

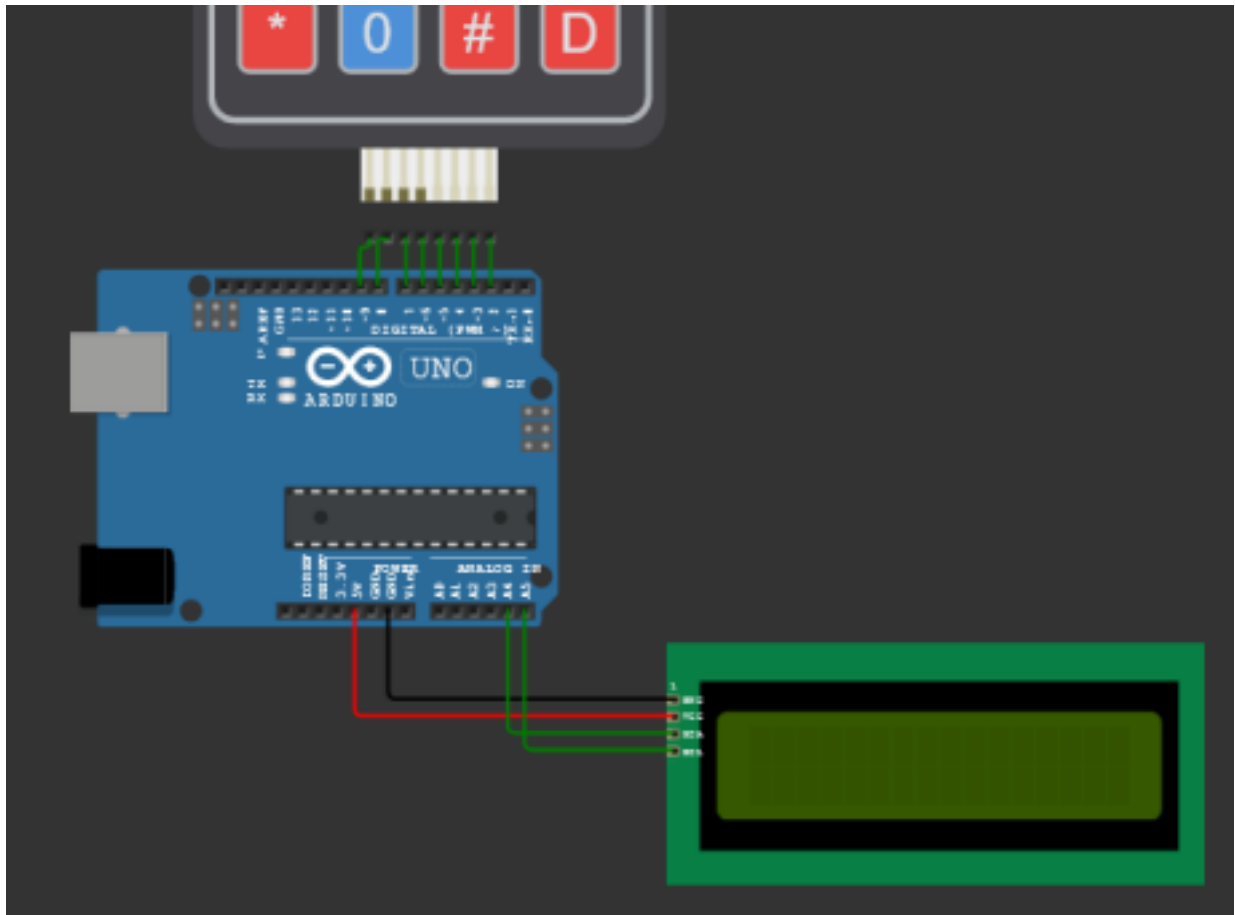
Advanced Embedded Systems Mini Project

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).

Circuit Diagram:



Connections:

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

2

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

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Project Link :- <https://wokwi.com/projects/327925191937098322>