WORKSHEET: 7

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Branch:- CSE   **Section:- 20BCS-NTPP-605-B**

Semester:- 6   **Date of performance:-10/04/2023**   **Subject: IOT LAB**

1. **Aim: To display Hello World on LCD using Arduino Uno.**

2. **Objective:**

   • Learn about IoT based simulations.
   • Learning the circuitry.

3. **Code-Output:**
    ▢ Hardware Requirement
      a) **Arduino Uno**
      b) **LCD 16x2**
      c) **Jumper Wire**

About LCD:

A Liquid Crystal Display commonly abbreviated as LCD is basically a display unit built using Liquid Crystal technology. To display output values and messages.
JHD162A is a 16×2 LCD module based on the HD44780 driver from Hitachi. The JHD162A has 16 pins and can be operated in 4-bit mode or 8-bit mode. Here we are using the LCD module in 4-bit mode.

About Arduino Uno:
Arduino UNO is a microcontroller board based on the **ATmega328P**. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz

ceramic resonator, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. You can tinker with your UNO without worrying too much about doing something wrong, worst case scenario you can replace the chip for a few dollars and start over again.

Circuit:
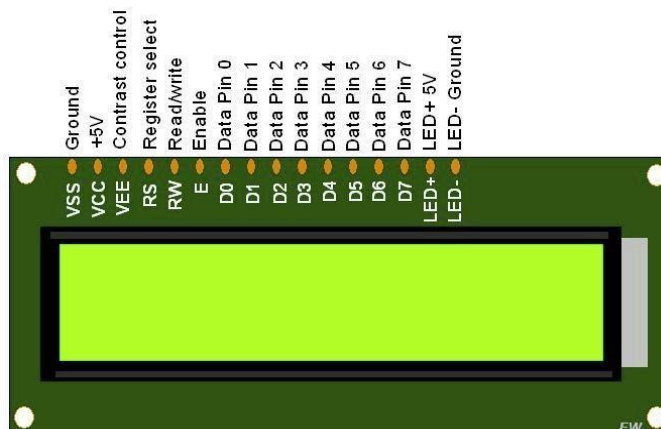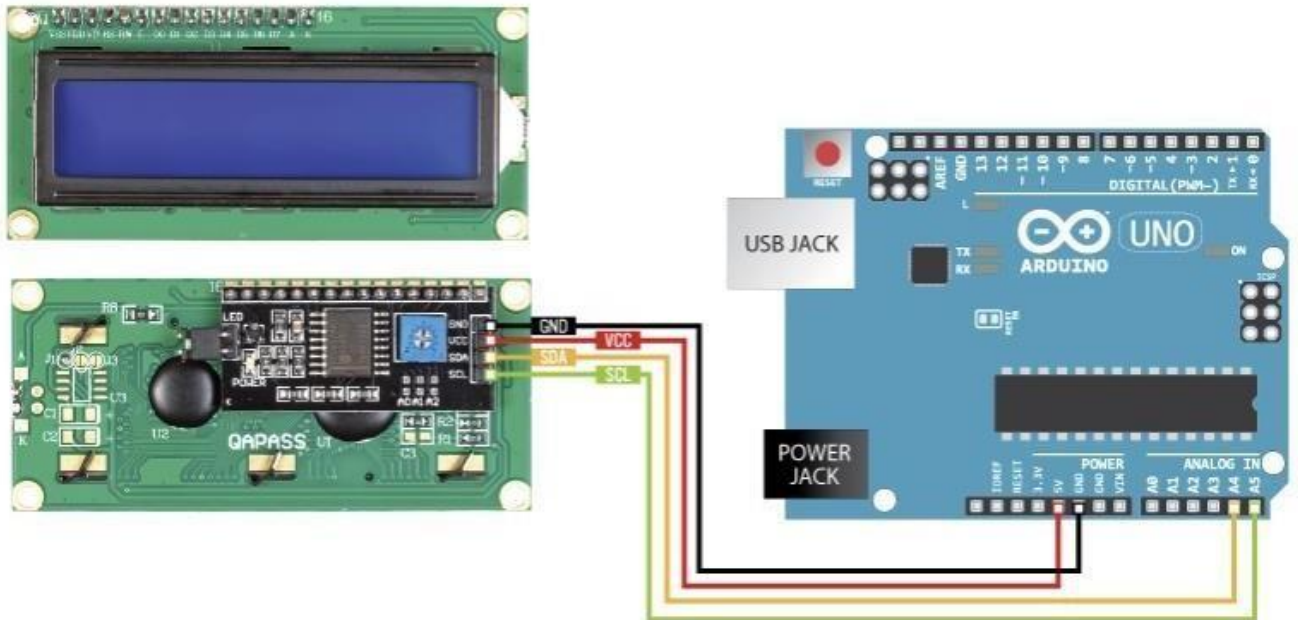
SDA – Serial Data   SCL – Serial Clock

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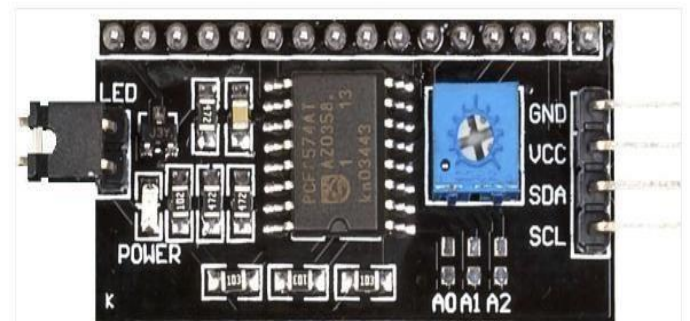
This is just two wires, called SCL and SDA. SCL is the clock line. It is used to synchronize all data transfers over the I2C bus. SDA is the data line. The SCL & SDA lines are connected to all devices on the I2C bus.

CODE:-

```
#include <LiquidCrystal.h>

const int rs = 12, en = 11, d4 = 6, d5 = 5, d6 = 4, d7 = 3; LiquidCrystal

lcd(rs, en, d4, d5, d6, d7);

void setup() {

  lcd.begin(16, 2); // set up the LCD's number of columns and rows:

  lcd.print("Hello World!"); // Print a text to the LCD.

}

  lcd.setCursor(0, 1);        // (note: line 1 is the second row, since

  counting begins with 0): lcd.print(millis() / 1000);        // print

  the number of seconds since reset:

}
```

OUTPUT SCREENSHOT:-