



National University of Computer & Emerging Sciences (FAST-NUCES)

IOT Semester Project

Smart Water Dispenser

Submitted to : Dr. Fahad Samad

Project Group

K16-4000 (Subash Kumar)

K16-3718 (Sooraj Kumar)

Section : BCS- 8A

Department of Computer Science

National University of Computer & Emerging Sciences (FAST-NU)

Main Campus, Karachi

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1. INTRODUCTION

Since the world of the internet is moving towards smart cities and smart homes. Where everything is interconnected via the internet or some smartness or a combination of sensors and actuators and with the progress of the internet and Ai. It is not surprising to say that about 5 to 10 years from now at least if not a smart home everyone around the globe will be using some fruits of the Internet of things (IOT) in the form of some gadgets to make their life more easier and comfortable.

In this semester project on the subject of Internet of things (IOT) we have tried to contribute a little bit in the field of Internet of thing (IOT) by implementing a smart water dispenser. In this day and age we often see a water dispenser in malls, offices, factories, mills, homes or even in public places. A common problem which almost every owner of water dispensers faces is due to continuous pressure on buttons or tap shown in figure 1 of cold and hot water often gets hard, stuck or damaged and the owner has to frequently get taps replaced which creates a headache to the owner.



Figure 1 : Buttons of dispenser

So the idea is to design and develop a prototype of a water dispenser with some smartness using concepts of the internet of things. We have implemented using a sensor and arduino a smart water dispenser where no tap is needed to get water when glass is brought below the point where

water can be poured it automatically starts flowing and when glass is displaced from the point of flow it automatically stops flowing.

2. HARDWARE AND SOFTWARE DETAILS

In our solution we have implemented using hardware and arduino architecture with sensors and batteries and wire. Following are thing in our solution :

- Ultrasonic Sensor (figure 2)
- Arduino (figure 3)
- Relay (figure 4)
- Male to male wires (figure 5)
- DC air pump (figure 6)
- Battery (figure 7)
- Bottle of water with pipe (figure 8)

