

Team Name: SoftDev

Team Name:

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Motivation:

Want learn the basics of app development, database maintenance and how to extrapolate data from Arduino hardware while using the Agile process.

Risks:

Lack of experience would probably be our biggest risk. Making sure communication between Arduino, the database and the android app is our biggest task and could cause the most issues. Since the Arduino uses sensors to collect data, complications could arise with those too.

Risk Mitigation:

To mitigate the the lack of experience problem our team decided to split into teams; one group will learn and maintain Andriod for our app and the other team will learn and maintain the Arduino. To mitigate potential communication errors, we can track missed updates and by having our database log every time there is one. We can check these daily. This tracking can also help to mitigate problems with sensors as well.

Description:

The hardware aspect of our project will be an Arduino centered weather station using sensors embedded in circuits. The Arduino primary uses C/C++. We will program within that in order to control our sensors and collect data.

An important part of our project is software implementation and utilization. Once data is collected, our Arduino will report to a database most likely using SQL or something like that. From there, SQL organize out data in order to send to our Android app which will be created using Android Studio.

To summarize our project, we are going to build a weather tracking Arduino that can detect the temperature, humidity, UV index, etc. The updated weather information will sync to the phone application. The traditional weather applications might just tell the user what is the current temperature and future's weather prediction. But not everyone have a good concept of the temperature. Take me as an example, if you tell me the temperature is 59F outside, I don't really know how cold or how hot it is. What we are trying to do is providing more specific and customized information rather than only temperature to users. If you are a new user of our

application, we will first give you some general suggestions based on current and future; like, wear a jacket, bring an umbrella, etc. If you are willing to input what you wearing now, more customized notification will send to you. Let's say if you are wearing a t-shirt and a jacket now, and the temperature is 95F, we will send you a message that you are wearing too many clothes. Also different people have different tolerance, you can tell us how you feel under different temperature condition, then we will provide even more accurate suggestions for you based on tolerance.

Vision: We wish to provide users a way to monitor weather conditions anywhere and anytime for purposes ranging from scientific condition monitoring, meteorological information gathering, or even to simply decide what to wear in a crisp, simple, and efficient display.

Version Control:

The version control method and repository that we will be using for the deliverables created for the project is GitHub. GitHub allows each member to work on the project at their leisure and update the project accordingly. We will also be able to see all of the updates that each member makes and add to each other's work accordingly.

Proposed Architecture:

Our front-end technologies will be our app which we will design through Andriod Studios. On the back-end will be our Arduino and database for collecting data. Our Arduino will collect temperature and humidity via sensors every 15 minutes and log said data to a database. The Arduino will be connected to a computer which will house our database and organize it. Once organized, the database will update to our Android app via the internet. Our app will parse through the data then based on the temperature and humidity will deliver a message to the the user on their Android device.

Development Method:

We will be following the "Agile" methodology for a few reasons. The "Agile" method allows us to continuously modify our product, letting us implement new ideas we may come up with during our development process. By using the "Agile" method, we are able to divide our team into 2 groups: one working on the Arduino and another focusing on the Android app and the two groups will be having individual sprints. At the end of each sprint, we will all be meeting as a team to discuss and track our progress. Another benefit of using the "Agile" method will be that members won't be tied down to specific roles.

Collaboration Tool:

In order to coordinate our work and communicate with each other, our team will be using GroupMe. We will be using GroupMe as our main source of communication because it is an easy to use app that is very accessible. GroupMe can be accessed through both the computer and the phone. This ensures that messages will be read and everybody will be on the same page on the project.