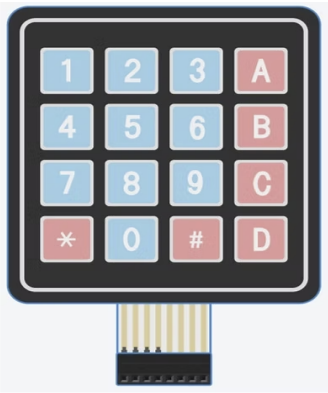
#7: Arduino DIY Calculator using a 4*4 Keypad and 16*2 LCD Display

Hardware Requirements:

1. 4x4 Keypad:

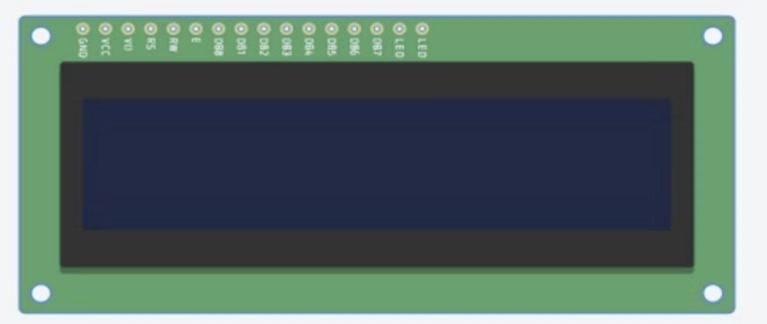


4x4 membrane keypad

A 4x4 matrix keypad is used as an input device that takes inputs from the users. It consists of 16 pins in total with four rows and four columns. On pressing a key, a connection will be established between the corresponding row and column between which the switch is placed.

2.Arduino UNO

3. 16*2 LCD: LCD- Liquid Crystal Display is an electronic module that uses liquid crystal to produce a visible image. It is the basic module that is generally used in DIY's and circuits. The display segments are affordable and simply programmable.

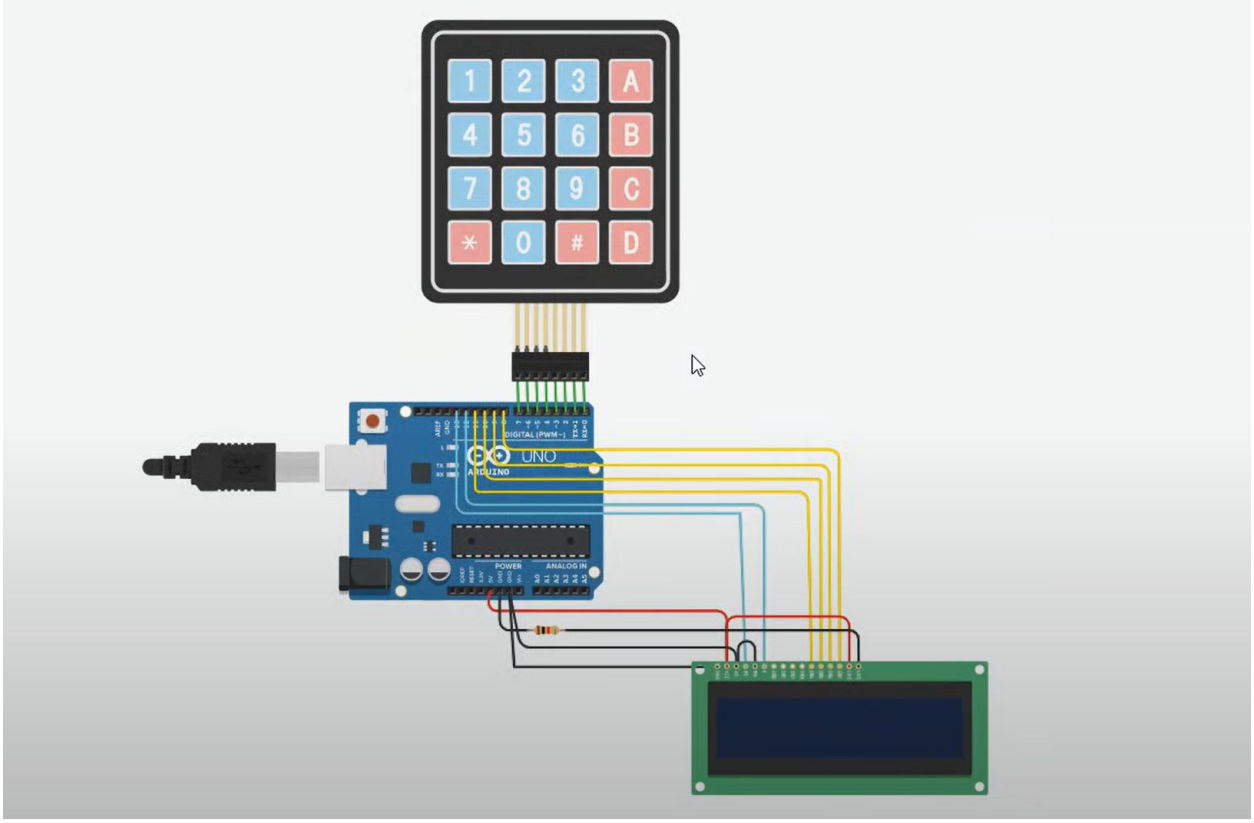


4. Jumping Wires: Jumper wires are used to establish connections between different components in the circuit.

Circuit Connection and its Working:

Circuit connection involves the following steps:

- In the keypad, there are 8 pins in total out of which 4 pins correspond to the Rows (viz., R1, R2, R3, R4) and the other four correspond to the Columns (viz., C1, C2, C3, C4).
- These 8 row and column pins of the keypad are connected from 0-7 PWM pins of the Arduino board respectively.
- DB 4-DB7 pins of the LCD are connected to 11-8 pins of the Arduino respectively.
- The 12th port of the Arduino is connected to Enable pin of the LCD and the 13th port of the Arduino is connected to Rs of the LCD.
- LED 1 of the LCD is connected to the ground pin of the Arduino through a 1-kilo-ohm resistor. Further, the Vo and ground pins of the LCD are also connected to the ground pin of the Arduino.
- Vo and RW pins of the LCD are shorted (i.e., grounded)
- Vcc and the other LED of the LCD are short-circuited and connected to 5V pin of the Arduino



Code:

https://github.com/sami-118/tinker-cad-project.git