Voice Based Hot/Cold Water Dispenser System

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Abstract: – In today's world we want technology that reduces efforts and time. This device is also work on voice commands. It is the idea which correspond to the new area of automation and technology. Most water dispensers available at homes, offices and business places use a manual valve (tap) in dispensing water into a container. This method of water dispensing goes with a lot of challenges as disease can be transmitted through the process. In voice-based water dispense automation system using microcontroller is the project which will be very useful for old age people and disabled people, basically for one's who cannot perform basic activities efficiently and also to reduce the spread of COVID 19 virus. This paper presents the design and implementation of a low cost but yet flexible and secure voice based hot & cold-water dispenser system. This project is like a smart device, having facility to voice control. It will have a smart function like when we want the water (hot/cold) we just need to give voice command to our android phone. Because android phone is work as mic. This design totally eliminates the challenges faced with the manual dispensing system.

Keywords: Wi-Fi Module (ESP 8266), Microcontroller AT89C52, Water Level Sensor, Buzzer

I. INTRODUCTION

Water pumps are very useful in the water supply, the first wooden pumps are come into existence in 1700s the other pumps which came into the existence in mid 1800s and these pumps are known as metal piston type pumps which are driven by steam. The first submersible pumps are come into existence in 1920s. Automatic Water Dispenser is containing a series of many functions like controlling the water level and automatic ejection of water. In today's life there must be some elements which is needed to be controlled, therefore the Automatic water dispenser is providing the good quality of water for the human beings. In day-to-day life intelligent systems are used in a wide range and these are embedded in design. There are some physical elements which are needed to be controlled in day-to-day life in order for them to perform their expected task. We are showing our research as the Automatic water dispenser it is a series of function to maintain parameter of water such as water level and automatic water ejection.

II. LITERATURE REVIEW

1)Title-" Study of automatic water dispenser" Author: - Shrivastava, Abhishek Outcome: - it detects the level of water, DS of water and temperature of water.

2)Title-" How to build your own smart coffee machine" Author: - Shrivastava, Abhishek at 3nov.2016 Outcome: - using solid state relay because of potentially high switching rate of the controller. In actual practice the switching rate is relatively low. Mechanical relay only good for specifying number of cycles. It's made noise when SSR is quiet. So, it's better to use SSR.

3) Title-" Automatic liquid dispenser based on user quantitative demand" Author: - Poonacha, Amrith Outcome: - Microcontroller is selected as controller because it is easier to implement and the compact size makes it easier to mount it on the system. The machine is also easy to operate and user friendly. Where the simple steps are needed to operate the machine.

