Bonus Lab (Lab15): WSN

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Arduino code:

int sensorPin = A0;

int ledPin = 13;

int sensorValue = 0;

long double val;

void setup() {

Serial.begin(9600);

}

void loop()

{

delay(2000);

sensorValue = analogRead(sensorPin);

val = (sensorValue\*(long double)((long double)5000/(long double)1024))/(long double)10;

Serial.println((int)val);

}

Processing code:

import processing.serial.\*;

import java.io.BufferedWriter;

import java.io.File;

import java.io.FileWriter;

import java.io.IOException;

import java.io.PrintWriter;

import java.text.SimpleDateFormat;

import java.util.Date;

Serial myPort; // Create object from Serial class

String input; //to store received value from arduino

int temp; //to store sound value from input

void setup(){

size(1280, 800); // set the window size to be 1280\*800

myPort = new Serial(this, "COM5", 9600); // Initialise COM port to connect to Arduino

myPort.bufferUntil('\n'); //buffer the input received from serial connection till \n

}

void draw(){

}

void serialEvent(Serial p){

input = p.readStringUntil('\n');

if(input !=null){

println(input);

println("here");

}

input = input.replace("\n","");

input = input.replace(" ","");

temp = Integer.parseInt(input);

//call functions for controlling audio output and volume control

writeIntoFile(temp);

delay(1000);

}

void writeIntoFile(int temp){

BufferedWriter bw = null;

FileWriter fw = null;

File file = new File("C:\\Users\\prasanna\\Documents\\Studies\\Semester 6\\Wireless sensor networks\\CSD\_337\_WSN\\bonus lab\\temp.csv");

// if file doesnt exists, then create it

if (!file.exists()) {

try {

file.createNewFile();

} catch (IOException e) {

// TODO Auto-generated catch block

e.printStackTrace();

}

}

try {

fw = new FileWriter(file.getAbsoluteFile(), true);

bw = new BufferedWriter(fw);

PrintWriter pw = new PrintWriter(bw);

Date dNow = new Date( );

SimpleDateFormat ft = new SimpleDateFormat ("hh:mm:ss");

pw.println(ft.format(dNow)+","+temp);

pw.flush();

System.out.println("Done");

pw.close();

} catch (IOException e) {

// TODO Auto-generated catch block

e.printStackTrace();

}

}

Code for plotting graph:

import pandas as pd

import matplotlib.pyplot as plt

data = pd.read\_csv("temp.csv")

data.plot()

plt.show()

Screenshots:



