Daffodil International University

Summer 2021

Lab Report

Course Name: Digital Electronics Lab

Course Code: CSE224

Project Name: Digital Clock Using Tinker cad

Section: N

Group Member:

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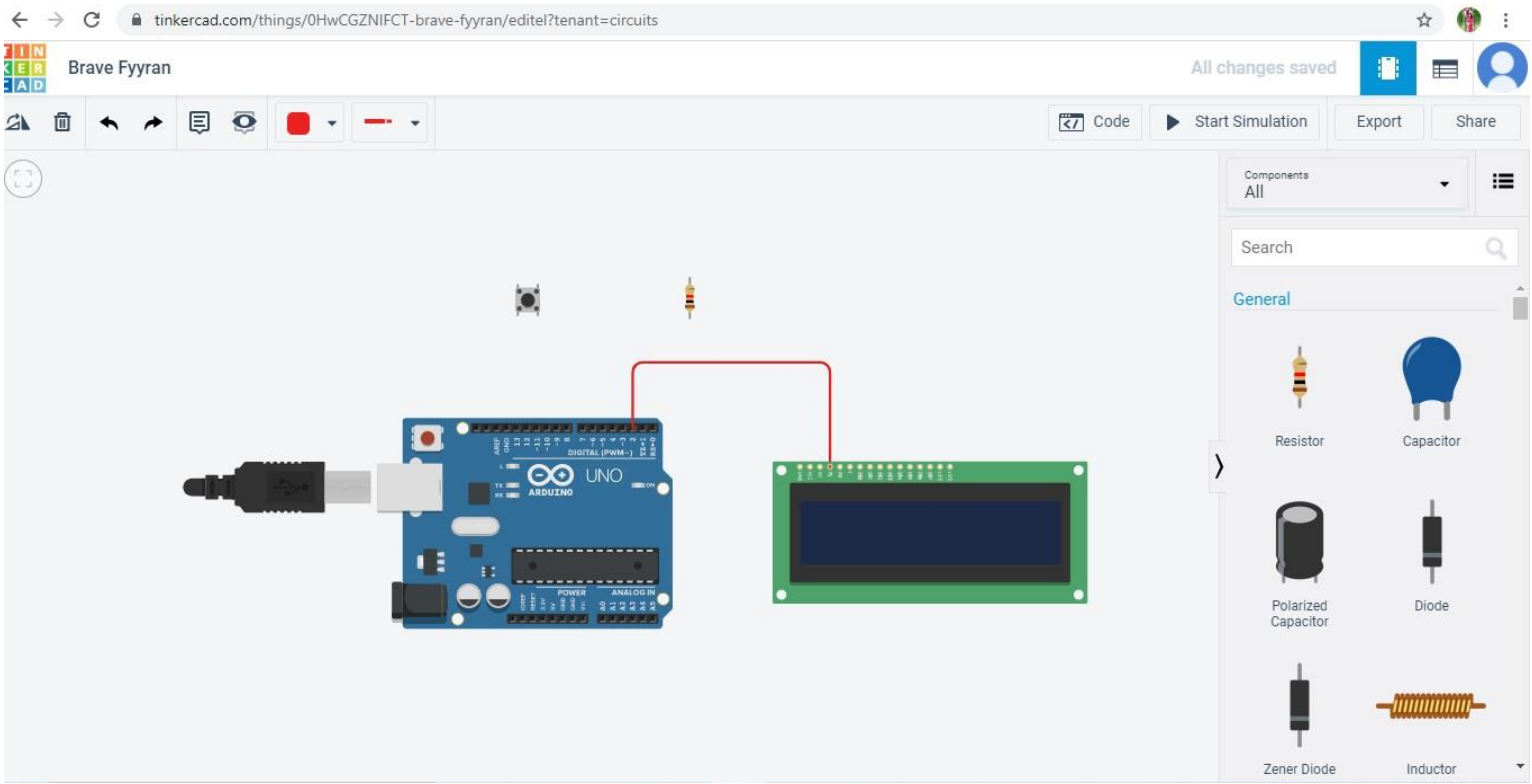
Project Title: Digital Clock Using Tinker cad

Introduction:

Tinkercad is one of the best software tools for 3D modeling and simulating the circuits. I have created a Digital Clock circuit using Tinkercad. I have used Arduino Uno R3, LCD 16x2, Potentiometer and a 220-ohm resistor for making the circuit. I used a simple sketch, which is attached and explained in this instructable. I ran the sketch and found my digital clock working fine after setting the present time and date using serial monitor.

