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Deployment of Water Level Detection, Indication and Scheduling Using Lab-View

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Abstract: *In case of small cities there would be water storage tank at each and every street, so there would be a person who would be filling the tank without knowing the amount of water in it. At times, the filling of water in the tank would be done after the tank gets emptied and also at times the water would be filled when the tank already has the optimum amount of water. In order to remove these scenarios, this project could be used. By this project the amount of water in the tank would be continuously monitored with the help of the water level sensor and the values would be transmitted to the controller with the help of wifi/Bluetooth module. Depending upon the values obtained from the sensor the motor and solenoid valves would be controlled with the help of the drivers connected to it. These drivers would be receiving the values from the arduino program. When this project comes into picture then the water loss because of overflow and emptying of tank could be minimized.*

1. INTRODUCTION

These days, researcher focus on Automatic administration of water plants and physically up held proportion of soil by predominant the siphon for taking out extreme progression of water, accordingly water is utilized to a significant degree. Of the multitude of traditional methods of measure and investigation, it's awfully unmistakable to utilize Lab VIEW on the grounds that it very well might be a prepping code inside the field of Instrumentation and controls Engineering [1]. It might likewise encourages architects to figure in single stage with boundless possibilities along the edge of a muddled framework. In the greater part of the developing homes in semi-dry districts, viable yield assurance ways and water system the executives is that the significant essential [2].

The above all measurement system to indicate the temperature and designed instrument and already available standard instruments compare and validated for final outcome result. The humidity data measure in RH% and Temperature in Fahrenheit was continuously monitored for the certain time interval for a patient [3].Thus the author could get the humidity recordings using CPAP instrument where the humidity sensor incorporated in the mask. The clinical thermometer using LM 35 is successfully created on Lab VIEW platform [4]. The presented system can be useful for studying behaviour of humidity and temperature during respiration even at home

In many of this subsequently we will in general square measure detecting the proportion of soil exploitation soil wetness gadget and predominant the siphon engine by exploitation myDAQ the executives pin that is more secure strategy to use inside the field [5-6]. The apparent worth from soil wetness gadget is a great deal of, at that point the engine can run with a fast. In the event that dirt is getting wet, at that point the speed of the engine can scale back conjointly predominant it physically by giving the cut-off period. On the off chance that the cutoff surpasses, at that point the ringer are ON and LED are high that shows the proprietor concerning the time that the cutoff period [7-9].

2. PROPOSED WORK

In this work to implement water level control using labview, in the proposed model the turn on and off of the motor is done based on comparison between historical data and actual data. The final outcome of this work is done automatically.

3. BLOCK DIAGRAM

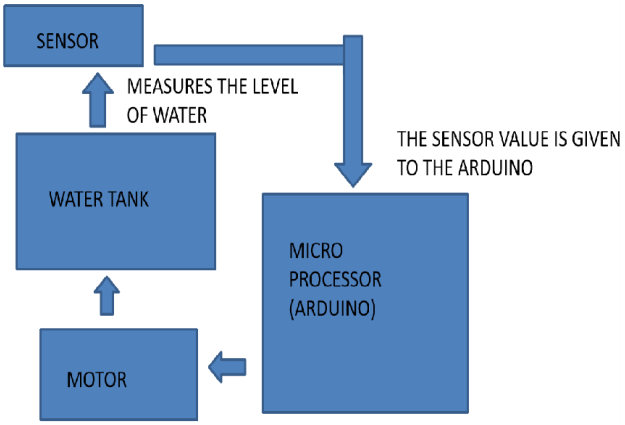

Figure1. *Block Diagram*

The figure 4 is the block diagram approach for the given problem in which the sensor is placed on the tank and it would constantly measure the amount of water in the tank and it would be controlled by the micro controller. The threshold values would be given for both the upper and lower limits if the level of the water goes beyond the lower limit then the pump would start filling the water in the tank.

3.1. Algorithm

1) At first the level of water in the tank has to be known to set the threshold limit
2) The amount of water level in the tank is constantly being monitored with the help of sensor.
3) The values of the sensor would be received in the arduino with the help of wifi/Bluetooth module.
4) The range for the upper and lower limits for the tank level would be given.
5) If the level of the water is below the threshold limit then motor would turn on the tank would get filled.
6) When the level of water reaches the top then the sensor would be continuously monitoring and the motor would be turned off.
7) This process would be keep on running.

