

Module 1

Pass Task 1

Please find all source code and original image files in the Git repository:
<https://github.com/rcallow/SIT315>

Figure 1: Schematic Diagram

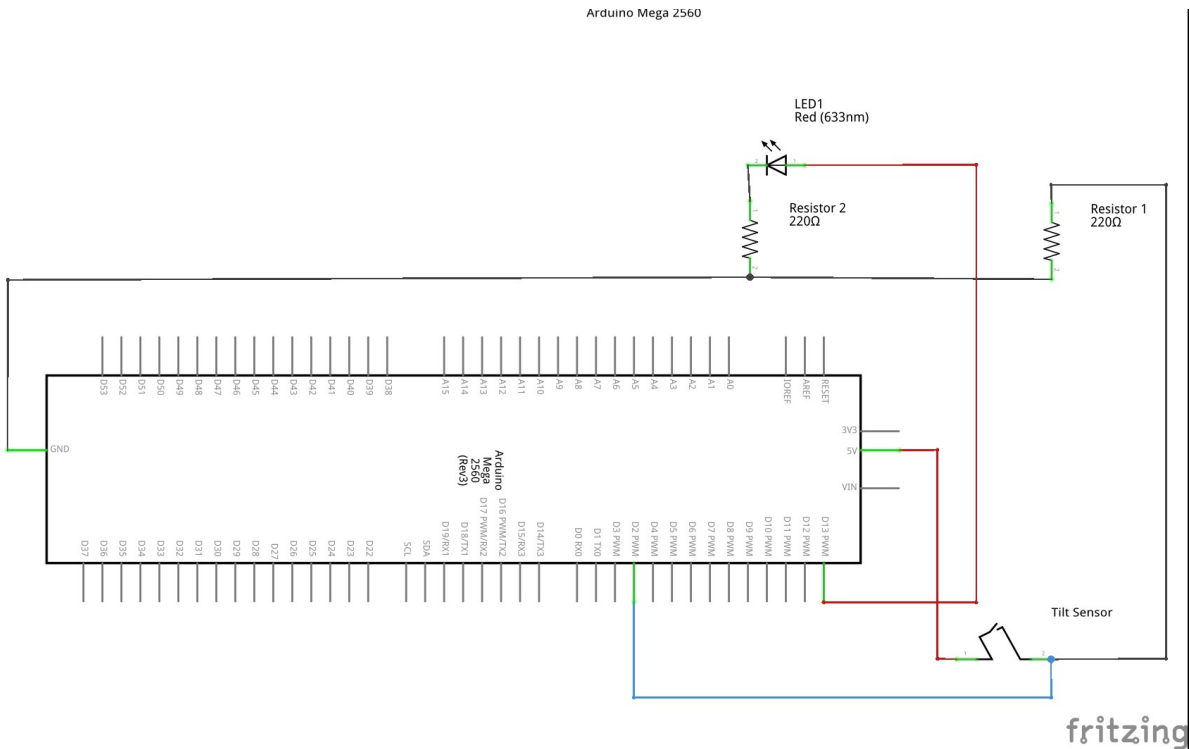
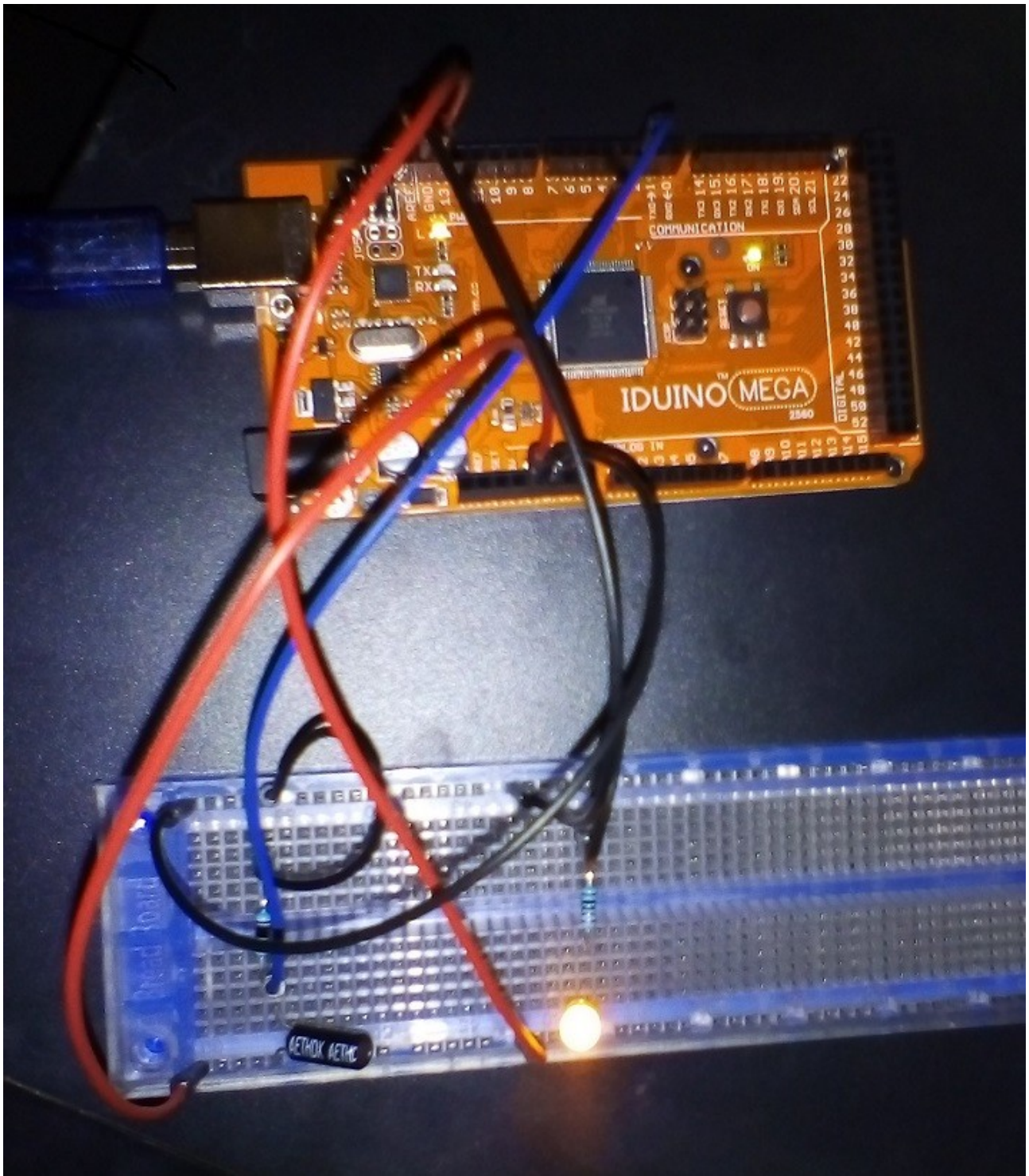


