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Programmed Recognition of Water Reservoir in Rural Zones Using IOT

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Abstract: Currently, the environment consists of only 1% of water consumption to human. Year by year it is rapidly decreasing due to the unwanted wastage of water on rural cities each day. Most cosmopolitan cities spend water with their unconsciousness of forgetting about the state of our environment. Where people just turn on the tap during no water and let it open until it leaks out, it cost too much of water per day which will lead to insufficient of water on future for their generations. An automatic recognition system with level sensor is implemented to reduce this kind of wastages every day by IOT device. Level sensor inserted to each and every people's reservoir to control the additional flow of water wastage during power on and off in rural zones. This implementation helps out automatically when water reach the complete level of reservoir, intimation is sent to the main board to control the action of switch ON and OFF operation of circuits without any manual work. By this, hold the state of water which should not cross the limit to insufficiency on future. Save per drop a sec, per litter an hour, per gallon a day doesn't cost you too much, but saves millions of thirsts for future.

Keywords: Water consumption, reservoir, water wastage, level sensor, IoT, Water pump.

1. Introduction

Rural zones people don't care about the sake of our environment, and the future insufficiency state of their generations. Water capacity of our world is still remains lack of savings due to

enormous amount of water wastage each and every day due to unconscious state of our mind. Human being state is ideal on this topic of water management system where they don't care about the wastage of water. Around world only 1% of water is there for human consumption which is ultimately low for our future generations to carry out a normal life with a state of insufficiency of water [1].

Water is a precious thing in our environment which always feels the thirst of throat and gives a pleasant state after tasted a drop of water on the throat. Whenever people turn the tap on, they forget to close the tap and even have no thought of saving it for future. There is no water left out to be after some decades, and all going to fight for a drop of water. Why taking this state along with a legacy of conflict for all our mistake of wasting water per day? Once teach children about the sake of our environment and do not even waste a single drop of clean water [2].

According to survey, the rural regions spend most waters that traversed state of our life. Every year the wastage of water rate in keep on triggering up, overflow of water from reservoirs costs millions of gallons per year [3]. What is the solution for the problem, rain water harvesting? But, no one is ready to take the action of harvesting source of water from the beginning. If this keeps on top rate, sooner the world runs out of water that human can consume.Water is required at all times of our existence. Almost no one maintains track of the water level in the above tanks. As a result, automatic controlling entails building a control system that operates with little or no human intervention. The concept may be utilized implicitly to determine and regulate the amount of water in above tanks, so preventing waste [4].

To overcome this solution, the younger generation to take a step to save the water each day by simply turning of the tap when excess of water is being waster for brushing teeth, taking bath, and washing hands on their homes. Avoiding this kind of wastage may someday turn into a big solution or challenge for each and every youngster of our environment for a smart future [5].

2. Literature Survey

The procedure of checking and controlling the water level is in an irrigation system. Water is an essential natural resource, and it is a vital asset to conserve water on the planet. This study offers an autonomous system for monitoring and controlling water level using water level sensors and a wireless network system. The purpose of this study [6] is to decrease water waste in canal and sub canal, and the WSN system lowers human efforts.This article [7] has designed an Automatic water level control system comprised of an Arduino to automate the operation of water pumping in a tank and has the ability to detect the level of water in a tank and switches ON or OFF the pump appropriately, as well as show the status on the LCD screen.

In this study [8], we suggested an automatic water level controller with SMS notification. SMS Notification was introduced to the automated controller system, allowing the user to

regulate water during load shedding. The automated level controller system and the SMS system function in tandem. SMS is not an efficiency method for communication.

In this circumstance, monitoring the water level and managing the water pump becomes an essential responsibility. Water level monitoring is also crucial in a variety of different scenarios. It may be used to save water or to investigate how a water source's water is used. This study presents a prototype system design, implementation, and description of the necessary tools and technologies to construct an IoTtechnologies-based water quality monitoring system that may be applied in future intelligent towns and Villages [9].This research [10] provides a wireless system for monitoring and managing the river water level parameter based on GSM network mobile communication. One of the system's merits is that it may be used to observe the decrease of water levels in rivers as well as the rise of water levels in the event of floods. At regular intervals, the system communicates river water level readings to the appropriate body in charge of water environmental flow control.

However, insufficient water quality monitoring level under this storage system may result in either a lack of water supply when needed or wasting of water during the raising procedure. As a result, regular monitoring of water level in a storage unit is required. Our necessity inspires this effort, which is the creation of a sonar-based water quality monitoring system [11].This research [12] presents a competent approach for monitoring water level and type in storage tanks in order to reduce current water waste and provide better water quality. The project is an overhead reservoir monitoring structure in which we screen the amount of water in the upper reservoir and also define the type of the waters.

