Report on

Automated Water Pump

Micro controller Based System Design Lab
CSE 3216

Lab Group: *C2*
Project Group: G2

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Department of Computer Science and Engineering

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Objective

Water is very precious and needed for many and every activity. The storage of water for the domestic, industrial, agricultural or other such needs is very important. This project is a microcontroller-based water pump control system, to ensure uninterrupted water flow in our home and office. In this project, the controller controls the pump depending on the water level of the upper storage tank as well as the reserve tank. And also having a PH sensor helps to measure the acidity or alkalinity of the water and gives the feedback to user. According to the controller, the device will let the pump on to supply water and it will stop water supply. The user can control manually also.

Social Values

The main purpose of these devices is to control water flow. When the water level in the tank falls below a certain threshold, it automatically refills the tank, and when the water level falls below a certain threshold, it automatically shuts off the water flow to prevent the tank from overflowing. This project will make user's daily basic work easy and comfortable because of minimal maintenance. Users don't need to manually check the water level. It will reduce the wastage of water. It helps to measure the quality of the water. It will save power and time. Also, it's a cost-effective project.

Required Components

These following parts and tools are required for building this project-

- Arduino MEGA
- 16x2 LCD Display
- Ultrasonic Sensor
- Breadboard
- Resistor
- Push Button
- Connecting wires
- SPST Switch
- 5v Relay Module
- Gravity analog pH Sensor
- Buzzer
- Keypad

Working Procedure

The basic input components are:

- Ultrasonic sensor
- Keypad

The basic input components are:

- LCD Display
- Buzzer

System can be operated automatically or manually. When the water level of reservoir is below five percent then the switch will turn on. When the water level of reservoir is above ninety five percent then the switch will turn off. System will measure the pH level of water.
Buzzer will inform if the pH level of the water is unusual. LCD Display will show every result of this system.

Estimated Budget

Equipment	Quantity	Budget (Tk)
Arduino MEGA	1	1650
16x2 LCD Display	1	250
Keypad	1	75
Ultrasonic Sensor	1	90
Breadboard	2	300
Resistors	As Needed	15
Tactile Switch	1	10
Slide Switch	1	10
Connecting Wires	As Needed	90
Gravity Analog pH Sensor	1	2500
5v Relay Module	1	100
Buzzer	1	15
Total		**5105**

Conclusion

The proposed flexible automatic water level controller and indicator with microcontroller is implemented and found working satisfactorily. The system will help us to reduce the human interference. Also, it can control unwanted overflow of water and electricity. It will help to measure the pH level which will ensure the acidity or alkalinity of the water. This system can be used in different sectors such as water tank, fuel tank etc.

References:

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