

AUTOMATIC WATER DISPENSER

ES1113: Fundamental of Automation Engineering II



Department of Computer Science Engineering

Institute of Engineering and Technology (IET)

JK Lakshmipat University Jaipur

May 2022

PREPARED BY

Chitraksh Gupta (2021btech063)

Anay Sinhal (2021btech012)

Babar Khilji (2021btech031)

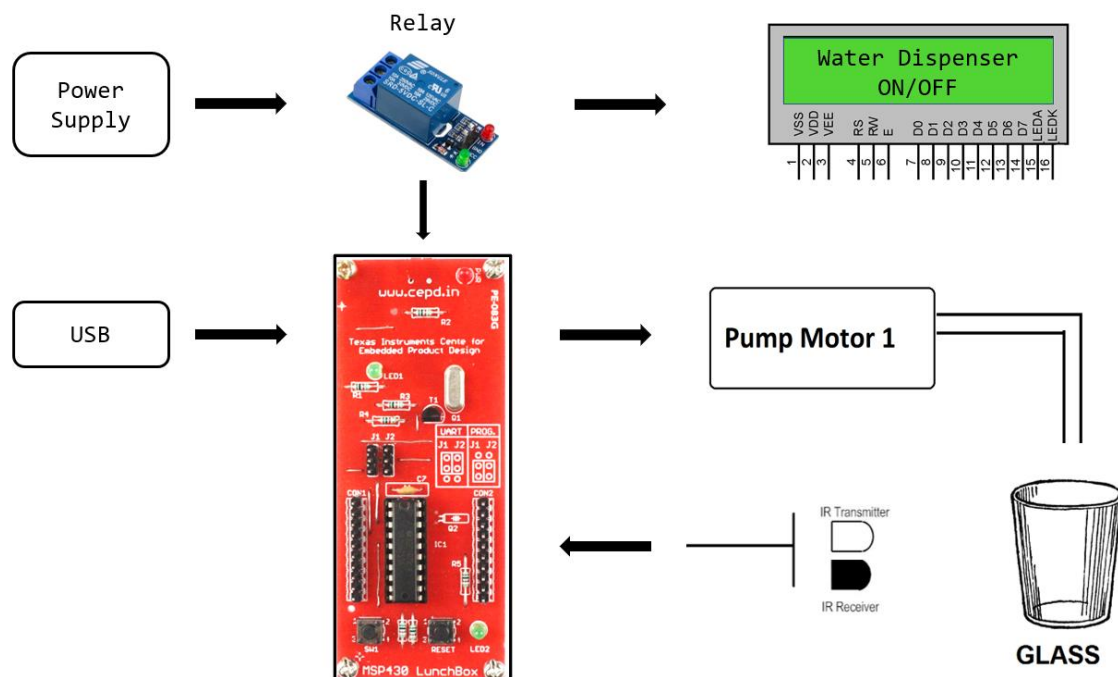
Problem Statement:

To make an automatic water dispenser with the help of MSP430 Lunch box and various required component.

List of Component Used:

1. MSP430 Lunchbox
2. Water Pump
3. Sensor (IR Sensor)
4. Relay
5. Resistors
6. Breadboard
7. Connecting Wires

Block Diagram:



IR Sensor Working Principle

There are different types of infrared transmitters depending on their wavelengths, output power and response time. An IR sensor consists of an IR LED and an IR Photodiode, together they are called as Photocoupler or Optocoupler.

IR Transmitter or IR LED

Infrared Transmitter is a light emitting diode (LED) which emits infrared radiations called as IR LED's. Even though an IR LED looks like a normal LED, the radiation emitted by it is invisible to the human eye.

The picture of an Infrared LED is shown below.



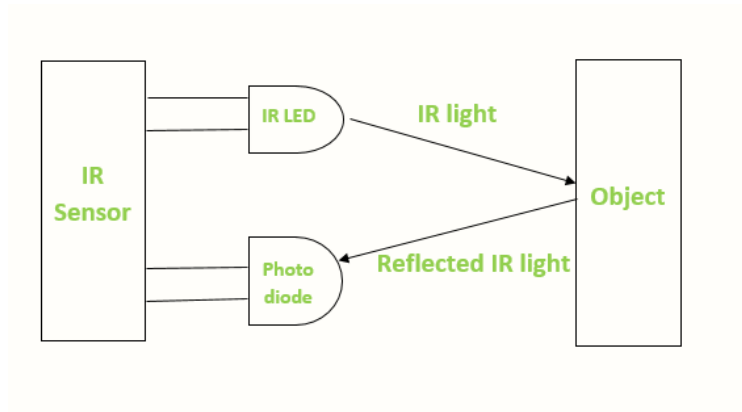
IR Receiver or Photodiode

Infrared receivers or infrared sensors detect the radiation from an IR transmitter. IR receivers come in the form of photodiodes and phototransistors. Infrared Photodiodes are different from normal photo diodes as they detect only infrared radiation. Below image shows the picture of an IR receiver or a photodiode,



Different types of IR receivers exist based on the wavelength, voltage, package, etc. When used in an infrared transmitter – receiver combination, the wavelength of the receiver should match with that of the transmitter.

