e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Issue:01/ January-2022 Impact Factor- 6.752 www.irjmets.com

AUTOMATIC WATER LEVEL CONTROLLER SYSTEM USING ESP-32

Prof. M.A.Parlikar[*1], Chinmayi Vaidya[*2], Prathamesh Pawar[*3], Amaan Saiyyad[*4], Shravani Mahesuni[*5]

[*1]Lecturer, Department Of Information Technology, Pimpri Chinchwad Polytechnic, Pune, India.

[*2,3,4,5]Student, Department Of Information Technology, Pimpri Chinchwad Polytechnic, Pune, India.

ABSTRACT

Our project is AWMS (Automatic Water Level Controller System using ESP-32) which is based on Water Flow Management System and it is basically controlling the excessive flow of water from tank which leads to wastage of natural resources. As technology advances, so does the implementation, so the control system that we are going to use is already existing but we have implemented a new part which is the android application connection.

Keywords: Esp-32, Relay, Submersible Motor, Breadboard, Jumper Wires, Ultrasonic Sensor, Arduino IDE, MIT App Inventor.

I. INTRODUCTION

We are currently experiencing a water problem, which is a big resource, as well as electric issues, and the most important thing is that we require human involvement and manpower to control these crises. As a result, proper water monitoring and control are required in every field, beginning at home and ending with all types of services. Because we lead such busy lives, we frequently forget to turn off the water pump even when the tank is full, resulting in excessive waste of water and electricity, as the water motor consumes more electrical units. Power outages occur from time to time, resulting in a lack of water supply. To operate the system in older circumstances, such as in buildings and many other places, we need Human Involvement. But, as current technology advances, we know that many projects or methods are being implemented to avoid such problems and to conserve water, which are somewhat sophisticated. Some of their constructions are quite difficult for ordinary people to use, while others simply cannot afford cost estimates and still require staff. To avoid such situations, we must minimise our labour while also improving our electricity infrastructure.

As a result, the main purpose for the development of our project, AWMS, is to address this issue. AWMS is an automatic system that regulates the excessive flow of water from a tank. Around 70% of the hardware resources and 30% of the software resources are included in this system. So, as technology advances, so does implementation, so the control system that we will utilise is already in place, but we have added a new component, which is an android application connection.

As a result, the main purpose for the development of our project, AWMS, is to address this issue. AWMS is an automatic system that regulates the excessive flow of water from a tank. Around 70% of the hardware resources and 30% of the software resources are included in this system. So, as technology advances, so does implementation, so the control system that we will utilise is already in place, but we have added a new component, which is an android application connection. The majority of residences have subterranean water engines that pump water to rooftop water tanks. When the water motor isn't shut off, a lot of water overflows, and the water tank begins to leak after it reaches its full capacity.

II. LITERATURE RESEARCH

Santosh Anand., et al [1] This paper is about automatic water control system using Iot senses ,the water movement and afterward demonstrates the water level inside the container and passes information to the owner through pop up message. This IOT is associated with smartphones , laptops, computers, and multiple sensors . Their system includes a water level sensor built into the container, as well as an IR sensor for controlling the flow of water from the tap. With the 120db water leak alarm, it can detect a leak in a pipe and alert you. In the case of a low, medium, or high level of water in the water tank, continuous water flow from the tap. Water leak alarm will send a notification to your phone via a pop-up message stating that there is a leak in the pipe. As a result, users can make their own selections. This is where the project's working premise will be

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Issue:01/ January-2022 Impact Factor- 6.752 www.irjmets.com

demonstrated. i.e. an automatic water control system that monitors water flow and displays the water level within the container, as well as informing the owner via a pop-up message.

Mallikarjun.G. Hudedmani a., et al [2] The Automatic Water Level Controller is described in this paper as a solution to this problem. The operation of their water level controller is based on the fact that water has overflow and electricity concerns. The controller's detecting probes and circuits detect when the water level rises or falls. These signals are utilised to turn on or off the pump motor depending on the situation.

A buzzer will be included as an optional function to stop the input water for the subterranean tank's water level. Turn off the tap to avoid overflow, future shortages, and unnecessary water billing by the water supply board.

P. Nancy Rachel a., et al [3] The Arduino-based water level indicator and controller is described in this paper. Basically, an ultrasonic sensor will be placed on top of the water tank to manage the water level. When sound waves travel through the environment, they return to their source as an echo as soon as they hit an obstruction. Typically, they will employ an ultrasonic sensor to calculate the delay time. A code can be programmed into the Arduino using this delay period to determine the distance between the water level and the sensor. Maximum and minimum limits can be determined based on the requirements, and this information can then be used to automatically turn on or off the water supply.

Ms. Pooja K a., et al [4] This paper first tests and indicates the water level, allowing the pump to be turned off at the proper moment, saving water, electricity, and time. This article usually focuses on requiring the least amount of manpower and making the installation process easier to use for everyone. This innovation of "Water Level Indicator and Controller Using Arduino" project may surely be beneficial on a big scale due to the low manpower requirements and the ease of installation, making it more accessible to everyone.

Sanam Pudasaini., et al [5] System of automatic level controllers with sms. In the arduino programme development environment, a programme was created and uploaded to the microcontroller. The water level in the system is automatically controlled using ultrasonic sensors. The controller is powered by batteries. The user receives a sms notification whenever the system detects an empty tank level or an overload condition. The water distribution procedure works like this: if electricity is available, the system will check the tank's water level. If there is a problem with the power, the user is notified by SMS so that he may make necessary water arrangements. As soon as the water level in the water tank reaches the MAX level, the motor will turn off.

