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Automatic Water Level Control and Monitoring System in Anantrao Pawar College of Engineering and Research

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Abstract: ***In our institute, Anantrao Pawar college of Engineering and Research, challenge occurred because of manual involvement in the supply of water. Even for other infrastructure many challenges are due to limited water resources growing population, ageing infrastructure etc. Hence, there is a need of better methodologies for monitoring the water supply of water. This proposed module will act as Automatic water level controller.***
Water is always the most precious and valuable thing for all the human beings, drinking water utilities faces new challenges in real-time operation. Water is essential to life, yet 785 million people in the world, 1 in 9 lack access to it. According to a report by the World Economic Forum, the water crisis is the Rank 4 global risk in terms of impact to society. The excessive use of groundwater in our agricultural industries is leading to diminished yields and wasted water. Over 70% of our water is used to grow crops and most is wasted due to leaky pipes and poor watering techniques.
Keywords: Submersible motor, Water Level Controller, AVR.

I. INTRODUCTION

Water is essential to life, yet 785 million people in the world, 1 in 9 lack access to it. According to a report by the World Economic Forum, the water crisis is the Rank 4 global risk in terms of impact to society. The excessive use of groundwater in our agricultural industries is leading to diminished yields and wasted water. Over 70% of our water is used to grow crops and most is wasted due to leaky pipes and poor watering techniques. We encounter the same problem of over wastage of water in our college, which also results into the power loss. Proposed system puts the solution on wastage of water and thereby ensures that the motor won't dry out due to the continues supply of water. This system also provides reporting of water supply real time monitoring through alert notification by SMS system to the user.,

II. LITERATURE SURVEY

A. This paper deals with water level controlling in efficient and regulatory manner, in the Mobile Water Level Controller system enables the user to easily operate the motor through his mobile phone manage the task of filling up the overhead tank without any wastage of water using IoT.

B. In this paper, Smart water flow monitoring uses the ultrasonic sensor to detect water level and relay for the switch on or switch off of a submersible pump to pump water. Monitoring data display on the web and upload the data to the cloud This helps to create a barrier for water wastage so that, it provides more financial gains, ensure energy saving and regulate environment and water cycle. This in turn ensures that we save water for our future.

C. The water level of lower tank is compared with setting value of the main loop, then plc calculates the control signal based on PID. The control signal is used as setting of the secondary loop, which is compared with water level of upper based on PID. then electrically operated valve will regulate valve opening

D. In this paper, an electronic system is designed to control and monitor the level of water in a tank or a similar reservoir based on the water detector sensor information. The different stages of the proposed system are designed using easily available discrete components.

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III. BLOCK DIAGRAM

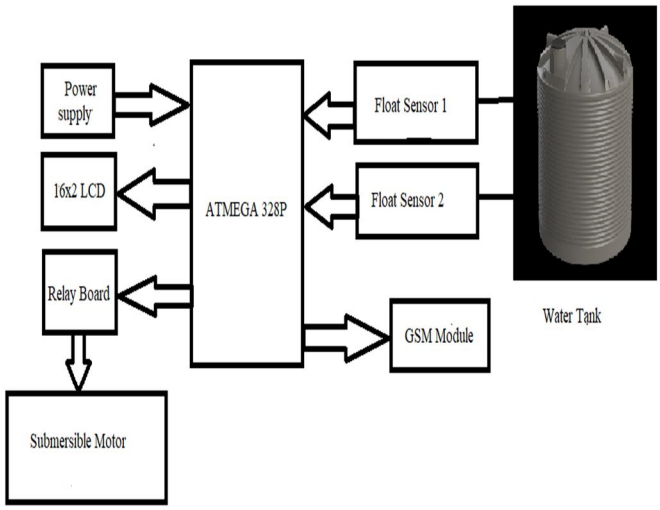


Fig 1. Block Diagram

IV. DESCRIPTION

The above shown block diagram would be used to represent the functioning of the module. ATMEGA328P is used as the control which sends and receives data to the peripherals connected to it. As shown we have a tank which supplies water to each floor of our college building. Two float sensors are dipped into Water tank for two corresponding water levels, which sends data back to Atmega on the required situation of water level Controller processes this signal and sends it to Relay board (Relay board is an IC which is used to control the high current rating devices that work under 250V 10A) which further Changes the state of motor as required to be OFF/ON. If the water level touches the required point relay receives a signal through ATMEGA to switch off the motor similarly when water level crosses the lowest referenced point relay Receives the signal through At mega to switch ON the motor and motor starts pumping water into the tank. For the extra accuracy and acknowledgement, a GSM module which will regularly notify about the levels of water through SMS. We also have a LCD is connected to the controller which will be placed near the Authorised Staff Desks which will regularly display to the required staff about the level of water. This is description of the project

V. ADVANTAGES

A. Automatic Start/Stop of Motor with respect to water level.
B. Continuous Monitoring of level of water in 2 to 3 reference points.
C. Compatible Alert System through GSM which also notifies about level of water and the state of motor.
D. Regular Visual monitoring is also possible through LCD connected to wherever required location.
E. Cost effective module and small Sized.