Equipment:



1. **Arduino**
2. **16*2 LCD Display**
3. **Resistor (1 kΩ)**

4. Resistor (220 Ω)

5. Push Button

6. Wire

Description:

Circuit Diagram and Connection Procedure:

Create a circuit project in Tinkercad after login using your account details. Drag and drop the components mentioned in the supplies to the workspace. I can also use the search bar for finding the required components, which are available next to the workspace in the right-hand side.

1.First We take Arduino and LCD Display.

2.Connect the power (VCC) pin and the ground (GND) to the Display.

3.Connect 1kΩ Resistance to the ground (GND) and VE.

4.Connect RS to D_2.

5.Connect RW to GND.

6.Connect Enable to D_3.

7.Connect DB_4 to D_4.

8.Connect DB_5 to D_5.

9.Connect DB_6 to D_6.

10.Connect DB_7 to D_7.

11.Connect 220Ω Resistance to the power (VCC)pin.

11.Connect GND to GND in display.

12.Connect 1^{st} button to D_8.

13.Connect 2^{nd} button to D_9.

14.Connect 3rd button to D_{10}.

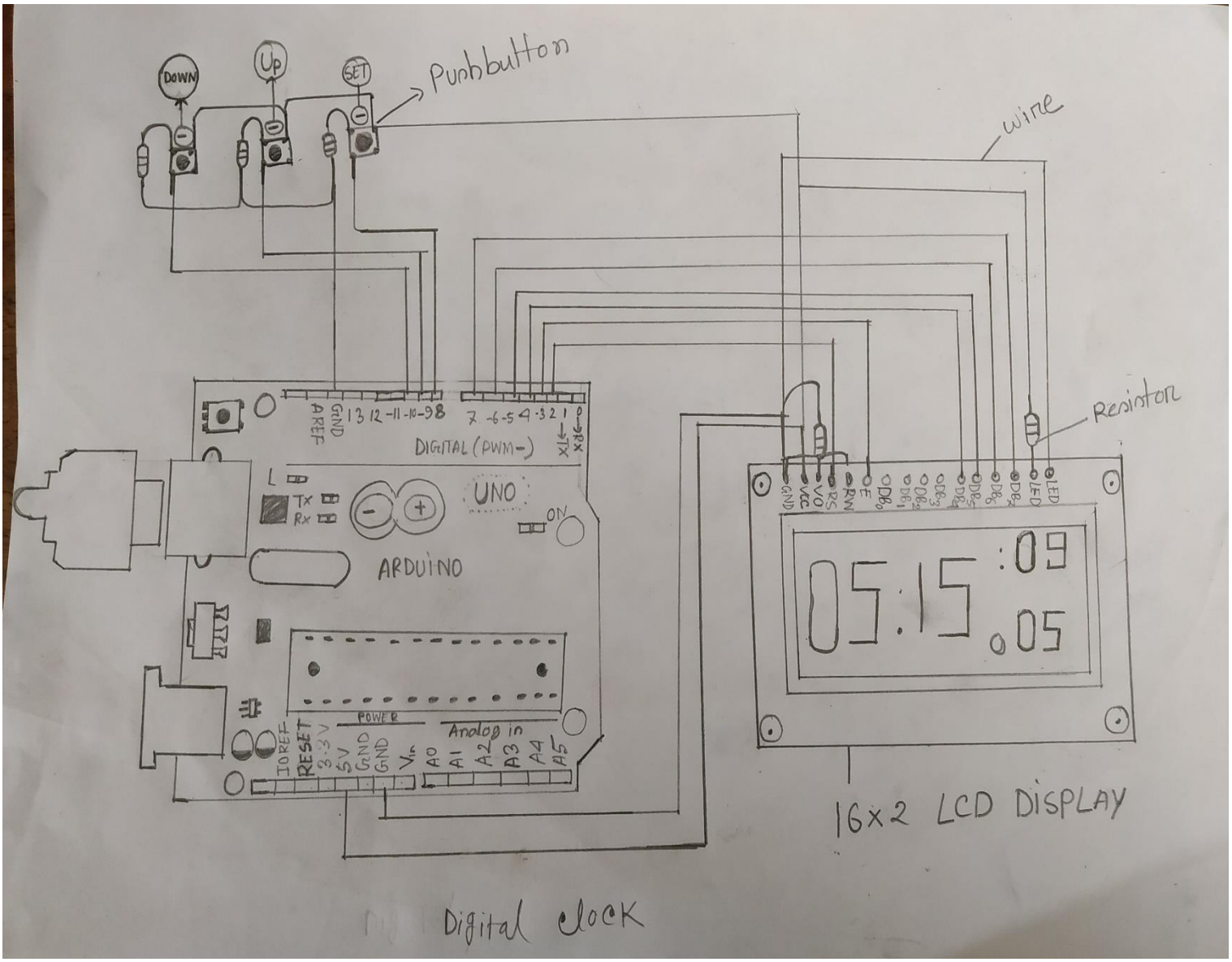
15.Connect all resistance common point to the ground (GND).