3.2. Flow Chart

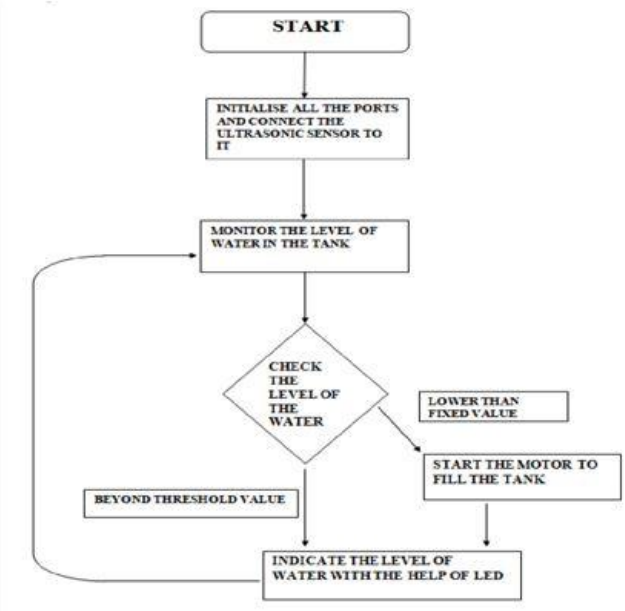

Figure2. *Flowchart*

The figure 5 shows the flowchart explanation for the problem. This flowchart gives the diagrammatic representation for the algorithm.

