Dr. Gates We will be creating files of the data, we will be giving you files of the data as though it was real time. We’ll just simulate that process, so we can assume there will be a header file. That is the particular standard format. We’ll just make that assumption.

Dr. Pennington So if you think about the data streaming in from all the sensors, you’re going to assume the data has already been transformed into what the common format is

Dr. Gates So whatever team asked this question, it’s a good question because it helps you to start scoping out the problem. How will sensor data be stored, is there a database that can be used to create queries, reports or is the data kept on files.

Dr. Pennington So this is where I’m not sure if you’re really asking about sensor data itself or the data the they system you’re designing collects about the sensor data. They’ll be a common format; I don’t know what that is. The sensor data itself seems to be flak files

Dr. Gates Does this make sense to you all? You’re the developers

Student We’re going to simulate all the data that we’re getting from the files in real time. So we’re going to simulate that in real time?

Dr. Gates We’re going to simulate that

Student When the sensors send out the data, do they go to a third party first and then you guys pull the data from that third party

Dr. Pennington No, we have our own algorithms now that we developed that can transform the data

Dr. Gates I’m gonna ask Dr. Pennington to kind of give you a scenario that might help you because it’s gonna be coming up a little bit, about … So platforms we talked about web based and we talked about mobile. So earlier she gave me scenario on how that might work or how someone might use the system. So we’re gonna go back to how to use the system.

Dr. Pennington One scenario that I could imagine is that I go out to the field and I get a text on my cell phone that says that there is an anomaly with one of the sensors and I would be able to walk over to that sensor and try and look on my phone what is there that is being reported, maybe look at the property that is generating the error, look at the data that is being generated by the sensor and maybe I’ll wanna look at three different types of data together in different ways. So maybe I’ll wanna look at the data itself, like let’s say I did a property that says temperature should be between X and Y during this time period, I would wanna see a graph of the temperature, threshold the property defines and then I would want the anomaly to be highlighted for me. Maybe I’ll wanna switch between a property.. or I might wanna look at the anomaly more. So there are different things I might want to look at. There are 3 different types of data that I’m interested in. So I want to go over to the sensor, I want to be able to look at the 3 different types of data maybe in different ways and I want to be able to fix the problem right there. So I need to be able to interact with all those 3 different types of data in real time at the site on my mobile device.

Dr Gates This is a Use Case Scenario

Student Just to clarify the 3 different types of data that you would like to see are the property the anomaly and what else?

Dr. Pennington The data itself being generated by the sensor

Dr. Gates Now if you were at your desk, what would you like to see?

Dr. Pennington The same thing, it’s the same 3 things. I might want to see them in a different way. I might want to see a graph; I might want to see a map view of all the sensors like to be able to hover over a particular location, see something about the data that is being collected, or I might want to see the raw data.

Dr. Gates One of the questions that came up was Do you want it to be a standalone application or web base?

Dr. Pennington I want it to be web based because I could be in the artic and I could get notified that there is something wrong with my info in the desert and maybe my phone has died and I might have to go over to someone’s camp and use their computer

Student Do you want any kind of predictions on future data or do you just want what we have getting in as far as display wise.

Dr. Pennington I think future predictions would be great. If you could analyze the data patterns that maybe are being developed and be able to predict that would be wonderful. That would be a good use of data properties; we don’t know sometimes what those properties are going to. In most cases we are making that up as we go what are the properties So building the capacity to predict given the properties in the way that I have it designed, next hour 2 hours, 3 days and to be able to think about does that really make sense? One of the problems we have is that Scientists are designing their properties and being specified in thinking about the information science point of view. If you have a scientist and you ask them to do develop some sort of logic, They don’t have the training to anticipate the implications of what they just specified. So being able to do some sort of prediction, would help them in being able to troubleshoot their properties.

Student You mentioned that you guys have some expected values, ?????

Dr. Pennington Yeah, one thing you might want to do is compare cross sensors. So for instance precipitation there are certain things that happen in temp. and humidity and barometric pressure that we know about and that we can specify in a property. There may be other things that we try to do that we don’t. So when we start to develop more complex properties, it be nice to be able to say, and it ???? Here’s the way you developed your property and here is a simulation on what you might expect

Student 38:51 ???

Dr. Pennington Yeah, like a sort of a revision that you might find. Start getting these anomalies reported, you find a pattern to the anomalies and you find out the specification is wrong.

Student You keep talking about properties but the way you keep explain them make me wonder; are these ever expanding properties that we can define for the database?

Dr. Pennington Yes

Student Ok and the 2nd question is; You keep saying we have to have them go back and actually have them specify who is the author and caretaker for that data so my question is; On that part would they have to have the database widely available in a database format that everyone can change in real time and view the changes

Dr. Pennington So I think maybe, I think for now it’s more local but I can envision that if it came out well and it became widely adopted. I assume there would be a database, but that is for you guys to decide. I can imagine a community registry where everyone is looking at the property

Dr. Gates At this point we are looking at the what and not the how, but having said that what Dr. Pennington is saying is we have to locally, within her research group, they want to keep properties stored. So we know that we have to keep them in a repository, whether it’s excel or SQL database, that’s part of your analysis. What she’s saying is that you’re collecting these properties and metadata and then there might be a point in time where we start saying we’ll be able to move them to a national database that says we’ll take them into a broader view. We’re thinking about designing for change

Student For the updates of the info do those have to be real time updates

Dr. Pennington Which info you talking about properties?

Student yes

Dr. Pennington um??

Dr. Gates Can I help with that question? I’m thinking is that the properties are stored someplace, I’m a researcher and I set up a sensor, I could be grabbing them and putting them in there. And if I’m grabbing and using somebody else’s you want to know that this is being monitored but it’s reused. I might go and make changes and change the parameters then that’s what Dr. Pennington was talking about. You want to store that info. I reused it but I changed the parameters

Dr. Pennington Yeah you don’t want to override. This property is built for that camera right there. Now I’m going somewhere far away and I like that property but it’s not quite right for this new location. So I’m going to build on this property. So person 3 comes in a year later and is looking at these properties and the want to be able to do is they used it this way here, and maybe there are some comments on what worked and what changed and I can learn from that. So now I’m going to use it someplace else.