The emitter is an IR LED and the detector is an IR photodiode. The IR photodiode is sensitive to the IR light emitted by an IR LED. The photo-diode's resistance and output voltage change in proportion to the IR light received. This is the underlying working principle of the IR sensor.



When the IR transmitter emits radiation, it reaches the object and some of the radiation reflects to the IR receiver. Based on the intensity of the reception by the IR receiver, the output of the sensor defines.

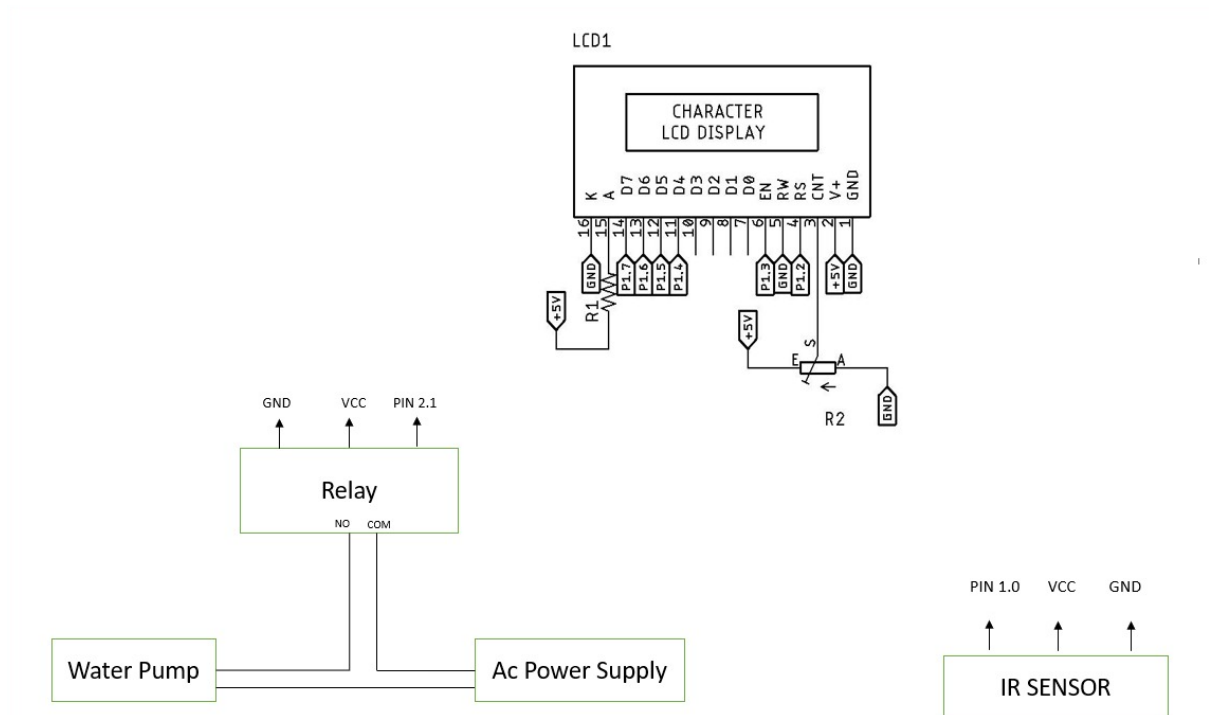


Relays are switching that open and close circuits electromechanically or electronically. Relays control one electrical circuit by opening and closing contacts in another circuit.



Video Link: [Automatic Water Dispenser](#)

Circuit Diagram:



Results analysis:

Finally , we have successfully made an automatic water dispenser from MSP430 lunchbox. We used other components to make this project working like, Relay, IR Sensor, AC Motor and 16x2 LCD Display.

References:

- <https://lunchbox.sincgrid.com/docs/build/html/index.html>
- <https://nevonprojects.com/voice-based-hot-cold-water-dispenser-system-using-raspberry-pi/>
- [Relay Module](#)
- <https://www.electronicshub.org/ir-sensor/>
- [Water Pump](#)