Name :- Yash Kesharwani
Roll No :- 3
Class :- MSC CS Part 1

Advanced Embedded

Systems Mini Project

Aim: Using a LCD monitor and a 4 x 4 Keypad with Arduino.

Components:

- ✤ Arduino UNO (1x).
- ✤ USB 2.0 Cable Type A/B (1x).
- ✤ LCD I2C (16 rows, 2 columns) (1x).
- ✤ Keypad (4 x 4) (1x).
- ✤ Jump Wires (Male / Female) (12x).

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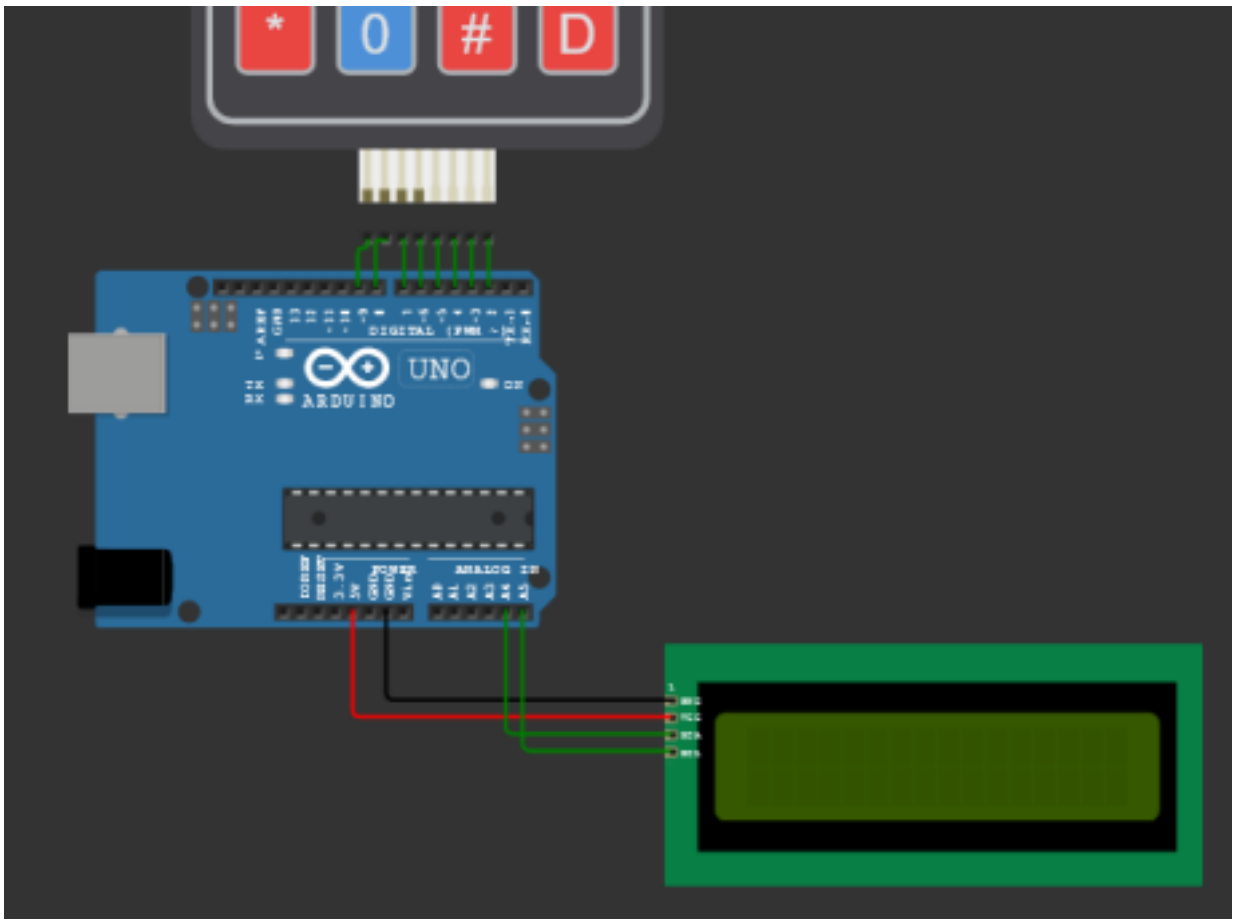
Circuit Diagram:



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Connections:

Groups	Pins	
	From	To
Arduino to Keypad	2	C4
	3	C3
	4	C2
	5	C1
	6	R4
	7	R3
	8	R2
	9	R1

Arduino to LCD	5V	V_{CC}
	GND	GND
	A4	SDA
	A5	SCL

Source Code:

```
#include <Keypad.h>
#include <LiquidCrystal_I2C.h>

const int ROW    = 4; // four rows
const int COLUMN = 4; // four columns

char keyMap[ROW][COLUMN] = {
```

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```
 {'1','2','3', 'A'},
 {'4','5','6', 'B'},
 {'7','8','9', 'C'},
 {'*','0','#', 'D'}
};

byte pinRows[ROW] = {9, 8, 7, 6};      // connect to the row pinouts of the keypad
byte pinColumns[COLUMN] = {5, 4, 3, 2}; // connect to the column pinouts of the
keypad

Keypad keypad = Keypad(makeKeymap(keyMap), pinRows, pinColumns, ROW,
COLUMN);
LiquidCrystal_I2C lcdDisplay(0x27, 16, 2); // I2C address 0x27, 16 column and 2 rows

int cursorColumn = 0;
int cursorRow = 0;

void setup(){
 // initialize the LCD.
 lcdDisplay.init();
 lcdDisplay.backlight();
}

void loop(){
 char key = keypad.getKey();

 if (key) {

   lcdDisplay.setCursor(cursorColumn, cursorRow);
   lcdDisplay.print(key);
   cursorColumn++;



   if(cursorColumn == 16) {
    cursorColumn = 0;
```

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```
    cursorRow = 1;

   }

   if(cursorRow == 1  && cursorColumn == 5) {
    lcdDisplay.clear();
    cursorColumn = 0;
    cursorRow = 0;
   }

  }
}
```