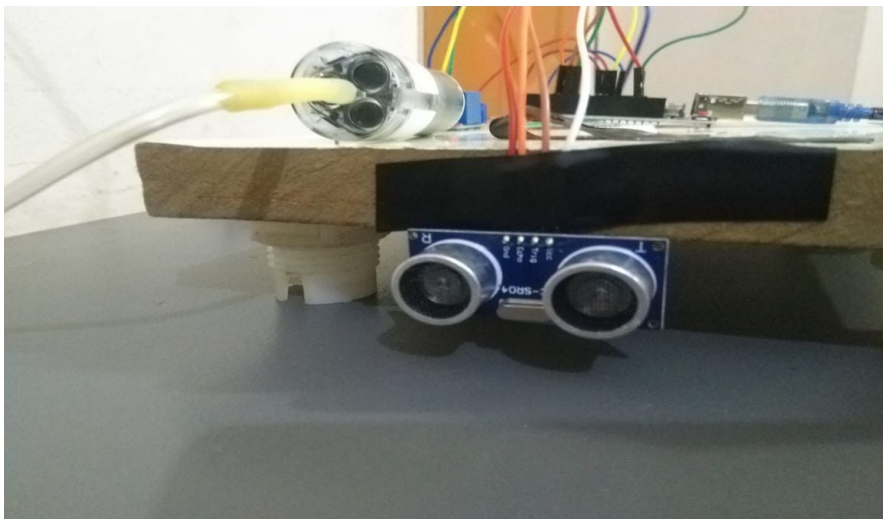


Figure 2 : Ultrasonic sensor

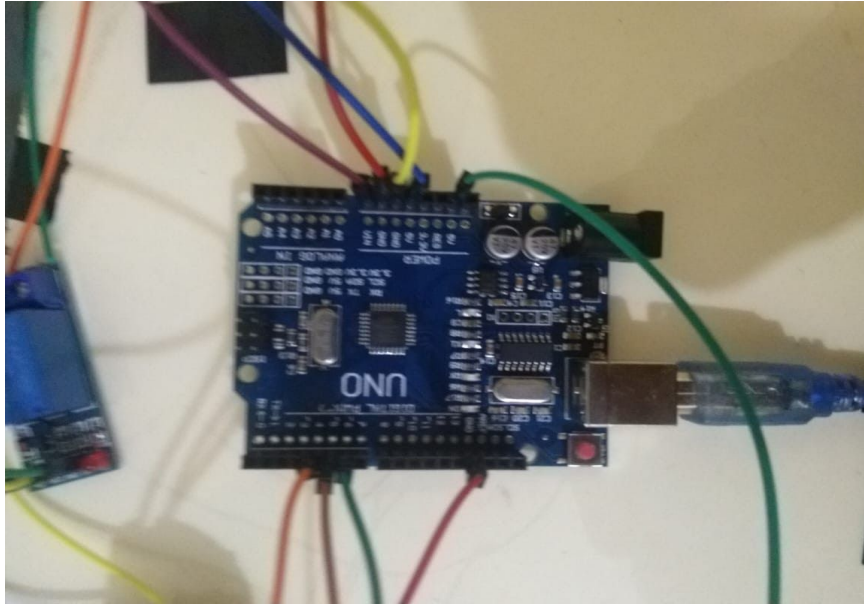


Figure 3 : Audrino

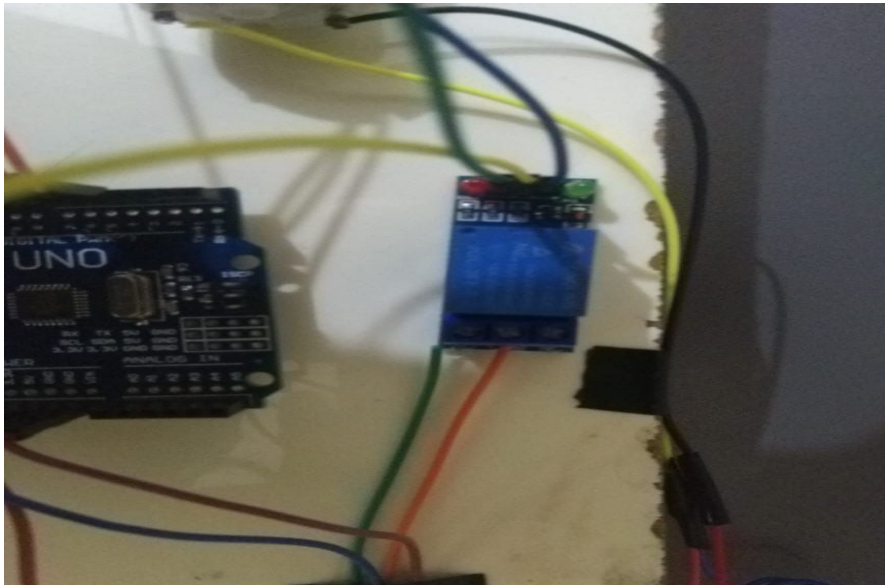


Figure 4: Relay



Figure 5 : Male to male wires

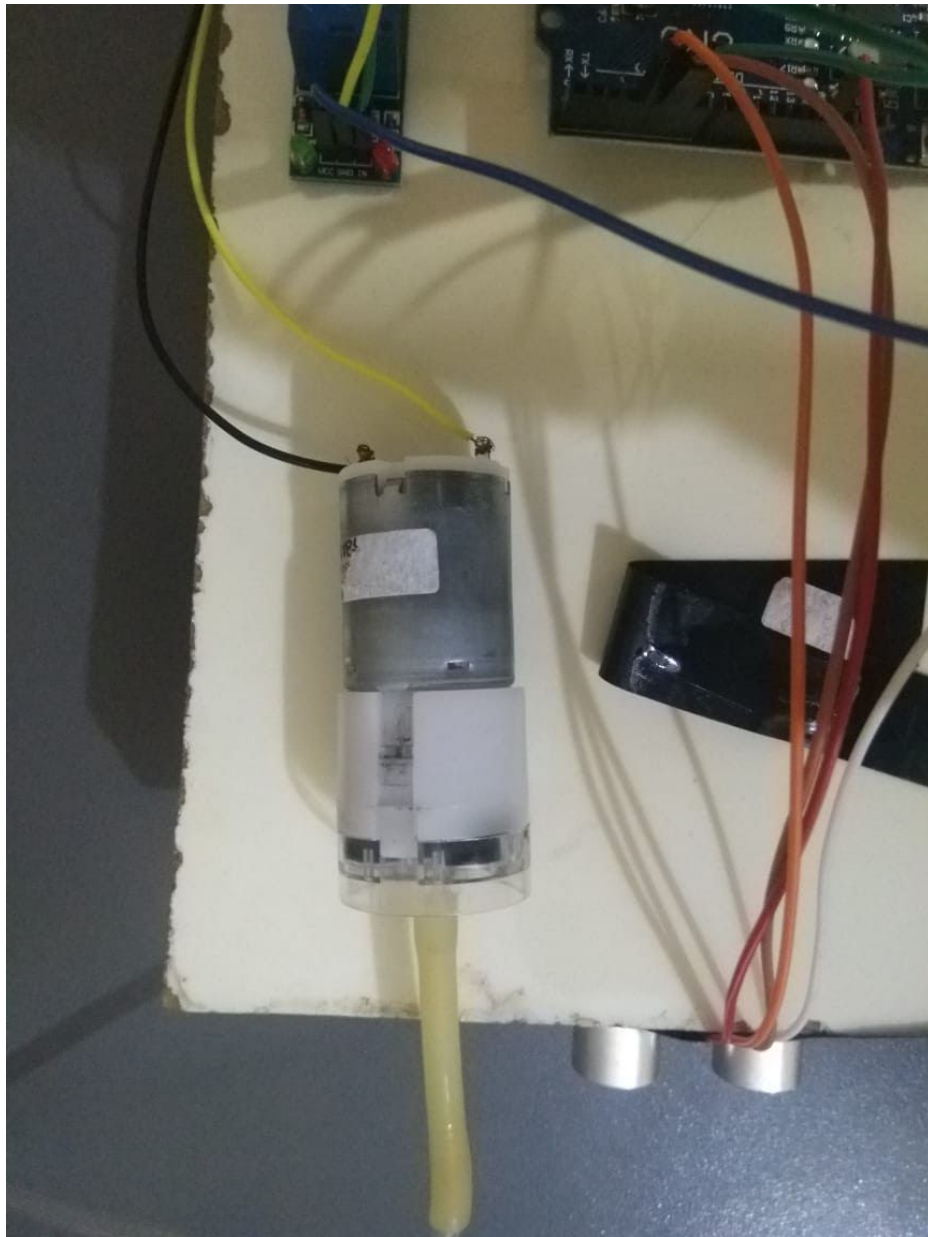


Figure 6 : DC air pump



Figure 7 : Battery



Figure 8 : Bottle and pipe

These figures above show complete figures of our hardware used in our solution. We have used arduino nightly software [1] for installing code into our arduino.

3. PROTOTYPE OR DEMO

We have submitted a video of a demo of our smart water dispenser which we will also present in a presentation of our project as a prototype of a smart dispenser.

4. WORKING PROGRAM

Code attached with the report is our program which has been used to implement our solution using arduino.

5. ARCHITECTURE DIAGRAM

Figure 9 shows our architecture diagram which shows our final demonstration.