III. BLOCK DIAGRAM
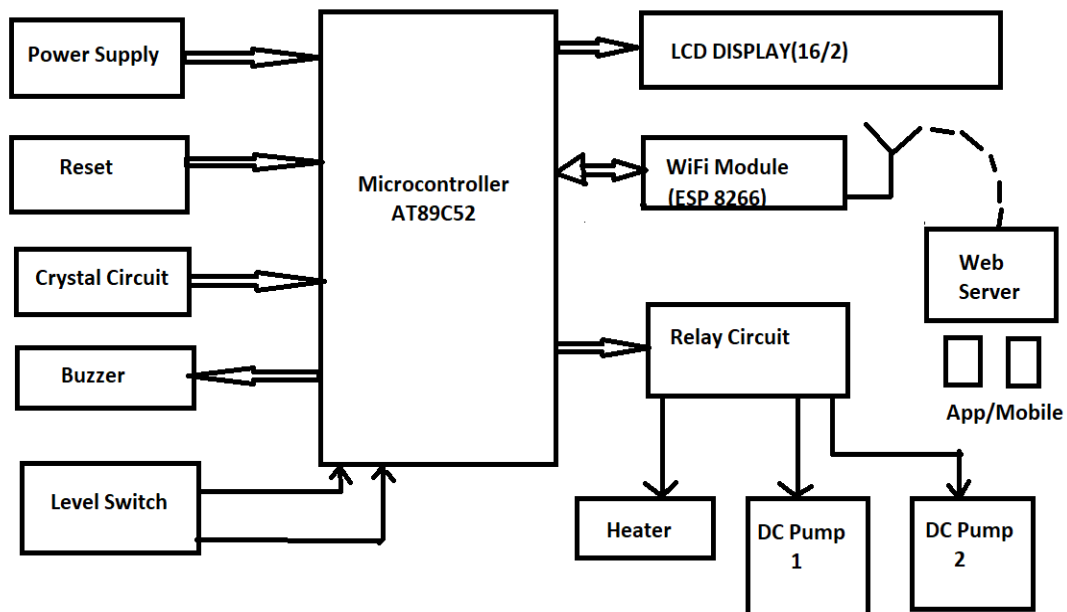
IV. COMPONENTS

Power supply: In most of our electronic projects we need a power supply for converting main AC voltage to a regulated DC voltage. For that required component are: 1.Step down transformer 2.Voltage regulator 3.Capacitor 4.Diodes

LCD: LCD can be easily interfaced with a microcontroller to display a message or status of a device. LCD (Liquid Crystal Display) screen is such a display module and a 16x2 LCD module is very commonly used.

Microcontroller 8051: The AT89S52 is a low-power, high-performance CMOS 8-bit microcomputer with 4 Kbytes of Flash Programmable and Erasable Read Only Memory (PEROM). The device is manufactured using Atmel's high density non-volatile memory technology and is compatible with the industry standard MCS-51 instruction set and pin-out. The on-chip Flash allows the program memory to be reprogrammed in-system or by conventional non-volatile memory programmer. By combining a versatile 8-bit CPU with Flash on a monolithic chip, the Atmel AT89S52 is a powerful microcomputer which provides a highly flexible and cost-effective solution to many embedded control applications.

WI-FI (ESP 8266) Module: ESP8266 is an impressive, low-cost Wi-Fi module suitable for adding Wi-Fi functionality to an existing microcontroller project via a UART serial connection. The ESP8266 requires 3.3V power.

Relay Circuit: A relay is an electrical switch that uses an electromagnet to move the switch from the off to on position instead of a person moving the switch. It takes a relatively small amount of power to turn on a relay but the relay can control something that draws much more power.

DC pump: Micro DC 3-6V Micro Submersible Pump Mini water pump for project. Just connect tube pipe to the motor outlet, submerge it in water and power it. Make sure that the water level is always higher than the motor.

Buzzer: The buzzer is a sounding device that can convert audio signals into sound signals. It is usually powered by DC voltage. It is widely used in alarms, computers, printers and other electronic products as sound devices.

V. WORKING

. In this system we are using voice commands to get cold or hot water. By using Wi-Fi, we can give our commands. This system is fully based on voice commands, which uses Microcontroller, this water dispenser system also uses buzzer, timer, Relay circuits, water jar for storing of water, pipes & 2 submersible pumps. When we give command on Android phone, it detected by Wi-Fi module, then it sends the respective information to the microcontroller to understand whether the water required by the person should be hot or cold. By the use of microcontroller, we can detect the water level, If the level of water is low, then the water pump will not start. And if the water level is sufficient then motor will start and based on commands, we get hot/cold water. For this purpose, we are use level detector in the jar. For getting Hot/cold water we use 2 relays and one more relay for heater. On the basis of Microcontroller instruction, if the command is 'Hot Water' then hot water relay will be on then Hot water pump will start and for cold water same process will perform. For Hot water we use heater in the hot water jar. For this separate relay circuit is used. This relay will be on only when the hot water instruction us fetched. The output of the water level is displayed on the LCD (Liquid Crystal Display) screen. The microcontroller is programmed which is used to control the functionalities of the whole system. The functioning of

whole system is done by the microcontroller, means LCD is functioned by the microcontroller which shows the output on the screen.

VI.CONCLUTION

The implementation of this project overall is successful. The motive of making the project cost efficient and user friendly is taken into account and achieved. The proposed system is created with the use of different sensors, AT89S52 as microcontroller and Wi-Fi module to get command from user's smartphone. The system implementation is based on the AT89S52microcontroller, which has been programmed to control a hot and cold-water dispenser valve based on sensor signals and on direct commands by the user. The system has been programmed to have Wi-Fi communication capability. Taking into consideration the target to reduce spread of COVID 19 virus the project developed is user friendly.

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