

```

#define SensorPin A0 //pH meter Analog output to Arduino
Analog Input 0
#define Offset 0.00 //Calibration Value Sensor Value - pH
Value Neutral (7) deviation compensate for sensor
unsigned long int avgValue; //Store the average value of the sensor
feedback void
int arduinoled =13; //Arduino Onboard LED
int redPin = 11; //Sets Arduino Pin to LED Module Color
Red
int greenPin = 10; //Sets Arduino Pin to LED Module Color
Green
int bluePin = 9; //Sets Arduino Pin to LED Module Color
Blue

void setup()
{
pinMode(redPin, OUTPUT); //Sets Arduino pin 11 (Red) to only
sending Signals out to the LED Module
pinMode(greenPin, OUTPUT); //Sets Arduino pin 10 (Green) to only
sending Signals out to the LED Module
pinMode(bluePin, OUTPUT); //Sets Arduino pin 9 (Blue) to only
sending Signals out to the LED Module
pinMode(arduinoled ,OUTPUT); //Sets Arduino pin 13 (Arduino Onboard
LED) to only sending Signals
Serial.begin(9600); //Connects Arduino Data Output to Serial
Monitor in the Arduino IDE
Serial.println("Ready"); //Test the serial monitor
}

void loop()
{
//Get 10 sample value from the sensor for smooth the value
int buf[10]; //buffer for read analog
for(int i=0;i<10;i++)
{
buf[i]=analogRead(SensorPin); //Analog Read takes in 10 readings and
assigns to a 1 Dimensional Array
delay(10); //10 millisecond Delay to allow sensor
processing time
}
for(int i=0;i<9;i++) //Sort Sensor Readings from small to large
to find average
{
for(int j=i+1;j<10;j++)
{

```

```

if(buf[i]>buf[j])
{
int temp=buf[i];
buf[i]=buf[j];
buf[j]=temp;
}}}
avgValue=0;
for(int i=2;i<8;i++) //take the average value of 6 center
sample
avgValue+=buf[i];
float pHValue=(float)avgValue*5.0/1024/6; //convert the analog into millivolt
pHValue=3.5*pHValue+Offset; //convert the millivolt into pH

//Outputs pH Sensor Average Value
Serial.print("pH Value: ");
Serial.print(pHValue,2);
Serial.println();

//Turns on LED on Arduino when a average value is calculated
digitalWrite(arduinoled ,HIGH);
delay(800);
digitalWrite(arduinoled , LOW);

//Neutral = LED Color Green
if (pHValue>=6.8 && pHValue<=7.2) // Range for sensor error
{
setColor (0,255,0); //3 numbers represent RGB (Red, Gree,
Blue) scale 0-255; Values passed to Function Setcolor turning on the Red
}

//Bases = LED Color Yellow
else if (pHValue < 7)
{
setColor (255, 50, 0); //3 numbers represent RGB (Red, Gree, Blue)
scale 0-255; Values passed to Function Setcolor turning on the Red
}

// Acids = LED Color Red
else
{
setColor (255, 0,0); //3 numbers represent RGB (Red, Green,
Blue) scale 0-255; Values passed to Function Setcolor turning on the Red
}
}
}

```

```
void setColor(int red, int green, int blue) //Function to assign LED Color
Range 0-255 on the Red, Green, Blue Color Spectrum
{
  analogWrite(redPin, red);
  analogWrite(greenPin, green);
  analogWrite(bluePin, blue);
}
```