Journal of Information & Optimization Sciences
ISSN 0252-2667 (Print), ISSN 2169-0103 (Online)
Vol. 45 (2024), No. 2, pp. 481–486
DOI : 10.47974/JIOS-1565

Coin oriented LDR based water dispenser

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Abstract

Due to limited accessibility and unavailability of drinking water in many areas. many people are not able to get access to drinking water in these situations coin oriented LDR based water dispenser is effective. this paper provides a novel approach for providing clean and drinking water in these area by coin oriented LDR based water dispenser. main objective of this research is to provide water in rural area. model provided in research paper uses power from dc sources and start motor-pump on bases of signal given by the microcontroller.

Subject Classification: *93-XX.*

Keywords: *Dispenser, Microcontroller.*

1. Introduction

The 'Coin Oriented LDR Based Water Dispenser' with its advancements delivers ease, and it full fill all the requirement of its users

This article has been corrected with minor changes. These changes do not impact the academic content of the article.

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in the period of today's transformation, it also decreases the wastage of water and use of plastic bottles or containers. Regulated power supply is intended to deliver a steady 9-volt power to the system. Only after the correct coin is inserted and the LED light illuminates will the water dispenser start to dispense. An infrared sensor detects objects, whereas a coin sensor determines whether a coin is right. The micro controller receives a signal if both requirements are met, at which point the water pump is turned on and water is dispensed. Water disperser is a device which cater hot and cold water at stable temperature, which can be used for human being as and when required. Ref. [1] exhibits a disperser to regulate the stability of temperature of hot water. This will also maintain the quality of the drink. In order to water saving along with its usage in effective manner a water dispenser integrated with 8051 micro controllers is used. This is also very effective in controlling the flow rate and temperature of the drink under consideration [2]. A. 3D water dispenser is showcased in Ref. [3]. This is very effective in distribution of the water supply along with analyse the water supply shortage. In order to find the glass particle in the water supply, a IR based water dispenser is exhibited in [4]. This is very much helpful in distribution of the water supply. For uninterrupted supply of water to animal and other living things, without any human effort, an ESP8266 Microcontroller based water dispenser is exhibited in [5]. To detect the glass particle of coloured form and other like particle, an Arduino Mega microcontroller 2560 Rev3 based water dispenser equipped with proximity sensor is explained in [6]. An internet of things (IOT) integrated water dispenser is exhibited in [7]. This is very much useful in getting the uninterrupted water supply and the behaviour of the consumer using it. A filtration method, in order to remove the bacteria from the water supply is explained in [8]. This technique along with dispenser is very much useful for low income group people. To deal with the health management an embedded system Raspberry Pi based water disperser is exhibited in [9]. This technique is helpful in protecting the health of mankind from virus. The recycling of the water is the ultimate requirement of the today world. This can be achieved by the AUTOCAD software integrated with Arduino based water dispenser in [10].

In this paper, a coin based water dispenser is implemented in hardware. The hardware of the water dispenser includes microcontroller AT89C2051, duel timer NE556, & segment decoder CD4511, regulators 7805 and 7806. This model is very effective to use water in a very effective manner and reduce the wastage of the water.

2. Model And Discription

The shown model in Figure 1 utilizes a AT89C2051 microcontroller as a main brain. A duel timer NE556 is used to produce time delay. Cd4511 a display driver is used for display amount of coin inserted., Voltage regulators 7805 and 7806 and additional discrete components like crystal oscillator, LED AND LDR.

LED1 serves as a light source for light- dependent resistor LDR1 which act as coin detector diode Resistor R1 regulates the current flowing through LED1 by controlling its intensity. LED1 continuously illuminates LDR the 556 essentially a dual NE555 generates timing delays.AT89C2051 low-voltage microcontroller tracks the coin inserted and energized the motor for the specific time.

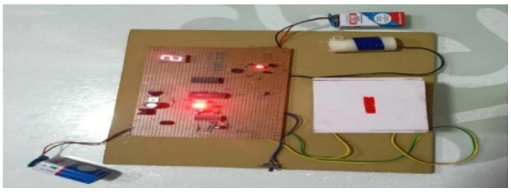


Figure 1

Hardware Picture of coin oriented LDR based water dispenser implemented

Flow Chart Description:

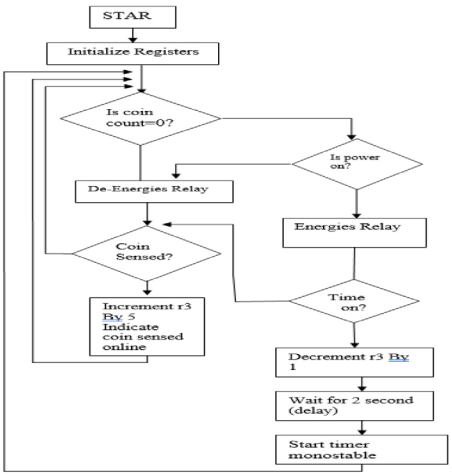


Figure 2

Flow chart of microcontroller

In Figure 2 We observe that first sets up its internal memory (registers) for tracking key information. Then, it checks if any coins have been inserted. If not, it remains inactive until a coin triggers its sensors.

With coins inserted, the device verifies if the power is on. Without power, it deactivates. When powered, it confirms if the inserted coins meet the minimum payment threshold by checking a predefined time period. If the time lapses and enough coins are registered, cycle is activated. A timer concurrently starts to track the motor duration.

If the minimum payment time hasn't been reached, the machine waits for additional coins while counting down the remaining time. This cycle continues until enough coins are inserted to trigger the motor pump. Once the cycle is complete and the timer concludes, the device resets its internal state.

3. Result

In Figure 3. Shows the result of coin oriented LDR based water dispenser when the coin is placed inside it. Figure 4 shows the time duration of working of relay. It increases when the number of coins are increased.

Sno.	Number of coins inserted	Working time (in second)
1.	1	28
2.	2	60
3.	3	95
4.	4	133

Figure 3

Observation table of working Time vs Numbers of coin inserted

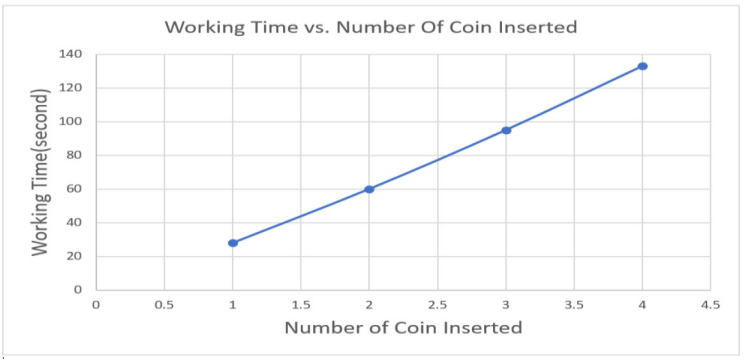


Figure 4

Graphical Representation of working Time vs Numbers of coin hdshinserted

4. Discussion and Conclusion

In this paper we conclude that Coin- Oriented LDR Based water dispensers are a convenient and cost-effective way to access clean drinking water. They can be installed in public places such as schools, parks, and transportation hubs in future. Coin Oriented LDR Based water dispenser is easy to use and require no maintenance. They are reliable source of water, as they are not affected by power outages or water main breaks.

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