3.3. Lab view Simulation Program

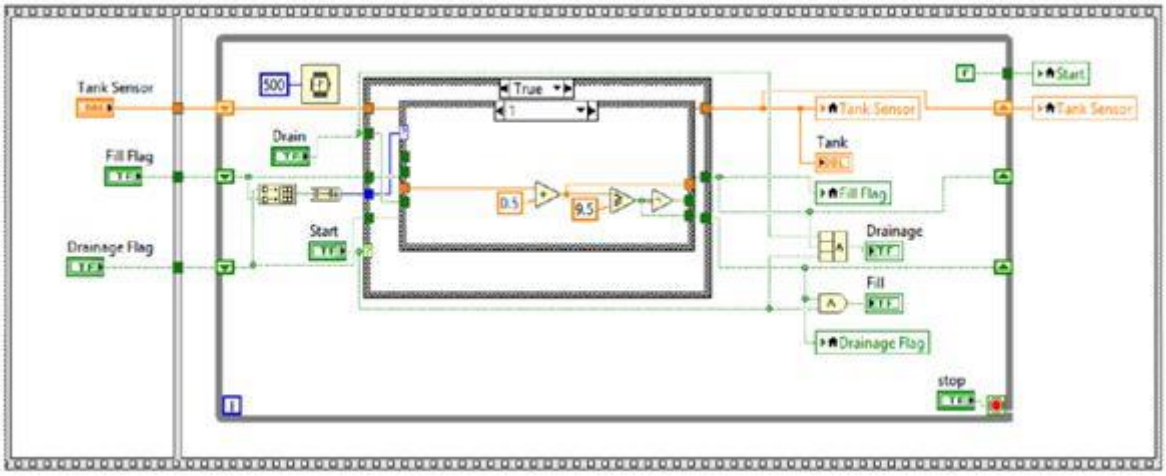

Figure3. *Water Level Detection and Control*

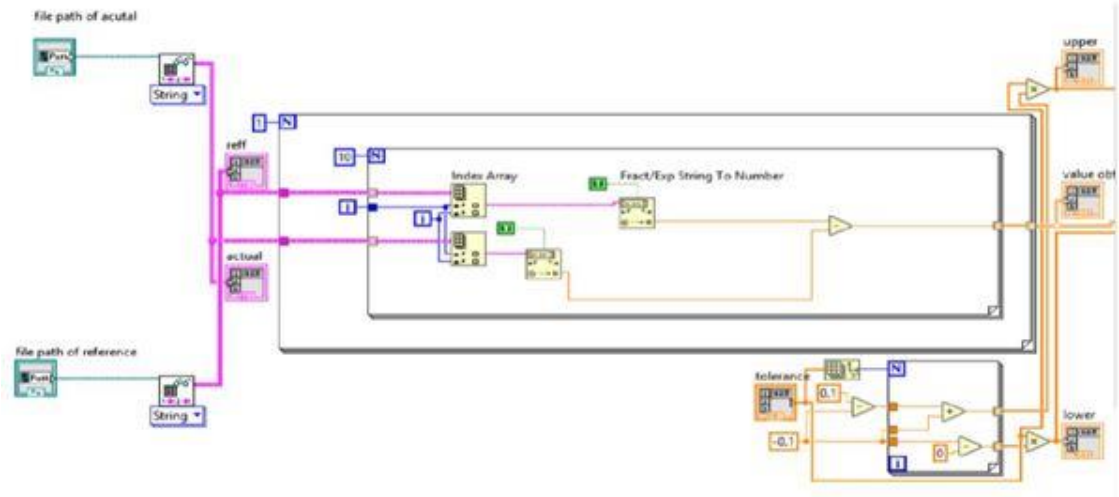

Figure4. *Comparing the Reference and Actual Value Along with Tolerance*

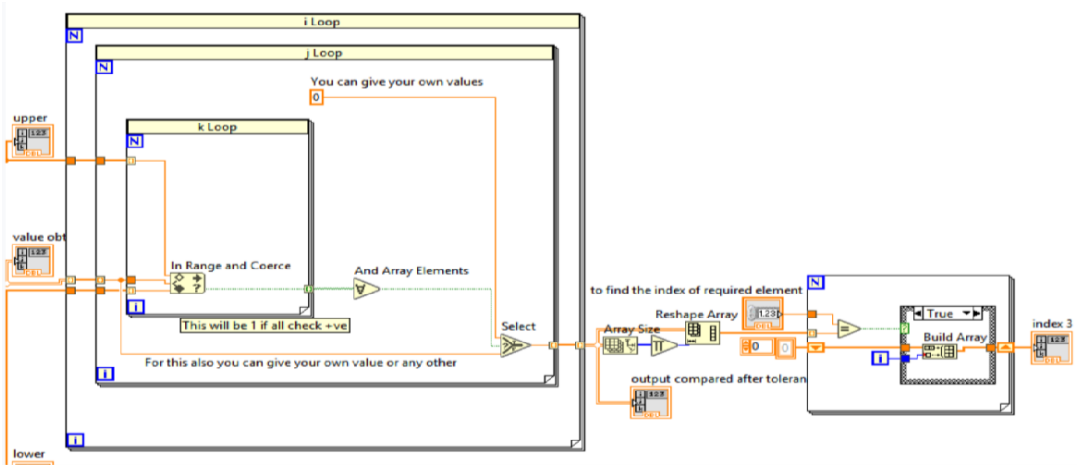

Figure5. *Obtaining the Values If it is Present in Limit*

In which the figure 6 represents the water level detection and control, all the inputs that are needed for the program are given as control and constant thereby the process is done by having three cases in it. First is the default case in which the level of water is set as half the tank. Second case is for the increment and the third step is for the decrement case in steps of 0.5. consider the capacity of

tank as 10L and the upper and lower limit as 0.5L and 9.5L respectively. The figure 7.a and 7.b shows the scheduling by taking the reference and actual value, based upon the difference and comparing with the tolerance value if it is present within the range then it would be considered in scheduling and thereby triggering of motor takes place.

