Advanced Embedded System

Mini Project

Aim: Using Arduino uno display number on LCD display which are being key pressed on keyboard.

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)

Connection: Arduino to Keyboard

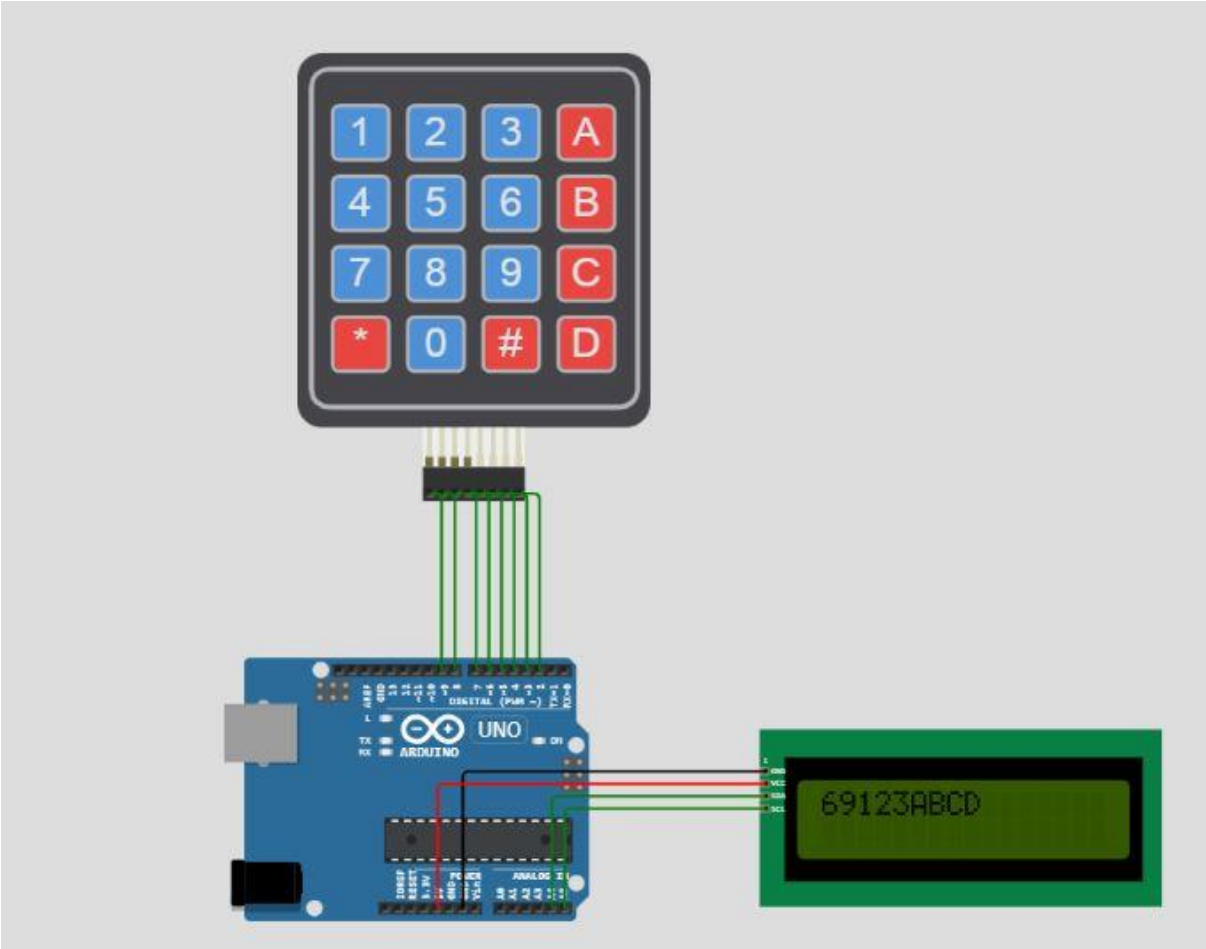
Arduino	Keyboard
2	C4
3	C3
4	C2
5	C1
6	R4
7	R3
8	R2
9	R1

Arduino to LCD

Arduino	LCD
5V	Vcc
GND	GND

A4	SDA
A5	SCL

Circuit Diagram:



Code:

```
#include <Keypad.h>

#include <LiquidCrystal_I2C.h>


const int ROW    = 4; // four rows

const int COLUMN = 4; // four columns


char keyMap[ROW][COLUMN] = {

 {'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;


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


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


  if (key) {
    lcdDisplay.setCursor(cursorColumn, 0); // move cursor to (cursorColumn, 0)
    lcdDisplay.print(key);                 // print key at (cursorColumn, 0)
```

```
    cursorColumn++;                 // move cursor to next position
    if(cursorColumn == 16) {        // if all columns are used,
clear the lcd
      lcdDisplay.clear();
      cursorColumn = 0;
    }
  }
}
```

Project link:

(https://wokwi.com/projects/327363831181345362)