16.Connect Pushbutton common point to the power (VCC) pin.

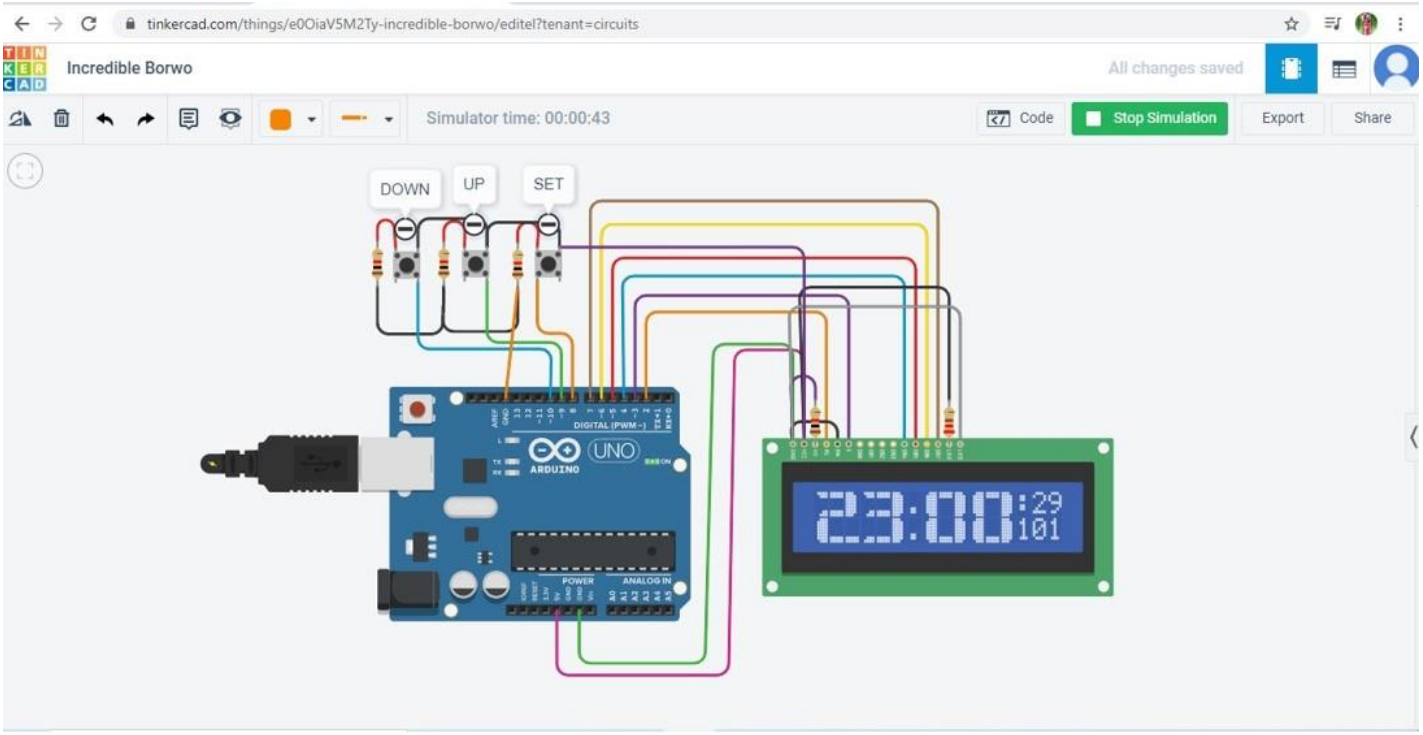
17.Click on start simulation in TINKERCAD and set the current Time and Date.