The system of an automatic water level controller with SMS notification is presented in this study. This initiative was conducted out to aid users in countries where load shedding is common, such as Nepal. Water may be handled by the user during load shedding thanks to the addition of SMS alerts to the automatic controller system. The automatic level controller system and the SMS system function in tandem. Their code was written in the Arduino programming environment and then uploaded to the Microcontroller. The system's water level is automatically controlled. The controller is powered by a battery. When the system detects an empty level and load shedding is in effect, an SMS notification is delivered to the user.

III. COMPARITIVE ANALYSIS

Paper Name:

Automatic Water Management System

Author:

Santosh Anand

Proposed System:

The functioning premise of this project will be demonstrated here. i.e. Automatic water control system, which detects water flow and displays the water level inside the container, as well as providing information to the owner via a pop-up message. Water level sensor will be integrated inside the container, and an IR sensor will be used to control the flow of water from the tap. As a result, it assists in detecting a leak in a pipe with 120dB and a water leak alert, as well as ensuring uninterrupted water flow from the tap in the case of low, medium, and high levels of water in the water tank. The water leak alarm will send a notification to your phone via a pop-up window.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:04/Issue:01/ January-2022 Impact Factor- 6.752 www.irjmets.com

Limitation:

To improve the live ability of poor neighbourhoods and cities, it should increase the productivity of water supply and consumption. Their efforts to improve the environmental status of rivers must be based on community needs. It has to get the most out of the water.

Paper Name:

Flexible Automatic Water Level Controller and Indicator

Author:

Mallikarjun.G. Hudedmani

Proposed System:

The following is an explanation of how a water level controller works. As needed, level probes are fitted in the overhead and subsurface tanks. If the overhead tank is empty or the level is below the threshold, the circuit will turn on the pump motor if there is a minimum level of water in the subterranean tank; otherwise, the circuit will not turn on. The user can choose the water level of the over head tank using the option provided. Assume the selected level is 2, and the pump status is

A buzzer is provided to stop the input water for the water level of the underground tank. To avoid overflow and needless water billing by the water supply board, turn off the tap.

Their water level regulator is well-understood.

Limitation:

This flexible automatic water level controller and indicator is implemented and found to perform satisfactorily without the need of a microcontroller. The distinction 366 among the available such water level controller circuits and economically affordable is found in the freedom of choosing the level of the over head tank while pumping the water from the subsurface tank. Their function starts only when the low level probe from the over head tank detects a low level, and a bypass button can be supplied to activate the pump at any time. So the current circuit may be improved by including low-cost controllers such as Arduino and IoT, allowing it to be controlled from anywhere and communicate intelligently through messaging or warnings.

Paper Name:

Automatic Water Level Indicator and Controller by using ARDUINO

Author:

Nancy Rachel

Proposed System:

The Automatic Water Level Indicator and Controller proposed in this study is a self-contained system that automatically turns on and off the water pump based on the water level in the tank without the need for human intervention. This innovation also allows the user to keep track of the water level in the tank at all times.

An ultrasonic wave will be transmitted from the ultrasonic sensor.

Limitation:

There were several implementations to address the above mentioned water wasting issue, as discussed earlier in the Literature Survey. The inclusion of transistors, PID controllers, and many sensing devices, however, makes the prior systems more difficult to construct. And, because they aren't fully automated, it will be up to the user to operate the equipment in accordance with the sensing unit's instructions. Microcontrollers were used in a few past studies, however coding those microcontrollers is a challenging undertaking. Not everyone will be able to programme in it or comprehend it.

IV. CONCLUSION

The conclusion of our project is that many people waste water in this day. In order to save or prevent this issue we have created our project utilising esp-32. When it comes to our project's most significant domain, the motor is the key component that will turn on and off our water flow or water stock. As a result, the "AUTOMATIC WATER LEVEL CONTROLLER SYSTEM USING ESP-32" project may surely be beneficial on a broad scale basis due to the low manpower requirements and the ease of installation, making it more accessible to everyone.

ACKNOWLEDGEMENTS

We've worked extremely hard to get this review paper to this point. Regardless, it would not have been possible without the generous assistance and support of a number of individuals and organisations. We should thank each and every one of them from the bottom of our hearts. This report on "automatic water level controller system using esp i32" gives us great delight. We'd like to offer our heartfelt gratitude to Prof. M.A.Parlikar, our assistant, for his significant assistance in completing a thorough assessment of our project. We'd also like to thank Ms. S.L. Mortale, the HOD of Information Technology, for providing the essential resources.

V. REFERENCES

[1] Santosh Anand et al.: Automatic Water Management System, 2017 International Conference on Big Data Analytics And Computational Intelligence (ICBDACI) IEEE.

[2] Mallikarjun.G.Hudedmani et al.: Flexible Automatic Water Level Controller and Indicator, International

[3] Journal of Research in Engineering and Technology eISSN: 2319-1163 pISSN: 2321-7308. Web site: http://www.ijret.org.

[4] P. Nancy Rachel et al.: Automatic Water Level Indicator and Controller by using ARDUINO, International Journal of Research in Engineering and Technology eISSN: 2319-1163 pISSN: 2321-7308. Web site: http://www.ijret.org.

[5] Ms. Pooja K et al.: AUTOMATIC WATER LEVEL INDICATOR AND CONTROLLER USING ARDUINO,", International Journal of Scientific and Research Publications, Volume 4, Issue 9, September 2014.

[6] S.Nalini Durga, et al.: Autonomous Water Tank Filling System Using IoT, 2018 IEEE, Volume 6, Issue i9.

[7] Vinod Bharath et al.: Smart Water Management System in Cities, 2017 International Conference on Big Data Analytics and Computational Intelligence (ICBDACI)IEEE.

[8] Ayisha sayed et al.:Smart and automatic water distribution control system, 2018 International research journal of engineering and technology(IRJET) IEEE, Volume 5, Issue 1.