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Automatic Water Level Controller

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ABSTRACT: Hence, it is the most importance of the preserve water. In many houses there is unnecessary wastage of water due to overflow in overhead tanks. Automatic Water Level Controller can provide a solution to this problem. The operation of water level controller works upon the fact that water conducts electricity. So water can be used to open or close a circuit. As the water level rises or falls, different circuits in the controller send different signals. These signals are used to switch ON or switch OFF the motor pump as per our requirements. The project also focuses on avoid to wastage of water.

KEYWORDS: Text detection, Inpainting, Morphological operations, Connected component label

I. INTRODUCTION

Water is very precious and needed for many and every activities. Conservation of water is similarly important and has adverse effects otherwise. The storage of water for the domestic, industrial, agricultural or other such needs is very important. The literature in this regard provides sufficient justification for the use of automatic water level controllers. Many of such circuits make use of microcontroller or PIC ICs to work for the task. To conserve and make effective use of water a controller is needed to manage the required volume or level in underground and overhead tanks of premises. Automatic water level controller circuit is a simple engineering electronic project does the same with suitable logic and components. The pump motor is of single phase AC and operated using relay from the controller. The present work do not incorporate any Microcontroller instead use Transistors and Timer IC555. It will automatically switch ON and OFF the domestic water pump to fill the over head tank to the set level or volume of water. The main advantage of this water level controller circuit is that it automatically controls the water pump without any user interaction. It is built with simple electronic components. The heart of this pump controller circuit is NE555 IC. Water level controller does help to control the level of water automatically by using sense probe/circuit of the tank. This system not only monitors the water level of the tank, it switches ON the motor automatically whenever overhead tank is empty. The motor is switched OFF when the required level in the overhead tank is reached along with LED indications. Pump motor is not started whenever underground water level is below the pre set threshold. Using this system we can avoid the overflow and wastage of the water.

The most of the people are busy with their works. They are forgetting to turn off the motor even after the overhead tank gets overflowed due to which there is a wastage of water and the power. Instead of using two controllers to operate two motor automatically for ON and OFF we are using only one controller. And to know whether the tank is filled or not in case of building with more than one floor it is impossible. So, our project intelligent water pump controller will provide the solution to overcome this problem Water is very precious for the living beings and scarcity of the same is gradually increasing. Most of the cities in the country and that of the world are facing this problem. This is one of the motivations for the current work and to deploy techniques in order to save environment which in turn ensures water for the future. People generally worried about the wastage of water, when they switch ON the pump and forget to OFF them leads to overflow from the overhead tanks etc.

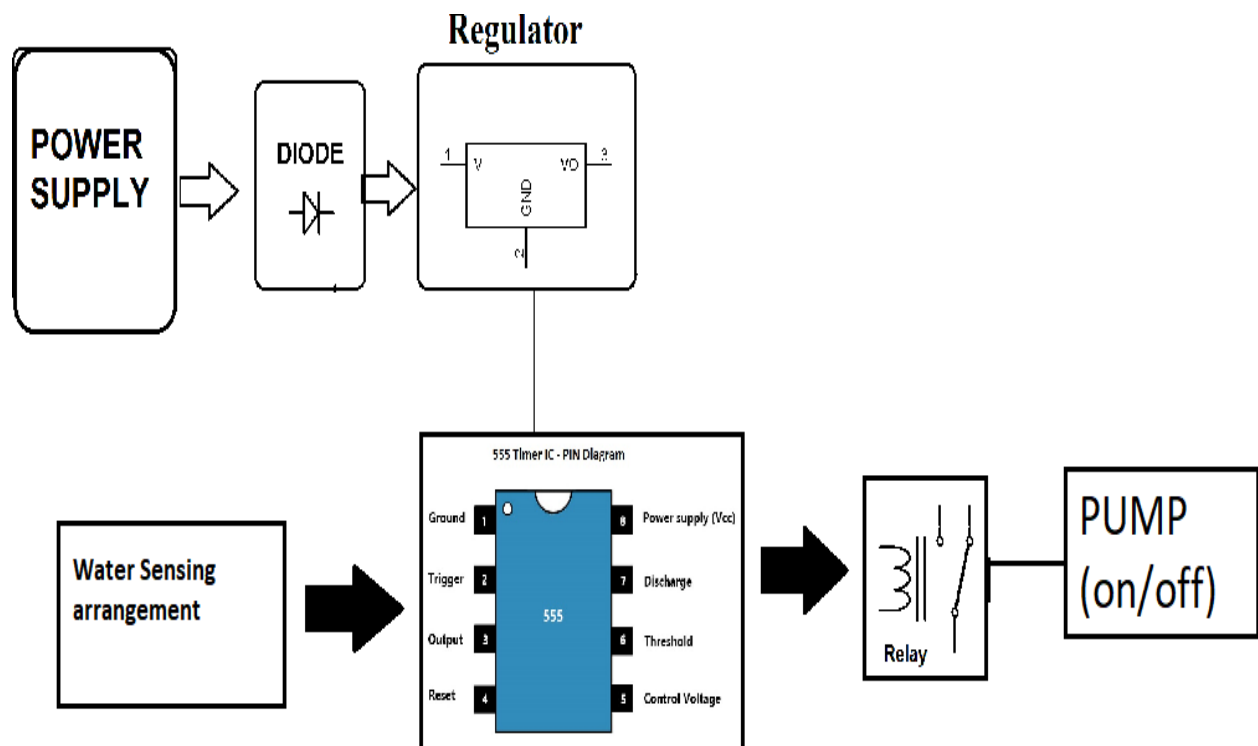
The pump will automatically ON and OFF according to the water level in the tank. The pump will automatically turn on the water level in the tank decrease. And the Pump will stop when the water level touch top of the tank. Using the 555 timer IC. Hence, it is the most importance of preserve water. In many houses there is unnecessary wastage of water due to overflow in Overhead Tanks Automatic Water Level Controller can provide a solution to this problem. The operation of water level controller works upon the fact that water conducts electricity. So water can be used to open or close a circuit. As the water level rises or falls, different circuits in the controller send different signals. These signals