VI. APPLICATION

A. All residential purposes as well as Domestics.
B. Industrial and commercial use where heavy tanks & large number of tanks are to be controlled.
C. Oil refineries and Oil storage and distribution stations.
D. Hydroelectric power stations.
E. Sewage Pump level control.

VII. CONCLUSION

In this paper we have concluded that Our Proposed System eliminate the manual involvement of Switching of Motor with respect to Level of water in the Tank. Our System also reduces power loss and helps save water as it is an important resource of life. Our system also regularly notifies the respected authorities through message about the level of water available in the tank and the switching state of motor at that particular time.

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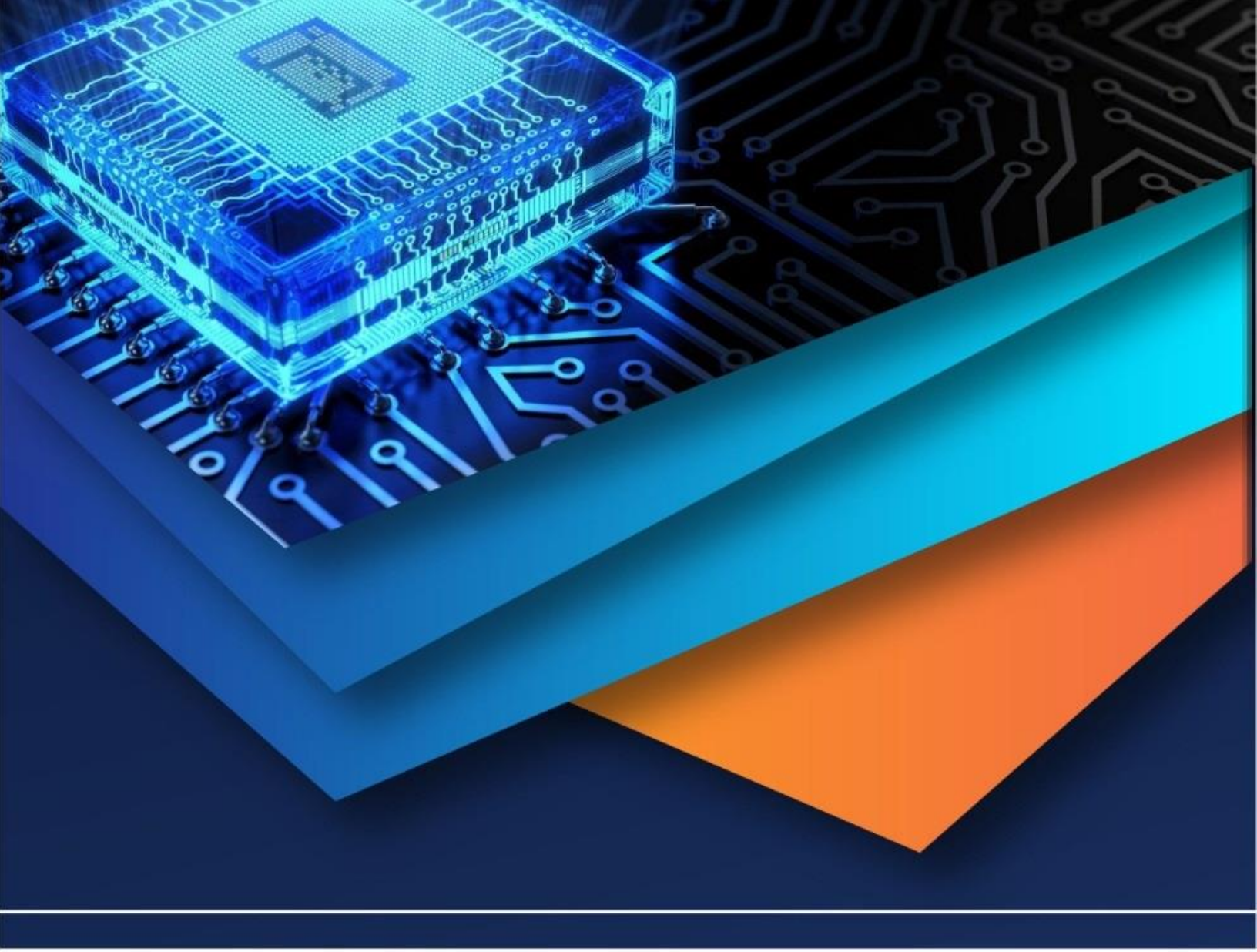
VIII. FUTURE SCOPE

We can provide IoT platform to the proposed system and thereby make the system wireless. Oxygen level detector module can also be added.

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