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AME 394 How to Build a Digital Physical System

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For our group project, we chose the topic, Control and Comfort of the automobile. The reason I chose this topic is that when driving on the way, I always like to make sure everything is going right and be safe. The first original idea was also come from some of my personal experience. I think it's a good project although the idea is simple, but it's a really problem what the drivers confront all the time when driving on the road.

Compared with the Western culture, in most Eastern countries, especially Asian. In my opinion, safety always is the first thing the drivers need to be considered, and the most important thing I want to control. Since I am from Taiwan, and living in the major city, Taipei, which has lots of people and cars when you go out, it needs to be more careful on the road. No matter the drivers or pedestrians. That's why we also cover the safety idea into our project.

At our first group meeting, I told my team members my idea, which is by using four LEDs and four Sensors to detect the things too close the car and giving some feedback to the drivers, and asking their thought. They did think it was good idea, and possible to make it works in the limited time period. Then we did some online research, and we did find some interest project by using the motion sensor on YouTube. Afterward, we wrote over first overview and asking some questions we were not sure at that time to the instructor.

Motion Sensor Example: http://www.youtube.com/watch?v=exPxE1Ky-Kw

After reading Chapter 4 of Norman's Design of Everyday Things and doing the Volume Theremin project exercise, we decided to add sound for visibility. Then a week later, we did the practice of the Nervous Lamp and Mixing colors project. Because the range sensor does detect the distance and changing the LED colors, we thought could use those exercises as the guide to build our project and adding the sound. However, we did not make it works, since we do not have enough time to practice in class, and we do not have any material to work on at that time. So, we arranged a time to meet and to discuss what components we would need for our project around the afternoon of the next day.

Nevertheless, since I went to another group meeting after the class, and I had a performance at the same week. Things were going too crazy to me. I was not feeling very well when I got home, so I totally forgot it and overslept until the afternoon on Thursday. I received the email of their discussing result, and I felt so sorry about that. They did a very good project to consider everything we would need, so we could start to work on it.

However, things were not as easy as we thought. No only we had a limited time to work on together, but also some hardware do not really work well, like the infrared sensor and the switch. Also, at the beginning, the code does not work very well. Therefore, until the last minute on Dec 2nd, we still kept working on our project, and it did work as what we wanted, at least.

The best things I learn from this project are share out the work and help one another, not about the programming code or circuit. Since we all had some kind of crazy schedule this semester, we decided each person worked on different area. Jasiah was working on the 3D model; Chunling was working on the code; I was trying to figure out how to make the circuit work, and

take care of all the hardware. We all did our job, so that I did almost succeed and complete our project. Especially, since I had another project showed on the other corner of the room, Chunling was kept testing the code at the presentation day, and Jasiah's 3D model is perfect work. I am really happy and feeling very comfortable working with them. That is the best thing I got this semester.

The future of our project could be a low cost system that everyone can afford, and it really helps the visibility of the drivers. In other word, it might able to reduce the traffic accident and to avoid the extra repair fee. So that everyone can feel ease on the road, I hope.

How I understanding about building a Digital Physical System, I am more interested in the example of ambient system. "To see is to believe" is a famous Chinese idiom, and the user's visibility really help people be more aware the environment, such as where they are, what they did, and the affect. I believe a good project needs to provide the users a good feedback, no matter it is visible or audible. Overall, it's a good class, but it will be better if providing more clear idea and how the example works, it is helpful to understand the topic.

The link of our project: http://dc-bdps.wikispaces.asu.edu/Comfort+and+Control+and+Safety