are used to switch ON or switch OFF the motor pump as per our requirements. The project also focuses on the need of the people to install automatic water level control

II. RELATED WORK

Water is very precious and needed for many and every activities. Conservation of water is similarly important and has adverse effects otherwise. The storage of water for the domestic, industrial, agricultural or other such needs is very important. The literature in this regard provides sufficient justification for the use of automatic water level controllers. Many of such circuits make use of microcontroller or PIC ICs to work for the task. To conserve and make effective use of water a controller is needed to manage the required volume or level in underground and overhead tanks of premises. Automatic water level controller circuit is a simple engineering electronic project does the same with suitable logic and components. The pump motor is of single phase AC and operated using relay from the controller. The present work do not incorporate any Microcontroller instead use Transistors and Timer IC555. It will automatically switch ON and OFF the domestic water pump to fill the over head tank to the set level or volume of water. The main advantage of this water level controller circuit is that it automatically controls the water pump without any user interaction. It is built with simple electronic components. The heart of this pump controller circuit is NE555 IC. Water level controller does help to control the level of water automatically by using sense probe/circuit of the tank. This system not only monitors the water level of the tank, it switches ON the motor automatically whenever overhead tank is empty. The motor is switched OFF when the required level in the overhead tank is reached along with LED indications. Pump motor is not started whenever underground water level is below the pre set threshold. Using this system we can avoid the overflow and wastage of the water.

BLOCK DIAGRAM



BLOCK DIAGRAM OF DISCRPTION

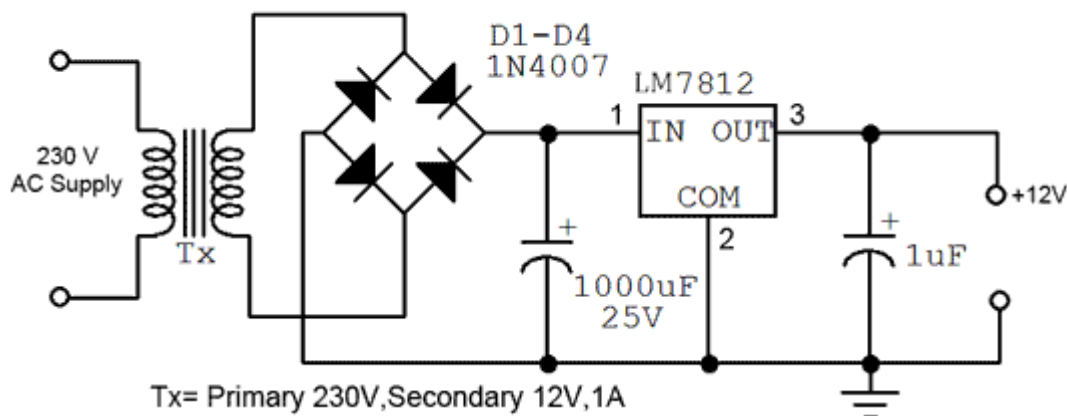
When the input 6V is given from Battery/power supply to the project starts working.