Figure 2: Assembled Hardware



Source Code:

Task1.1P.ino file contents:

```
uint8_t inputPin = 2;
uint8_t outputPin = 13;
bool changeDetected = 0;
bool isLevel = 1;

void setup()
{
  pinMode(outputPin, OUTPUT);
  pinMode(inputPin, INPUT);

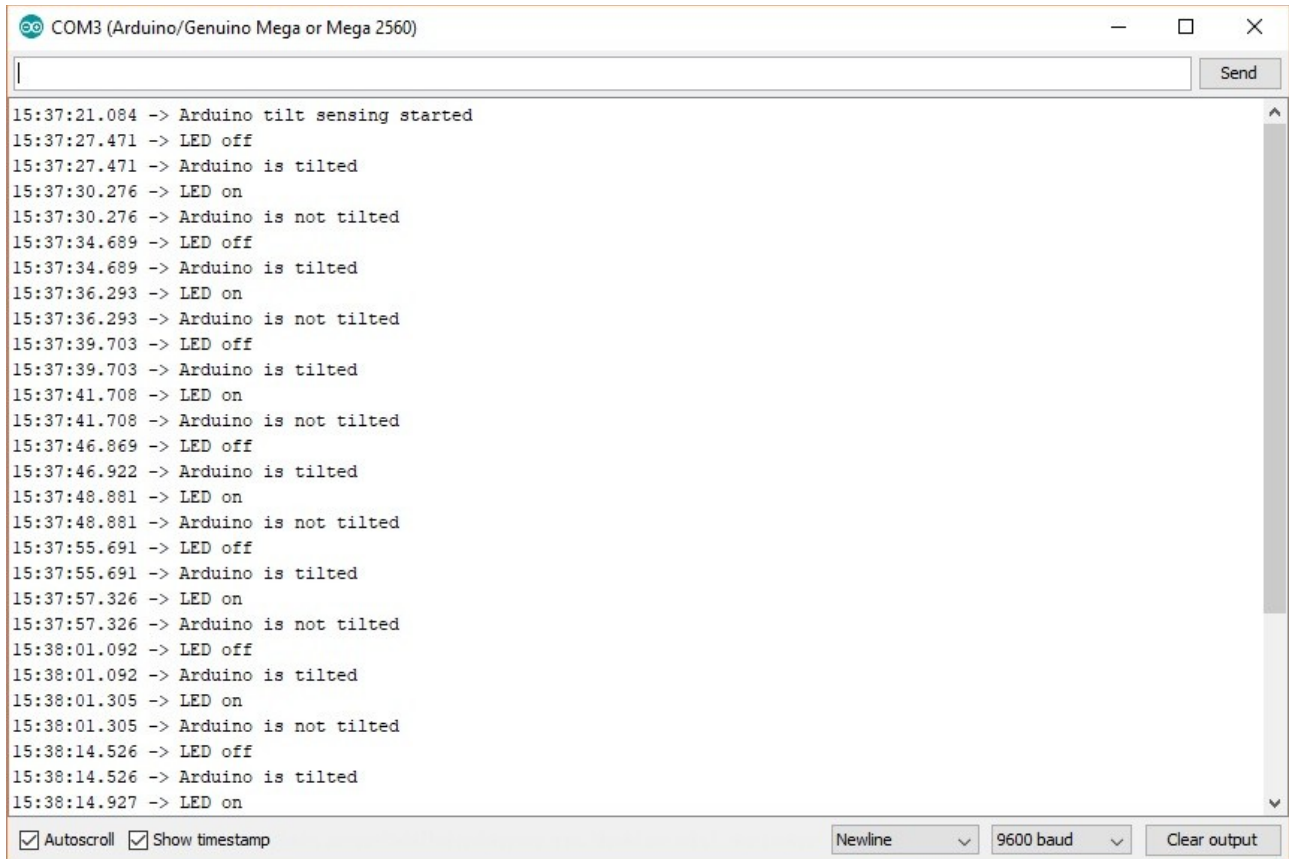
  // Start serial output
  Serial.begin(9600);
  Serial.println("Arduino tilt sensing started");
}

void loop()
{
  // Test whether the tilt sensor has detected a change
  if(isLevel != digitalRead(inputPin))
  {
    // Record change in tilt status
    changeDetected = 1;
    isLevel = digitalRead(inputPin);
  }

  if(changeDetected)
  {
    if(isLevel)
    {
      // Turn on LED at pin 13
      digitalWrite(13, HIGH);
      Serial.println("LED on");
      Serial.println("Arduino is not tilted");
    }
    else
    {
      // Turn off LED at pin 13
      digitalWrite(13, LOW);
      Serial.println("LED off");
      Serial.println("Arduino is tilted");
    }
    // Reset change monitor
    changeDetected = 0;
  }

  // Delay to reduce false readings
  delay(200);
}
```

Figure 3: Serial Output (Screenshot)



The screenshot shows a serial monitor window titled "COM3 (Arduino/Genuino Mega or Mega 2560)". The window contains a list of timestamped messages indicating the state of an LED and whether the Arduino is tilted. The messages are as follows:

```
15:37:21.084 -> Arduino tilt sensing started
15:37:27.471 -> LED off
15:37:27.471 -> Arduino is tilted
15:37:30.276 -> LED on
15:37:30.276 -> Arduino is not tilted
15:37:34.689 -> LED off
15:37:34.689 -> Arduino is tilted
15:37:36.293 -> LED on
15:37:36.293 -> Arduino is not tilted
15:37:39.703 -> LED off
15:37:39.703 -> Arduino is tilted
15:37:41.708 -> LED on
15:37:41.708 -> Arduino is not tilted
15:37:46.869 -> LED off
15:37:46.922 -> Arduino is tilted
15:37:48.881 -> LED on
15:37:48.881 -> Arduino is not tilted
15:37:55.691 -> LED off
15:37:55.691 -> Arduino is tilted
15:37:57.326 -> LED on
15:37:57.326 -> Arduino is not tilted
15:38:01.092 -> LED off
15:38:01.092 -> Arduino is tilted
15:38:01.305 -> LED on
15:38:01.305 -> Arduino is not tilted
15:38:14.526 -> LED off
15:38:14.526 -> Arduino is tilted
15:38:14.927 -> LED on
```

At the bottom of the window, there are several controls: a checkbox for "Autoscroll" (checked), a checkbox for "Show timestamp" (checked), a dropdown menu for "Newline" (set to "\n"), a dropdown menu for "9600 baud" (set to "9600"), and a "Clear output" button.