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Professor Fred Annexstein

CS Senior Design

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### Individual Assignment

This senior design project was really what I was looking for. I am a part of the University of Cincinnati NEXT innovation scholars and working on an interdisciplinary team was something that I was looking forward to. The project also came in with a built in client and sponsor so we had a very clear goal and a very clear feedback loop that we could work off of. My individual contribution was good. I can definitely admit that I was not very hands on with the sensor management and configuration. The Computer Engineering Team and the Electrical Engineering team really took a hold of building out the actual sensor configuration and making it work within the cloud (InfluxDB). I worked mainly with William Hopkins to build out the actual web/mobile application that would take the data from the cloud and have a live update feed.

Will and I used Flutter as the UI toolkit which uses the Dart programming language. I mainly did the front end framework and how figured out the button flow of how the user would interact with the application. We used Adobe Creative Cloud and the XD application to create mockups for the user. I also mainly worked on the notification and python weather microservice that uses the free National Weather Service api that sends out severe weather watches, alerts, and warnings. I started to use the cloud SQL service to create the database that would hold the alerts which themselves were an array of dictionaries built from the api but then we decided that pymongo would work way better, though that ended up being an issue since that was the main issue since it was not being imported correctly through the google cloud service. That was a big issue that took forever to figure out.

Our group accomplished a lot. We created a microclimate sensor system that works and can be accessed and viewed through a web application. I'm really happy with what we created and I think that our advisor and client is satisfied. I learned a lot about working with sensors and a breadboard as well as how an Arduino code interacts with a microcontroller. I also learned a lot about how to work with a team of 6. I think our team was successful in not just the project but I think that I had a good time working with everyone. There wasn't a team meeting that gave us issues and I even think that the long nights we had were enjoyable.

The aspects of teamwork that were successful for us was making sure that whatever parts we were in charge of would be compatible with the other parts. Whether it was the breadboard with the microcontroller or the sensor data working with InfluxDB and in turn the application. I think my efforts were on par if not a little bit less than the others. I think my team did great. Anthony, Rose, Keith, and Will especially were the ones I communicated the most. Will out of all of them since we would pair code together on the app the most. Rose and Keith really pushed the sensor system to be what it was. Anthony was our main front person who communicated with Mohsen and received the grunt of the administrative tasks with scheduling meetings, and planning out what we were aiming for that given week.