The sensor data may be shown on the web by leveraging cloud computing, and these devices are more efficient, inexpensive in cost, and capable of processing, transferring operation over WiFi module to mobile phones [13]. This may be used for environmental monitoring, and the data can be accessed from anywhere in the globe [14].

3. Proposed Work

In this method, we implemented a device to automatically control the flow of water in reservoirs on rural areas to save the water for a better future. Here, the device consists of a level sensor which sense the state of water level in the reservoir during water pump started to filling the reservoir. Once the reservoir is filled completely, the action is sent to the device to stop water pump and runs when it runs out of water in the reservoir. Figure 1 shows the implementation of the system.

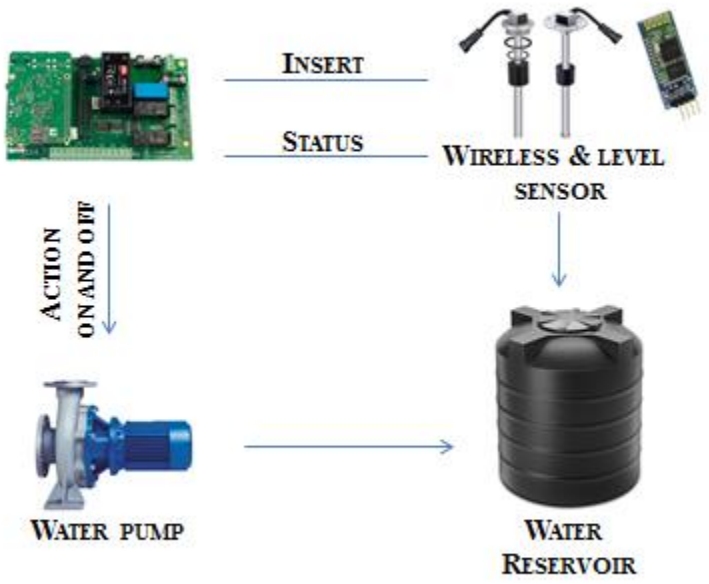

Figure 1: Architecture

Implementing This Process, The Main Iot Board Is Been Placed Near The Water Pump Where The Level Sensor Is Inserted To The Reservoir To Check The Level Of Water On State Of Water Pump On. Each State The Action Is Set On And Off, If The Reservoir Is Filled Soon The State Off Signal Is Sent To The Main Board Through Wireless Sensor. After That, The Main Board Send An Action To The Water Pump Switch Board To Set On Or Off According To The Level Of Water In The Reservoir [15].

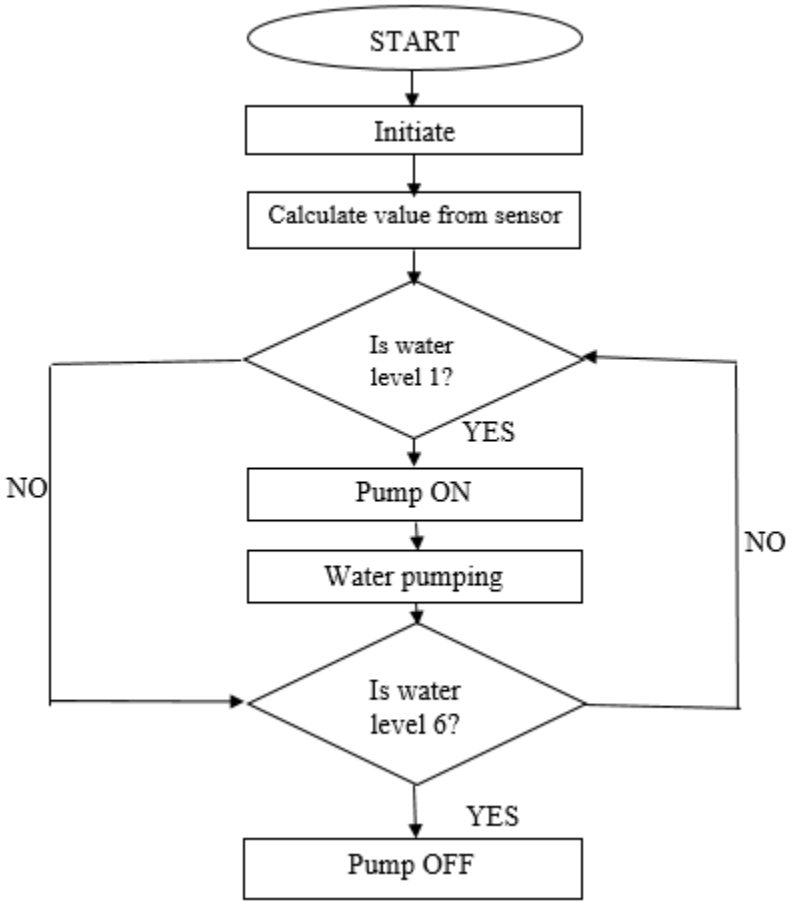

Figure 3: Flow chart of the system

The Arduino-based automated water level indicator and control system design can also include acidity sensors to assist adjust the acidity or measure of the acidity. Reduce The Wastage Of Water On Rural Areas Each Day Cost You Nothing But Initializing A Device Could Automatically Operate The Power On And Off Condition Through Main Board. So, People Need To Buy This Product And Initialize On Their Homes To Change A World To A Better Path Which Cost You Nothing But Saves Millions Of Thirsts On Future. Make A Change Today, Tomorrow Will Lead You For The Better Future To Your Generations.

