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Assignment

Course Title: Digital Logic Design Lab

Course Code: CSE0611216

Assignment Name: Alarm Clock Using Arduino UNO

Submitted To:

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Batch: 55th

Semester: Spring-2025

Assignment: Design a alarm Clock .

Objective:

Developing an Arduino UNO-based alarm clock allows a user to build a personalized timekeeping device which displays the time and allows the setting of alarms. The scope of the project is to develop a reliable schedule manager which combines a good display, easy controls for setting time and alarms, and sound notifications using a buzzer. Other goals will include ensuring power management so that the device can operate continuously, as well as customizing the settings for alarms and tones. Conclusively, this project can be viewed as a practical problem in programming and electronics where users learn about RTC modules and their components' integration by designing a simple useful device.

Equipment:

1.Arduino Board

2.LCD(16 * 2) Display

3.Piezo(Buzzer)

Steps:

1. Arduino UNO Board:

(i)Central blue board is an Arduino UNO microcontroller.

(ii)USB port on the left for power and programming.

(iii) Multiple digital and analog pins on the top and right edges for connecting components.

2. LCD Display Module:

(i) Below the Arduino is a green rectangular LCD display module.

(ii)Black screen area for displaying text or data.

(iii) Four labeled pins on the left side: GND, VCC, SDA, and SCL.

3. Buzzer:

(i) Small black circular buzzer on the right side of the Arduino.

(ii) Polarity markings: plus (+) and minus (-) signs indicating positive and negative terminals.

4. Wiring Connections:

(i) Power and Ground:

(ii) Arduino's 5V pin (power) connected to LCD's VCC pin with a red wire.

(iii) Arduino's GND (ground) pin connected to LCD's GND pin with a yellow wire.

(iv) Arduino's GND pin also connected to USB ground with a green wire.

(v) Data Lines for LCD:

(vi) LCD's SDA pin connected to Arduino digital pin 12 with a green wire.

(vii) LCD's SCL pin connected to Arduino digital pin 13 with a yellow wire.

(viii) Buzzer Connections:

(ix) Buzzer's positive terminal (+) connected to Arduino digital pin 8 with an orange wire.

(x) Buzzer's negative terminal (-) connected to Arduino digital pin 7 with a purple wire.

5. Purpose:

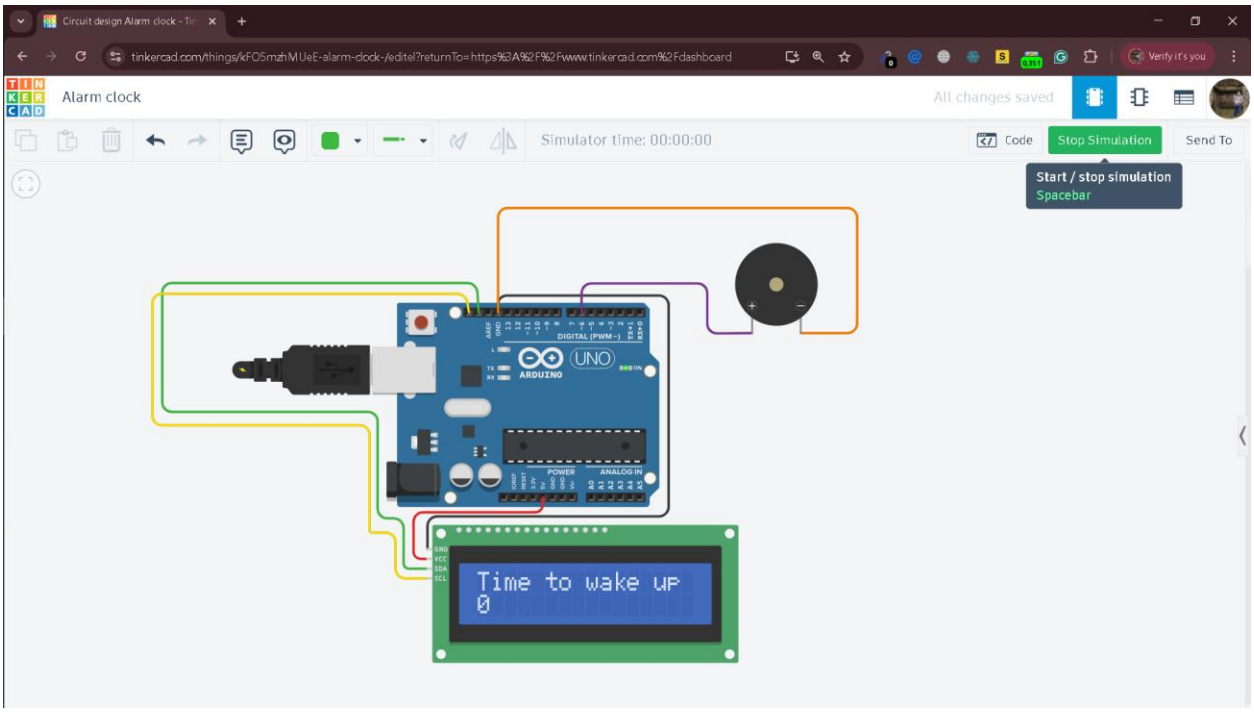
(i) Arduino controls the LCD to display information via the SDA and SCL data lines.

