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Plans for Next Semester

As shown in our updated/revised timeline on our website and report, we plan to follow the schedule below:

Investigation (End of Dec.'08-Mid Jan.'09)

Understand how Vishay transceiver works in different modes
Understand how Vishay transceiver transmits information

Finalize Re-design (End of Jan.'09)

Finish circuit design of transceiver for wheelchair
Finish circuit design of transceiver for door

Development-Build-Troubleshoot (Feb.'09-Mar.'09)

Assemble all circuits
Test to ensure design meets goals

Pilot-Testing (Mar.'09-Apr.'09)

Deliver prototype and verify against initial requirements and goals
Pilot test (gain feedback from Handicapped testers)
Set up 1-2 doors in General Services Building

Implementation (Apr.'09-End of semester)

Fully deploy project in General Services Building
Get more feedback, update design
Expand to entire campus

Chris and Iris have discussed thoroughly how much they will need to work and where they need to focus next semester. They averaged around 5-7 hours per week this semester which is right around the required hours per week. They plan on working similar hours next semester and possibly more as the second semester can be more demanding. They plan on meeting regularly every Wednesday and weekends if necessary.

Early next semester the door transceiver will be focused on. Firstly, the wheelchair transceiver isn't complete but it is operating as expected. Further investigation and testing will be needed to ensure reliable operation. Once this is completed the wheelchair transceiver will be placed on a perf board. This again will need sufficient testing based off of last year's perf circuit. Following this, the door transceiver will go through the same stage. Finally once both circuits are finished with thorough testing they will be handed off to subjects to test in real world applications.

Concerning winter break, progress will amount to as much as possible. The two remaining undergraduates will exert advancement when time permits. Iris will be out of the country visiting family. Chris will also be taking personal time on a cruise to tropical lands. They plan on tackling the project over the break but as it is called winter break their diligence will be haltered.

Also, in regards to the longevity of the wheelchair transceiver, a buck converter circuit will be implemented. A buck converter is a step down DC to DC converter. The simplest way to reduce a DC voltage is to use a voltage divider circuit. This is what was used last year to drop the voltage supply, but voltage dividers waste energy, since they operate by bleeding off excess voltage as heat. Also, output voltage isn't regulated (varies with input voltage). A buck converter, on the other hand, can be remarkably efficient easily reaching up to 95% for integrated circuits.[3] They are also self-regulating, making it useful for tasks such as converting a large voltage down to a few volts needed by CMOS.

From comments and last year's project, it has been noted that we must have an easy way to shut the device off if needed; this will be through a simple switch or button (easy to implement). Thus if it malfunctions or the person has an emergency, they don't have to worry about it and it can just be shut off very quickly.

Also, assuming we get a business student on our team, we will incorporate into our timeline a bit of time to focus on a business/marketability plan as discussed in our presentation. We would want to outline a plan for CSU to make the system more widespread. Also we would outline a plan for public adoption and widespread application of the system.

As stated, we have a lot of work to do this next semester, especially towards the beginning rather than the end like this semester. Chris and Iris will set aside as much time as possible to meet up to discuss and continue this work during winter break. Early into next semester, before their classes get hectic with projects and exams, they will be focusing on this project with utmost attention. We all expect good things(including Jason and I) to come out of it in second semester.