4. Result and Discussion

The definition and study of a full collection of functionalities, operation, efficiency, interfaces, quality aspects, architecture, structural failure, and conditions have been met is known as hardware analysis phase. Water Level makes use of the Arduino uno board as well as the Level sensors.The water wastage in rural areas every year changes the survey state to the insufficiency

on the future. This method compares the survey over the years on rural areas and estimated the wastage of water each year as shown in Figure 2.

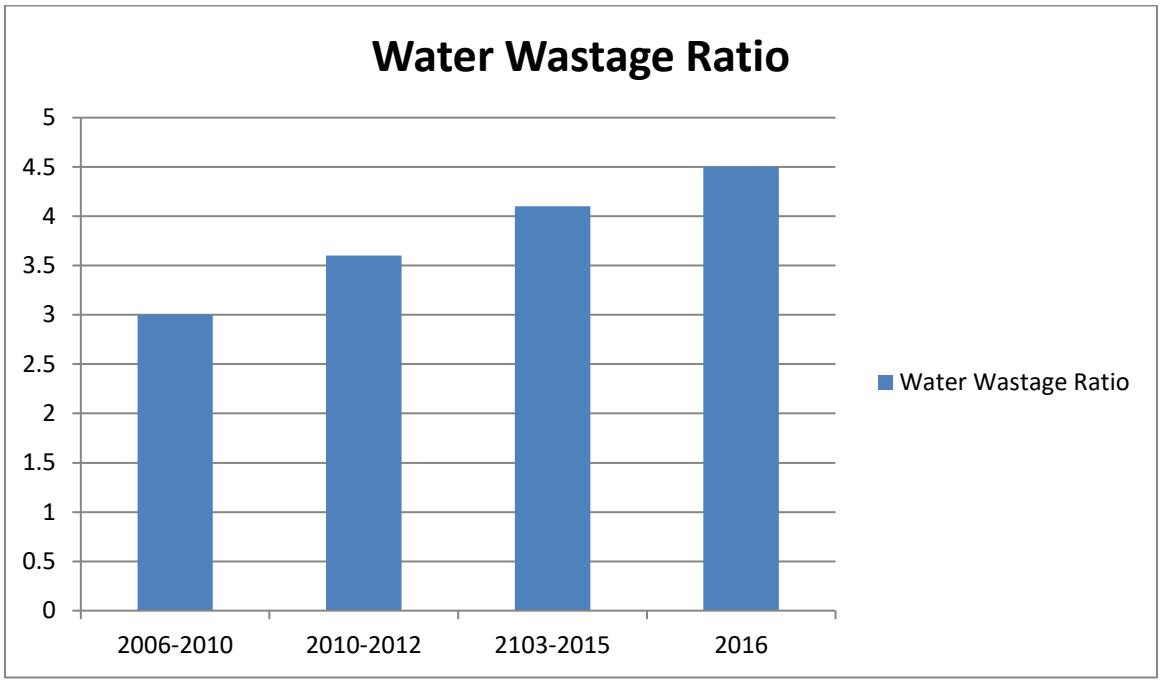

Figure 2: Water Wastage Comparison over Years

The comparison shows the wastage of water taken place over the years in the rural areas which must change to reduce the water wastage by controlling small mistakes by closing the tap if u seen open. Figure 3 shows the work flow of the system.Here the system will check the water level with the help of the level sensor, if it is low then the motor will turn ON automatically then the system is continually monitored for overflow. When it reaches the threshold, the motor will turn OFF automatically. The Arduino-based automated water level indicator and control system design can also include acidity sensors to assist adjust the acidity or measure of the acidity.

5. Conclusion

The automation of the many things surrounding us was greatly expanded in order to eliminate human involvement and also save energy. The water reservoir overflowed because the height of the water in the tank cannot be determined at randomness. This results in increased energy usage, which is a major problem at the moment. People must also wait and refrain from engaging in other activities till the tank is filled. As a result, here is a concept that detects and signals the water level so that the pump may be turned off at the proper moment, saving water, power, and time. Finally, I conclude that people think of their state in future may change the effectiveness of

reducing the wastage of water. Device which automatically monitors the flow of water on the reservoir helps the urban people to just initialize in home for a better future. Saving water may not cost you too much, but save millions of thirsts on a future.

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