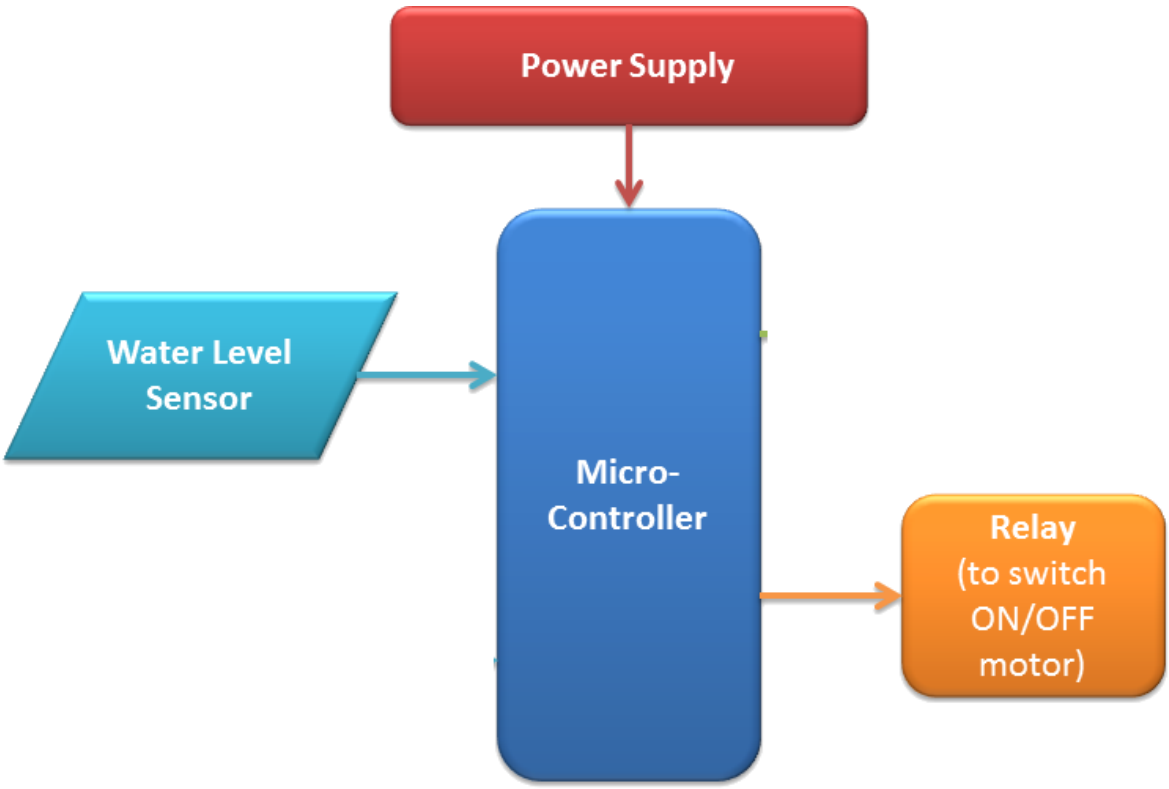
Introduction

This system mainly works on a principle that “water conducts electricity”. The four wires which are dipped into the tank will indicate the different water levels. Based on the outputs of these wires, microcontroller displays water level on LCD as well as controls the motor.

Initially when the tank is empty, LCD will display the message LOW and motor runs automatically. When water level reaches to half level, now LCD displays HALF and still motor runs.

When the tank is full, LCD displays FULL and motor automatically stops. Again, the motor runs when water level in the tank becomes LOW.

Block Diagram



Component

- Microcontroller
- 11.0592 MHz Quartz Crystal
- 2 x 33pF Capacitor
- 2 x 10KΩ Resistor (1/4 Watt)

- 10µF Capacitor
- Push Button
- 1KΩ x 8 Resistor Pack (for Pull – up)
- 16 x 2 LCD Display
- 5V Relay
- 4 x 2N2222 (NPN) Transistors
- DC Motor (for demonstration)
- 10KΩ Potentiometer
- 1N4007 PN Junction Diode
- Programming cable
- Connecting wires
- Power Supply
- Proteus (for circuit diagram)

Application

- Used in big buildings where the manual monitoring is difficult.
- Used in industries to control the liquid level automatically.

Advantage

- Human effort is reduced as the system controls the motor automatically based on the water level.
- This system consumes less power.
- Simple and more reliable.