Assignment No. 1

Write-up	Correctness of Program	Documentation of Program	Viva	Timely Completion	Total	Dated Sign of Subject Teacher
4	4	4	4	4	20	

Date of Performance:_____ Date of Completion_____

Problem Statement: Understanding the connectivity of Raspberry-Pi / Adriano with IR sensor. Write an application to detect obstacle and notify user using LED.

Objectives:

1. To study about Raspberry-Pi kit and its component.
2. TO study about Adriano kit and its component.
3. To Learn the interfacing of IR sensor with Arduino UNO

Outcome:

After completion of this assignment students will be able to understand the connectivity,of Raspberry-Pi and Adriano UNO with IR sensor .

Software & Hardware Requirements:

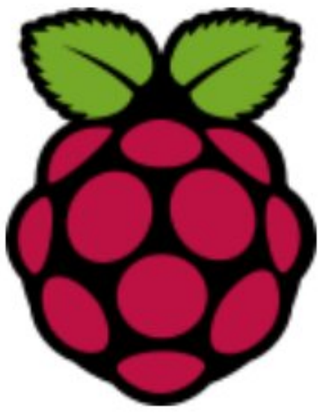
1. Operating System: Windows (XP/Vista/7/10)
2. Software: Arduino IDE 1.8.3
3. Hardware: Raspberry -pi,,Arduino UNO,IR sensor,Patch Cords, USB cable type A/B.

Theory;What is Arduino?

Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board. To do so you use

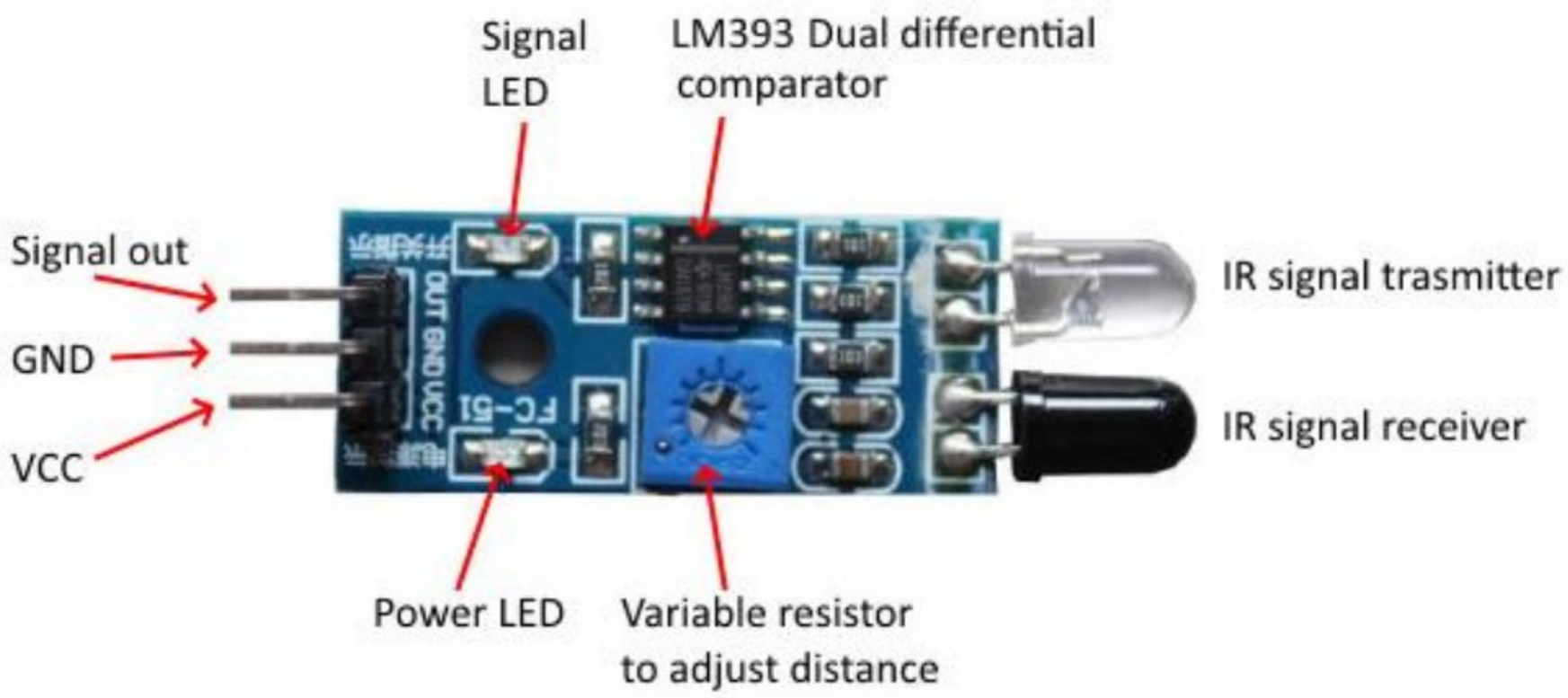
the Arduino programming language (based on Wiring), and the Arduino Software (IDE), based on Processing.

What is Raspberry Pi (/paɪ/) is a series of small single-board computers (SBCs) developed in the United Kingdom by the Raspberry Pi Foundation in association with Broadcom. The Raspberry Pi project originally leaned towards the promotion of teaching basic computer science in schools and in developing countries. The original model became more popular than anticipated, selling outside its target market for uses such as robotics. It is widely used in many areas, such as for weather monitoring, because of its low cost, modularity, and open design. It is typically used by computer and electronic hobbyists, due to its adoption of HDMI and USB devices.