- The input is given from power supply then the transistor will active through the relay the power is supplied to

the IC 555 timer

- The output pin of the IC timer is connected to the relay and diode
- Then the relay is maintained at a required level and the motor will be start up by switching ON
- When the motor is on its ready to fill the tank by recognizing the water level in the tank.
- It is depend up on the level of water.
- When the water is full then automatically pump gets switched OFF.

WORKING TECHNOLOGY



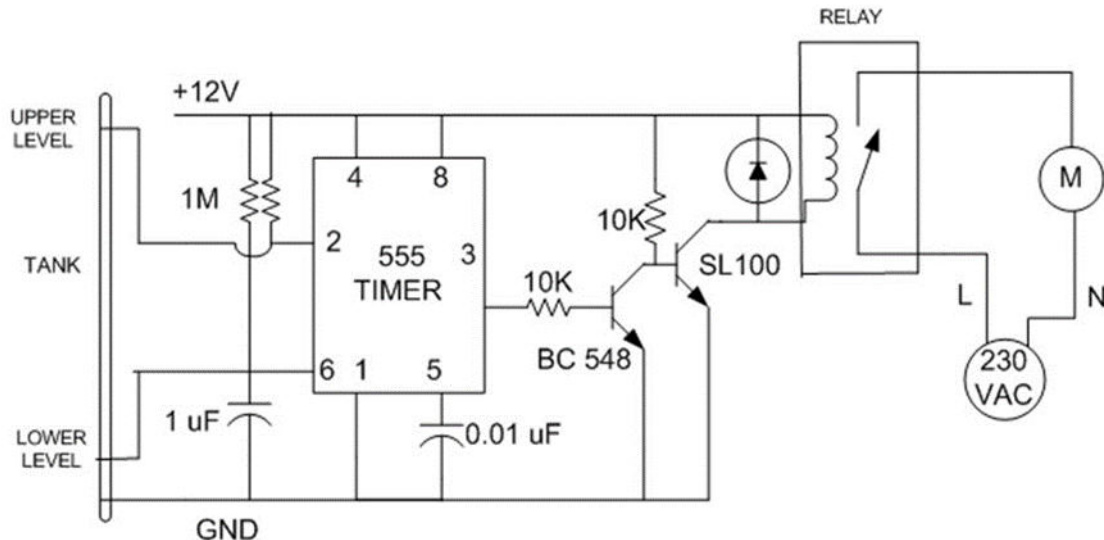
POWER SUPPLY

The circuit uses standard power supply comprising of a step -down transformer from 230V to 12V and delivers pulsating de which is then filtered by an electrolytic capacitor of 2200µF. The filtered de being unregulated, IC LM7812 is used to get 5V DC constant at its pin no 3 irrespective of input DC varying from 7V to 15V. The input de shall be varying in the event of input ac at 230volts section varies from 160V to 270V in the ratio of the transformer primary voltage V_1 to secondary voltage V_2 governed by the formula $V_1/V_2 = N_1/N_2$. As N_1/N_2 i.e., number of turns in the primary to number of turns in the secondary remains unchanged V_2 is directly proportional to V_1 . Thus if the transformer delivers 12V at 220V input it will give 8.72V at 160V. Similarly at 220V it will give 14.72V. Thus the de voltage at the input of the regulator changes from about 8V to 15V because of AC voltage variation from 160V to 270V the regulator output will remain constant at 12V

The regulated 12V DC is further filtered by a small electrolytic capacitor of 0.01µF for any noise so generated by circuit. One LED is connected of 1KΩ to the ground i.e., positive voltage to indicate 12V supply availability.

III. CIRCUIT DIAGRAM

Connect pins 4 and 8 together. Connect the positive and negative rails of the breadboard with the positive and negative terminals of the power supply. Now join pin 1 with the negative rail and pin 8 with the positive rail in this tank level monitoring system. Join pin 6 of the ic with the negative rail via a 1M resistor. Similarly, join pin 2 of the ic with the negative rail via a 1M resistor. Connect pin 3 with the base pin of the transistor via a 100-ohm resistor. Take a diode and connect its positive leg with the pin. Join the negative leg of the diode with the positive rail of the breadboard. Connect the emitter pin of the transistor with the negative rail. Now take a water pump and join one wire with the collector pin of the transistor and the other wire with the positive rail.



In any situation if the sump gets empty the sensor gets dried and the motor gets automatically turned OFF and by using the change over switch automatically the bore well pump gets turn ON and the overhead tank starts filling with water and whenever the overhead tank gets overflowed the motor gets turned OFF automatically. For practical implementation, relay is used. Rating of relay is chosen according to the load (motor). 32 Ampere relay is best suited for domestic applications.