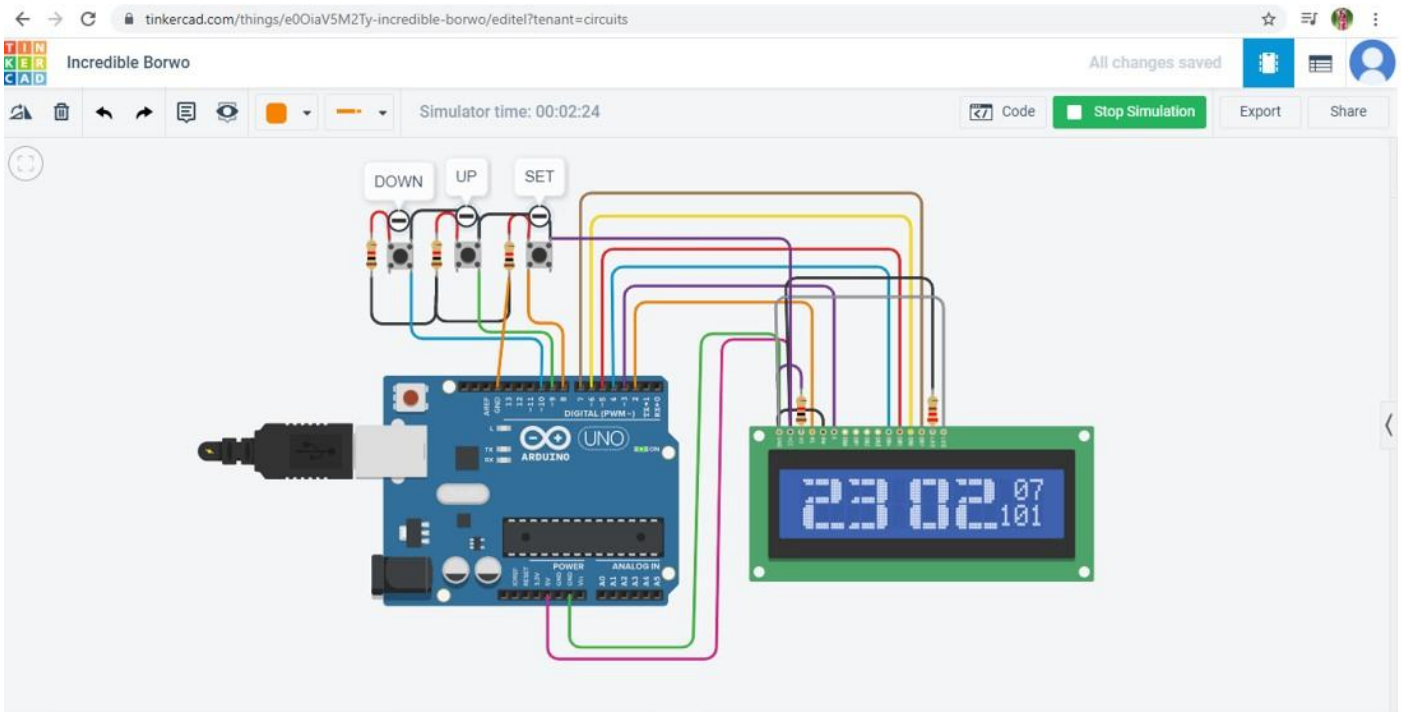
And Again pressing the SET button, the whole system is active. As we can see here TIME and Calendar.