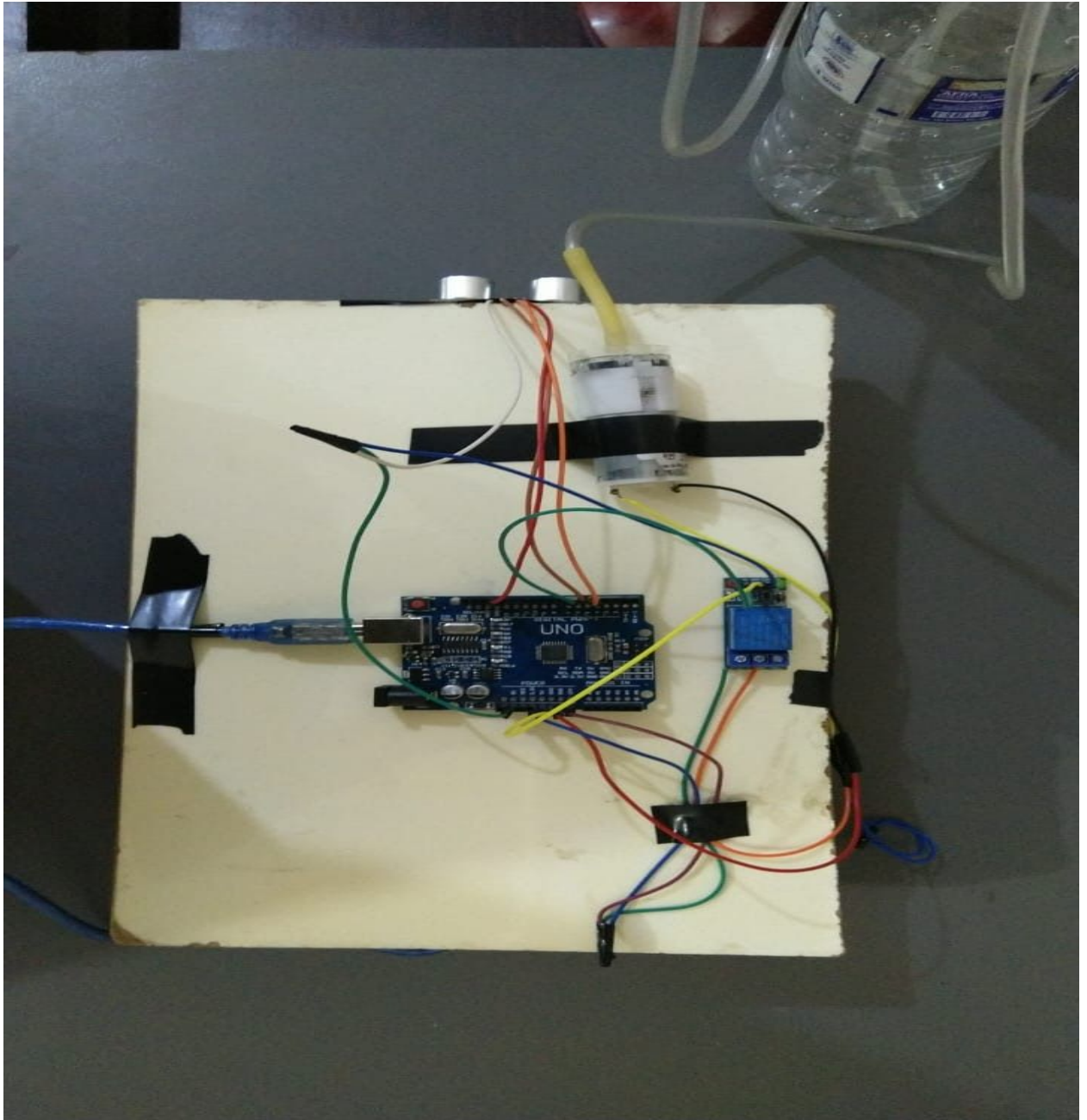


Figure 9 : Demonstration diagram

REFERENCES

[1] <https://www.arduino.cc/en/main/software>