IV. EXISTING SYSTEM

The most of the people are busy with their works. They are forgetting to turn off the motor even after the overhead tank gets overflowed due to which there is a wastage of water and the power. Instead of using two controllers to operate two motor automatically for ON and OFF we are using only one controller. And to know whether the tank is filled or not in case of building with more than one floor it is impossible. So, our project intelligent water pump controller will provide the solution to overcome this problem Water is very precious for the living beings and scarcity of the same is gradually increasing. Most of the cities in the country and that of the world are facing this problem. This is one of the motivations for the current work and to deploy techniques in order to save environment which in turn ensures water for the future. People generally worried about the wastage of water, when they switch ON the pump and forget to OFF them leads to overflow from the overhead tanks etc.

V. PROPOSED SYSTEM

The pump will automatically ON and OFF according to the water level in the tank. The pump will automatically turn on the water level in the tank decrease. And the Pump will stop when the water level touch top of the tank. Using the 555 timer IC. Hence, it is the most importance of preserve water. In many houses there is unnecessary wastage of water due to overflow in Overhead Tanks Automatic Water Level Controller can provide a solution to this problem. The operation of water level controller works upon the fact that water conducts electricity. So water can be used to open or close a circuit. As the water level rises or falls, different circuits in the controller send different signals. These signals are used to switch ON or switch OFF the motor pump as per our requirements. The project also focuses on the need of the people to install automatic water level control.

VI. EXPERIMENTAL RESULTS

The automatic water level controller has been successfully designed and developed. The submersible pump is turned off and on according to the water levels. Compared to other conventional methods, the automatic water level controller shows excellent performance with its reliable technology and it is cheaper and durable. The automatic water level controller is a promising controller in terms of system response in water level control with respect to the non-linearity introduced by pumps and sensors. The experimental model was made according to the circuit diagram and the results were as expected. The motor pump switched ON when the OHT was about to go dry and switched OFF when the OHT was about to overflow.

During our project work session we have observed the following points

The time taken by the control circuit to stop and start the motor when water reaches its predetermined level is about 0.5 sec. Mainly, we have faced the problem in getting a constant output voltage from the IC 555, which sometimes alternates at range of 1.5-2 V as a result the motor doesn't start properly circuits in the controller send different signals. These signals are used to switch ON or switch OFF the motor pump as per our requirements. The project also focuses on the need of The most of the people are busy with their works. They are forgetting to turn off the motor even after the overhead tank gets overflowed due to which there is a wastage of water and the power. Instead of using two controllers to operate two motor automatically for ON and OFF we are using only one controller. And to know whether the tank is filled or not in case of building with more than one floor it is impossible. So, our project intelligent water pump controller will provide the solution to overcome this problem Water is very precious for the living beings and scarcity of the same is gradually increasing. Most of the cities in the country and that of the world are facing this problem. This is one of the motivations for the current work and to deploy techniques in order to save environment which in turn ensures water for the future. People generally worried about the wastage of water, when they switch ON the pump and forget to OFF them leads to overflow from the overhead tanks etc. according the pump will automatically ON and OFF to the water level in the tank. The pump will automatically turn on the water level in the tank decrease. And the Pump will stop when the water level touch top of the tank. Using the 555 timer IC. Hence, it is the most importance of preserve water. In many houses there is unnecessary wastage of water due to overflow in Overhead Tanks Automatic Water Level Controller can provide a solution to this problem. The operation of water level controller works upon the fact that water conducts electricity. So water can be used to open or close a circuit. As the water level rises or falls, different the people to install automatic water level control.

VII. CONCLUSION

In these days, when Earth's reserve of consumable water is decreasing every moment, every drop has its value. Water level controller is a simple yet effective way to prevent wastage of water. Its simplicity in design and low cost components make it an ideal piece of technology for the common man. Thus the automatic water level controller is a big boon as concerned with the house hold applications as well as other water saving purposes including agricultural sector and industries. Based on the survey result, it is found that the automatic water level controller has a rising demand and it is a good asset from the electronics perspective.

Hence we conclude that

- This system is very beneficial in rural as well as urban areas.
- It helps in the efficient utilization of available water sources.
- If used on a large scale, it can provide a major contribution in the conservation of water for us and the future generations.
- Automatic water level controller is used to automatically fill the overhead tank as and when it gets empty and monitor the water level in it.

ADVANTAGES

- Automatic water level controller is simple and easy to install. Automatic water level controller has low maintenance.
- Automatic water level controller has comic and elegant design.
- Automatic water level controller is fully automatic. Automatic water level controller with its precise working saves water and the motor energy.
- Automatic water level controller avoids the seepage of walls and roofs when the tank overflows.



- Automatic water level controller is ideal as it is difficult to access overhead tanks. Automatic water level controller has safe operation of motor/pump within permissible voltage limits.

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