3.4. Circuit Connection

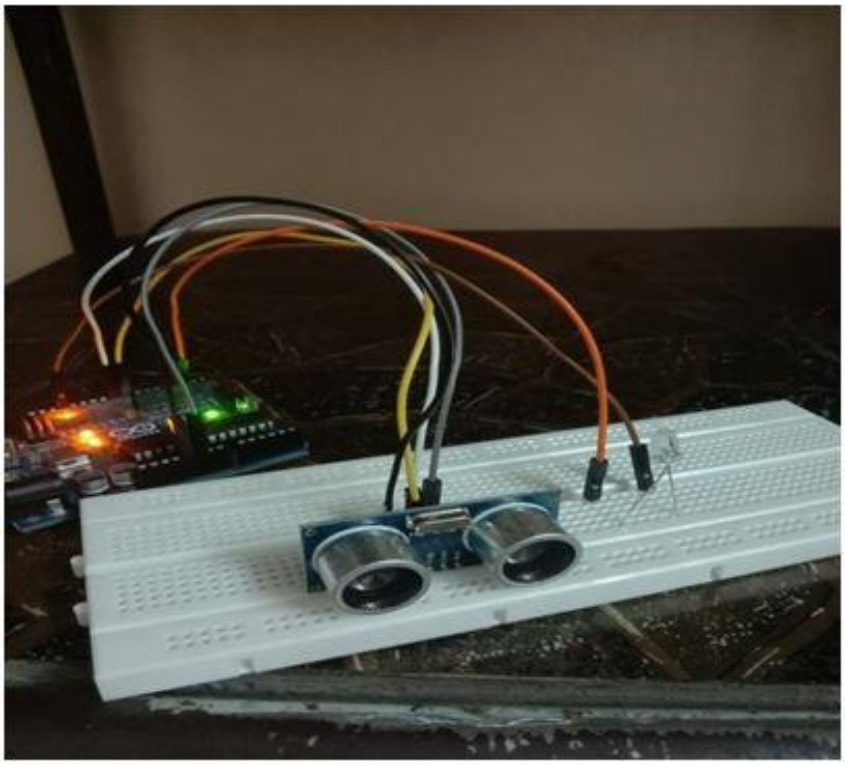

Figure6. *Circuit Connection for Water Level Detection*

The figure 8 shows the connection of water level detection with the help of ultrasonic sensor and led. In this the trigger and echo pin of the ultra sonic sensor are connected to the arduino uno thereby the ultrasonic sensor is interfaced with the arduino (micro controller). The led is connected to the arduino by giving supply and grounding it. Depending upon the condition given the led would glow which indicated that the level of water is more in the tank. If the led does not glow then the level of water is low.

Table1.

Truth Table:

1) When the condition is "<threshold"

Level of Water	Led Status
Less than threshold	1
Greater than threshold	0

2) When the condition is " > threshold"

Level of Water	Led Status
Less than threshold	0
Greater than threshold	1

4. RESULT

The figure 7 and figure 8 shows the water level detection. In figure 7 when the level of water is less than the threshold limit that is 5cm then the level of water is almost full in the tank which is indicated by glowing the led. In figure 8 when the level of water is beyond the fixed threshold limit then the light would go off, when the level of water is too low then would be beyond the threshold limit which could be identified and the motor could be turned on.

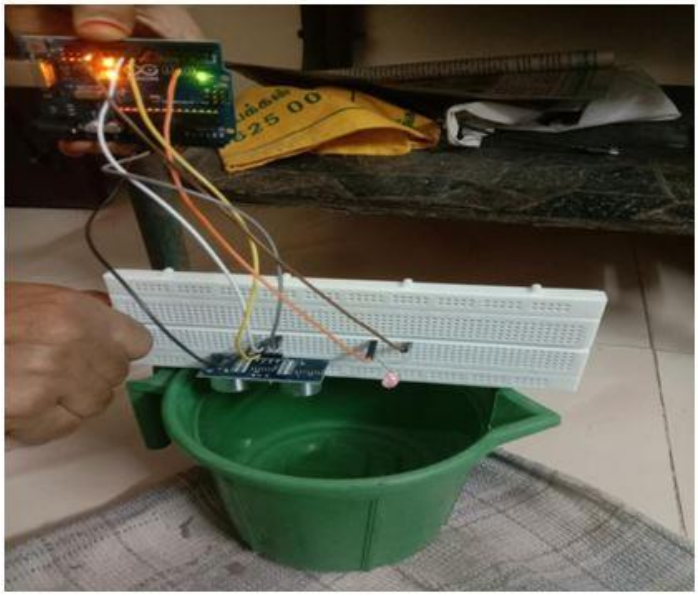

Figure7. *Led Detection When the Water Level is High*

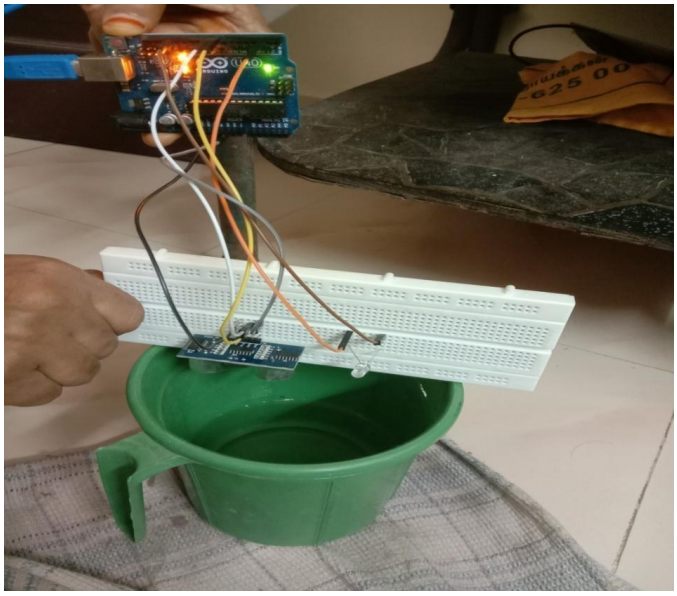

Figure8. *Led Detection When the Water Level is Low*

5. CONCLUSION

With the help of this approach there is a continuous monitoring of the level of the water in the tank, so when the level of water in the tank goes below the lower threshold limit the processor would receive this information and it would trigger the motor, thereby the people don't want to suffer with the absence of water. It is completely monitoring and controlling automatically so it would be easy and simple enough control system is sufficient for near the tank.

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