I will be tackling #2. I was/am in a Senior Design group Presenting on Tuesday

Our group name is Team 3.14, and our group title is “Temperature and Humidity sensing using a RaspberryPi”

**Who, What, Where, When, Why, and how:**

We are three computer science students. We decided to get together and do a web/sensor-based project. We did this project mostly at our respective apartments, but the project was based out of Dr. Kapenga’s office at the College of Engineering and Applied Sciences. This project started in the Spring 2014 semester and will be completed at the conclusion of this Fall 2014 semester. The reason why we decided to do this project is because it was easy and we couldn’t come up with anything better to do. Dr. Kapenga needed a sensor solution for the server rooms. We completed our project using a RaspberryPi, a text editor, and Ubuntu server, and a few sensors we can attach to the Raspberry Pi. We used Github as a source control service so our code did not interfere with itself. This service allowed us to program by ourselves so that we only had to meet during class.

**Origins of our group**

Our group members knew each before taking Senior Design. We were able to get together easily as we had already agreed to complete the project as a group.

**Origins of our project**

Our project came out of a need for a cheaper and better solution to and existing product. Currently, the CEAS server rooms have a single Temperature@lert unit installed. This unit only has a temperature sensor, is not controlled by a central server, and costs $300. Our solution costs $60 and has temperature and humidity sensors. It can also be expanded to a total of 17 sensors, and even more with some additional computer trickery. The best improvement though, is a central server system which makes monitoring all sensors extremely easy.

**Group Members**

Marcel Englmaier: Marcel is the leader and manager of the group. His major contribution was the hardware design and code. He put together the RaspberryPi, the sensors, the case, and programmed the system to work with the server.

Justin Koehler: Justin is responsible for most of the website which runs on the Ubuntu Server and is viewable by authorized people. He was charged with making the website look nice and built some of the testing and graphing features that the site needed.

Jason Pearson: Jason is the person who figured out how to run the website on the server. This element of our project was incredibly tricky and Jason managed to figure out how to do it. He is also responsible for most of the administrative features the website needed.

**Group dynamics**

Our group didn’t have much of a getting-to-know-you phase. We had already known each other for years prior to Senior Design. With this aspect, we also didn’t have a conflict stage. We were given fairly strict guide for what the design should be. In that regard, we were given much le-way for the hardware section of our project. I am the only one experienced with microcontrollers in our group, so my teammates deferred decision-making to me. I had RaspberryPi units and the exact sensors we opted to use. After doing research, it turned out the hardware I already owned was the best to use for this project as all of it is reliable, accurate, and cheap.

As we are Computer Science students, we had many communication system available to us. Mostly, we used Google Hangouts for video and audio conferencing, and deferred to Facebook Messenger and SMS services for text-based communication. Given our strict project guidelines, there was almost no opportunity for errors in communication as we all knew our part and were able to complete the project swiftly and with ease. We actually finished the project during the Spring 2014 semester, and then worked during summer and Fall 2014 to improve and add features, and to make the website look nice.

The only real problems we faced were installing the website on our server, which turned out to be much more difficult than is should have been. Our solution was simple: Jason, who is a System Admin working at CEAS, will attempt to do it. 20 hours and two weeks later, Jason had solved the problem and written a comprehensive how-to about it.