

North South University
Department of Electrical & Computer Engineering

Junior Project Proposal (CSE299)
Section: 03

Title of the Project: Mini Weather Station Using Arduino Uno

Group: 03

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INTRODUCTION:

This is the first generation of Arduino based mini-weather station with Wi-Fi connection, which is able to post data publicly on the website that we will be creating

The weather station collects the following data related to the weather and environment using different sensors:

1. Temperature
2. Humidity
3. Atmospheric pressure
4. Light intensity
5. Dust concentration
6. Rain
7. UV ray
8. Earthquake

FEASIBILITY:

Weather is the part and parcel in our day to day life. We all need the day to day update of the weather. This can be very beneficial for many who depend on weather information as part of their everyday lives like farmers, outdoorsy types and many weather enthusiasts. Amongst them the farmers are most likely to be in need of day to day weather updates because of their cultivation which is eventually a big part of our country's economy. The information is received by sensors and transmits it to a screen or console which can be updated every few seconds or minutes. The information is consistently updated to provide the most accurate weather conditions happening at the moment. Most models are able to be remotely viewed in real time conditions, historical data.

Background Research:

Back in last semester we did a project on measuring the temperature and humidity using an API on what's app on the course operating system. We were influenced by that. So we thought of making a project based on that so we went for studying it and came across a project which is made in much bigger form so we thought of making a smaller version of this project as this weather plays a vital role in our everyday life.

<https://howtomechatronics.com/tutorials/arduino/arduino-wireless-weather-station-project/?fbclid=IwAR12EiqKcA0liw1RYh38DL2ngtkoGxXgKgO1D7xkpsjSTVneINegoEytro> .

Description of the Project:

This weather station will take the surroundings data and show it to us using an LCD display. Also, we are saving those data in ThingsPeak which is written in MATLAB. Also, we will make a website to store and show our data, store it for any kind of further use. In total, our project will use 6 sensors and a Wi-Fi module to connect to the server.

Software & Language Used:

1. Arduino IDE
2. fritzing
3. Bootstrap 4, HTML5, CSS
4. Django

Budget:

The total estimated budget to complete the project is provided in Table 2.

Item	Cost
1.Arduino UNO and Genuino UNO	BDT405
2. Water Sensor Module	BDT 105
3.Arduino protoshield/ Breadboard	BDT 79
4. HC-SR04 ULTRASONIC SENSOR	BDT 89
5. Coin Type Vibration Motor (10mm)	BDT 73
6. Barometric Pressure Sensor BMP180	BDT 277
7. DHT11 Temperature and Humidity Sensor	BDT 118
4.Resistors- 1k,10k,4.7k	BDT 15
Total	BDT 1155

Table 2: Budget for the project

Time-plan:

List of the deliverables with specific dates so that you can make concerted effort to achieve them.

Serial	Description
Task 1	Ordering the components
Task 2	Checking all the hardware components
Task 3	Compiling in Arduino IDE
Task 4	Simulating in fritzing
Task 5	Showing the work to our faculty
Task 6	Correcting (if any mistake is found)
Task 7	Uploading data on the server
Task 8	Generating graph using ThingsPeak
Task 9	Working on the project
Task 10	Website building
Task 11	Server building
Task 12	Working on the project
Task 13	Prepare the final presentation
Task 14	Showcase the final project

Table 1: List of all tasks

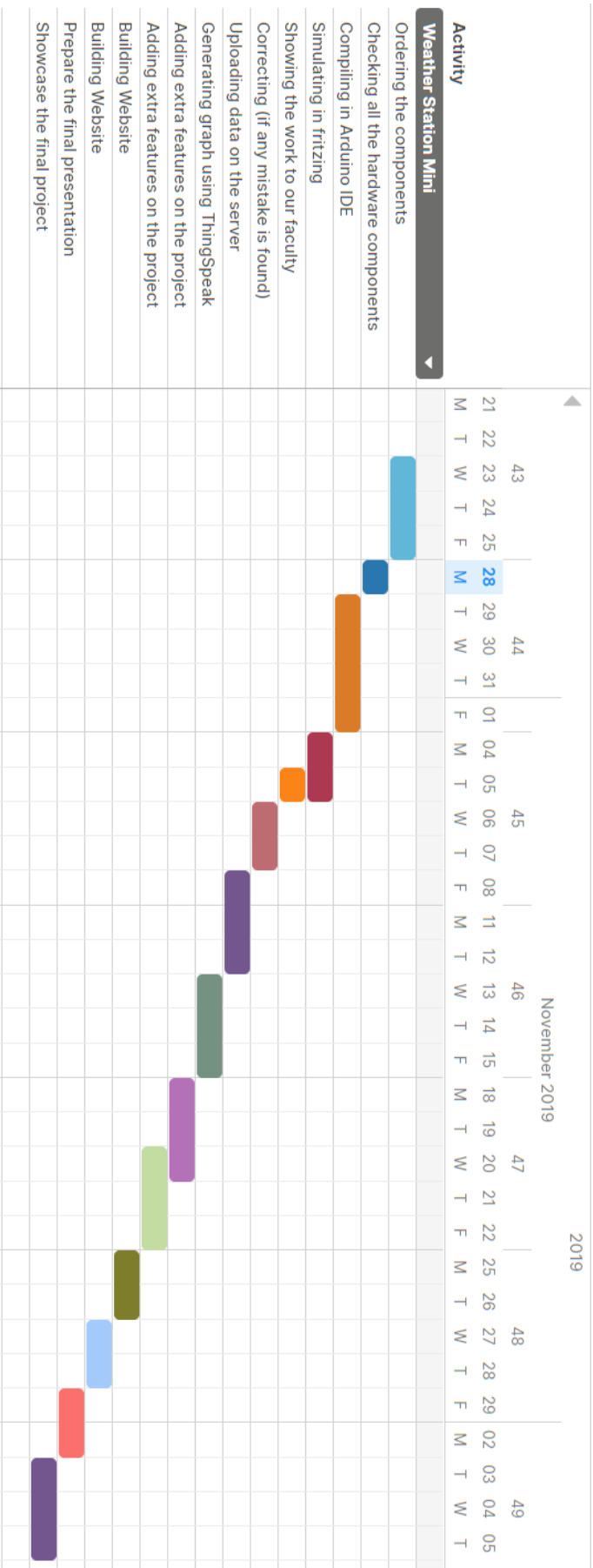


Figure 1: Gantt chart

Expected Outcomes:

We hope that we will be successful in this project and the bigger version of this project is going to be very helpful to the general mass.

Work Division:

1. Samiha Ferdous - Hardware
2. Md. Tahrim Faroque Tushar – Hardware and Website
3. Momena Akhter Shukhi - Hardware

References:

- [1] google, youtube, <https://www.hackster.io/igorF2/arduino-uno-mini-weather-station-31b555>
- [2] a project that was showcased last semester in capstone.