IR Sensor :An infrared sensor (IR sensor) is a radiation-sensitive optoelectronic component with a spectral sensitivity in the infrared wavelength range 780 nm ... 50 µm. IR sensors are now widely used in motion detectors, which are used in building services to switch on lamps or in alarm systems to detect unwelcome guests.

Signals and connections of the FC-51 Proximity sensor



VCC – 3.3 to 5 VDC Supply Input pin

GND – Ground Input pin

Signal out – Digital output pin. LOW when obstacle is in range

Power LED – Illuminates when power is applied

Signal LED – Illuminates when obstacle is detected

Variable resistor – Adjust detection distance. CCW decreases distance.

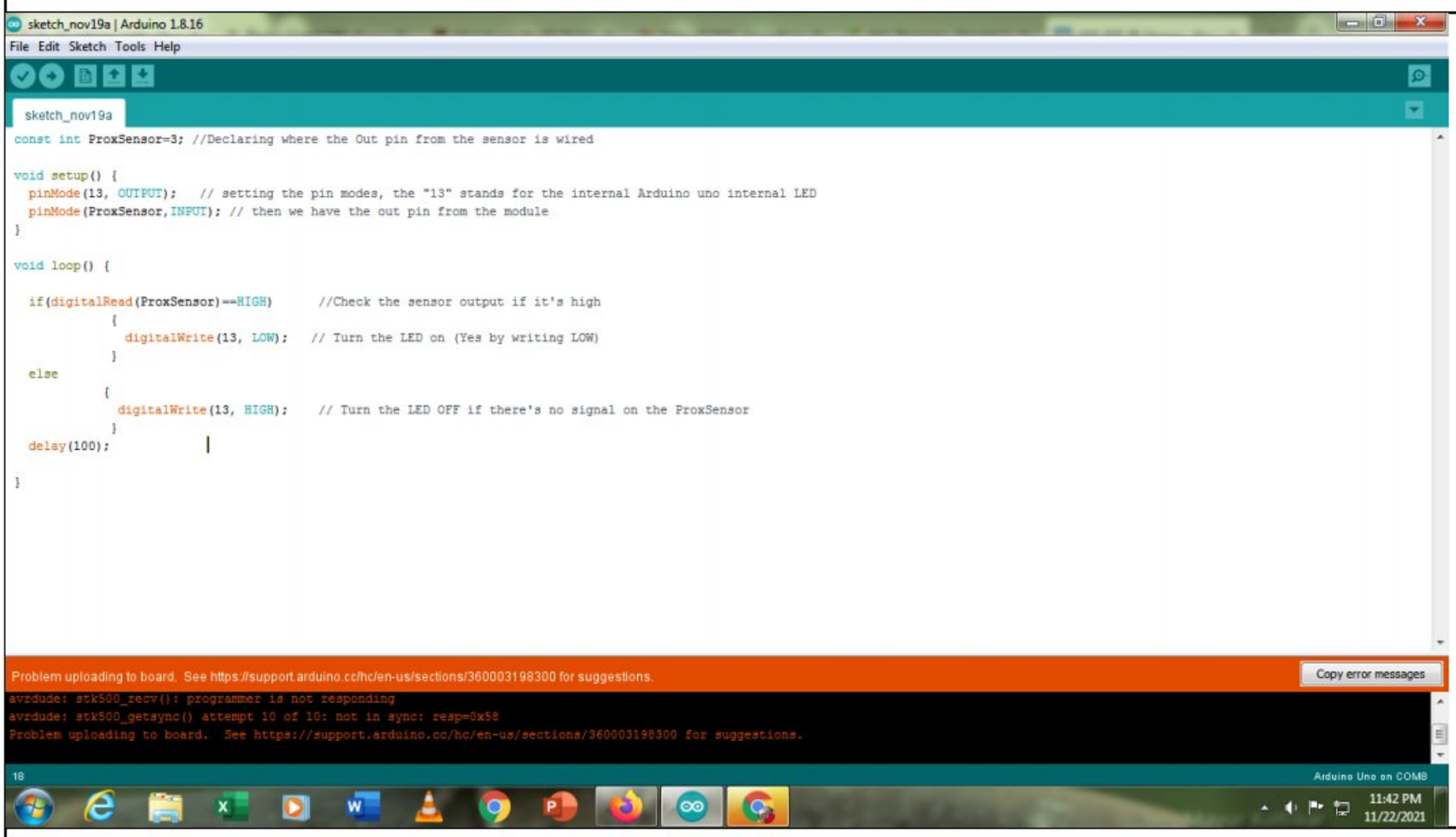
CW increases distance.

Source Code

```
        void setup() {
  // put your setup code here, to run once:
pinMode(2,INPUT);
pinMode(13,OUTPUT);//LED
```

```
}

void loop() {
  // put your main code here, to run repeatedly:
if(digitalRead(2)==LOW){
  digitalWrite(13,HIGH);
}
else{
  digitalWrite(13,LOW);
}
}
```



Output:

Instructions :

Handwritten write-up as follows :

- Name of Student: Batch:T1/T2
- Subject:LP-1
- Assessment table
- Title
- Objectives
- Problem statement
- Software and hardware requirements
- **Theory :**
- What is Aurdino and Raspberry- pi?
- Explain about IR sensor?
- What is difference between Aurdino and Raspberry pi?

Attach Program code and Its Output