(ii) Buzzer can be activated by the Arduino through pins 7 and 8 to produce sound.

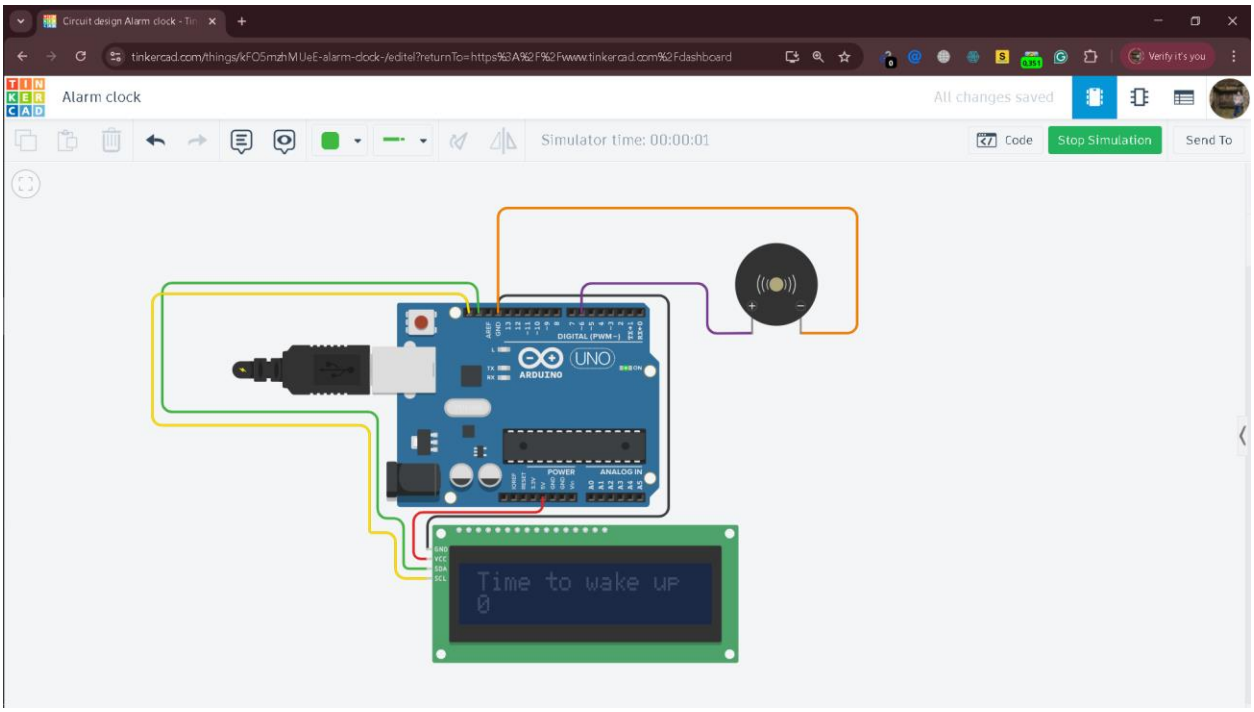
(iii) USB connection powers the Arduino and allows programming.

Tinkercad Result:

(1)



(2)



Project link: **https://www.tinkercad.com/things/kFO5mzhMUeE-alarm-clock-?sharecode=MchtTPa93rrYtmcga3Yvv53pxZ6eCgnjZ-xxjl9t0Q0**

Conclusion:

This setup is typical for projects where the display data on an LCD and provide audible alerts using a buzzer, all controlled by the Arduino UNO.