Circuit Diagram:



Project Screenshot:





Project Tinker cad Link:

https://www.tinkercad.com/things/eWKPN3Q2d97-fantastic-amur/editel?sharecode=lyTwo3m1H2KoD8-RciQjOneAh8BVj_SrgiRZGBKsYv4&fbclid=IwAR06XOLmtdvtCp0In-I2xpD-iRu8_q8k79XOnu9_cq329Cs0D7QrLeufKPo&sharecode=lyTwo3m1H2KoD8-RciQjOneAh8BVj_SrgiRZGBKsYv4

Project Video Link (Short):

https://drive.google.com/file/d/1qb-zstsi8zV6nbImkjU6RSQuiFru0IIO/view?usp=sharing

The Advantages of Digital Clock:

1. **With all the benefits of having a digital clock in your home, you may want to consider digital clocks as a way to help save on energy and money. You will be able to use this type of clock in almost any room of your home because they are available in a variety of styles and colors that will match your decor.**
2. **One of the biggest benefits of the digital clock is the ability to add applications. This means that you can use the clock to set an alarm for family members and friends that will wake them up in the morning. Once the alarm goes off, they will be free to go to work or do other things, but still, stay alert and ready to respond to you later on.**
3. **Another feature you will find with a digital clock is that it can be placed anywhere in your home. You can place one in the kitchen to tell you when the food is ready. You can also place one in your bedroom or den to tell you how late it is getting to bedtime.**
4. **When looking for an alarm clock, you will find that many of them come with options. To use with your computer. This can be helpful if you need to check email while you sleep or surf the internet. The advantage of using a digital clock is that you can set different alarms. According to your own schedule or due date.**

5. **You can get digital clocks with different sizes and different styles to choose from. The size will vary depending on how big or small you want the clock to be. If you want a larger digital clock, then you can always opt for one that is larger than traditional clocks.**
6. **Using a digital clock to wake you up is a great way to help you get your work done. Before you leave for work or school. If you want to study and can't seem to fall asleep fast enough. You can put your digital clock right next to you in bed and read it to yourself to keep alert.**
7. **If you are looking for an easy way to let people know when you have arrived at your destination. Then you should consider using a digital clock. There are alarm clocks that include different features that will allow you to hear. The time or even let you know when you are running late.**
8. **Another benefit of the digital clock is that they have several different power sources. There are digital clocks that will use the wall or floor lamps for power. These types of clocks are great for those who use an electric-powered alarm clock. But may not be able to stay away from their electric power tool.**
9. **One of the biggest advantages of the digital clock is that you can use it in almost any room in your home. If you like the look of your current clock but don't like the way it functions. You can always switch to a digital clock. that has the same great look and functions as your current clock.**

The Disadvantages of Digital Clock:

1.Requires learning how to tell time.

2.Hard to See in the Dark.

3. Often loud ticking.

4.Alarm clocks don't always go off at the precise time set.

Another Disadvantages of Using time clocks is that they might be inaccurate. Employees might forget to punch in or out, which can Completely throw off their time cards. This can be time consuming to fix. Again, time clocks don't guarantee employees are in your business when they say they are.

Conclusion:

1. **The Purpose of a clock has been to tell time.**
2. **There have been many ways to tell times over the course of human history.**
3. **From Egyptian shadow clocks to Chinese water Clocks. From basic to digital.**
4. **The alarm clock forcefully tells time and as such its most convenient way, is by our beds.**
5. **Clock skew and jitter Substantially impact the functionality and performance of a system.**

6.Important Parameters are the clocking scheme used and the nature of the clock generation and distribution network.

7. Alternative timing approaches, such as self-timed design, are becoming attractive for dealing with clock distribution problems.

The Circuit was purely designed with the basic knowledge on sequential circuit designing and with the components provided by the authority. The clock is expected to operate normally with desired accuracy.

END