ASSIGNMENT I-1: PROJECT DEBREIFING

Foreword

The purpose of Professor Daida's Engineering 100.300 course is to learn about engineering design in the real world. More specifically, students are to learn about systems thinking in an interdisciplinary engineering setting, gain experience, and application to the real world. Each student begins by reviewing four reports from previous terms in order to prepare for their own projects this term, as well as being exposed to reports that may involve a topic that we are interested in and to practice a basic form of communication that is in engineering. The purpose of this report is to explain which of the designs I believe to be the most effective and why.

Summary

The four designs I reviewed are Team eHill's design for the Markley Hideaway, S Cubed's redesign of the UGLi basement, Poseidon 301's design of a laundry monitoring system, and Half & Half's design to implement interactive whiteboards. After reviewing all four reports I believe that Team eHill's design for the Markley Hideaway is the best. It is the most effective, based off of many criteria including being most attentive with their consideration of details, being feasible and ready to be implemented, and being most cost efficient and effective. Team eHill's design and research was very thorough and detailed, making their design not only feasible, but cost efficient. They used old reports and designs to make sure they did not make the same mistakes or run into the same problems. They were also able to meet their goal of making the Markley Hideaway a better place for students to go.

Discussion

One report I reviewed was Team eHill's Redesign of the Markley Hideaway in fall 2006. Team eHill looked into what needs to be done to improve the Mary Markley Hideaway. The Hideaway is a small convenience store located in the basement of Mary Markley hall, which is located on the Hill of the University of Michigan. The Hideaway is separated into two components, a store area and a dining area, which offers a variety of fast food, refreshments, snacks, toiletries, and a place for students to dine, hang out, and to play pool.

They found that there exist many problems in the current design of the Hideaway. The main problems include congestion in the store area and old, unappealing seating in the dining area. They researched and found some main changes that can be made to the store in order to maximize profit and increase the store's quality by increasing business and creating a better experience for customers.

Team eHill's design of the Hideaway is meant to improve it in a few ways. To address the problems, they created a design which would increase traffic flow in the store and make the Hideaway a more appealing place for students to go. In order to do this, team eHill addressed the store and dining areas as separate components. In the design, the store area is almost tripled. Also, additional doors and an overhaul of the ordering system will all help to improve traffic flow. In the dining area, replacement of the furniture is needed to make the Hideaway more attractive and comfortable. Also, additional items, such as a T.V., will be added in order to create a lounge area to relax.

The design for the store area addresses three issues: traffic flow, congestion, and theft. The traffic flow is increased and congestion is decreased by increasing the size of the store. This will be done by removing and adding a few walls and utilizing all the space allotted for the Hideaway. Also, doors will be added so that more than one door will be used for entering and exiting the store. An ordering system is also added to the design in order to improve traffic flow. Theft will be addressed by the addition of surveillance cameras in the store area.

The design for the dining area also addresses three issues: seating, dining hours, and wireless internet connection. New furniture will be purchased to make the dining area a more comfortable and appealing place for students to go. Sofas, lounge chairs, tables, and dining chairs will all offer a place to eat, study, or socialize. Also, the design allows the dining area to be open 24 hours a day, with the store are kept locked at night. Also, wireless internet capabilities in this area make it more useful and appealing.

The store and dining areas are to be expanded by removing walls, modifying the current online ordering system, and adding new doors. This will also address the problem of congestion. Other ideas include wireless internet and a dining area open 24 hours a day.

Team eHill's design takes into consideration all constraints and works these constraints into their design. They paid close attention to details and accounted for all the problems that may be of concern. Their design and research was very thorough and their considerations to these constraints, thus rendering it feasible to implement.

The estimated cost for this project is about $52,000 when including store, dining and lounge area items, security costs, and construction costs. Although Team eHill's design was not the most inexpensive, it achieved the most from the money spent. They were the most efficient and effective with their money.

The other three reports I reviewed were S Cubed's redesign of the UGLi basement from fall of 2006, Poseidon 301's laundry monitoring system from winter of 2005, and Team Half & Half's implementation of interactive whiteboards in small lecture and discussion halls from winter of 2006.

The redesign of the UGLi basement by S Cubed is to transform this area into a multipurpose area, which they believe to enhance the learning environment of the UGLi

basement. The multipurpose area can be divided into five sections: group rooms, group workspaces, individual area, lounge, and computing area.

Another group I researched was Poseidon 301, who designed a laundry monitoring system. This design is to aid time management and simplify the chore of doing laundry. Their design is a system that would monitor the operation of the laundry machines in each Residence Hall and display the information in a coherent manner on a website for students to view. Poseidon 301 was able to prove the need for a laundry monitoring system and offered many solutions as to how to create such a system.

The last design I researched was Half & Half's implementation of interactive whiteboards in small lectures. Half & Half researched different models and locations for these whiteboards. They also explored the reasons why and how interactive whiteboards would increase the effectiveness of instructors' lesson plans as well as students' learning. This team proved that the interactive whiteboards were needed as well as provided information on many different interactive whiteboards.

Each of these three designs had many flaws. Comparing these designs with the redesign of the Hideaway showed that these designs lacked in areas such as being most attentive with their consideration of details, being plausible, feasible, and ready to be implemented, and being most cost efficient and effective

Attention to details and being plausible, feasible, and easily implemented was compared among all four designs. S Cubed did not put lots of thought into power and lighting into the area, key things needed to accommodate for the needs of the students. S Cubed only focused their attention on physical configuration of the basement. Their lack of consideration to all the details makes their design not yet plausible. Although their design is perfectly feasible, it is not yet ready to be implemented because their design is not thorough enough. Poseidon 301's design was incomplete in that nothing was concluded or designed to solve their problem. They were unable to give information for the best monitoring device and how to create a website that would most efficiently display the necessary information. The group also did not consider how this design would work once everything was installed and made. Their design is not able to be implemented because of the lack of completeness in their design. Although this team was able to prove the need for the system and find constraints as well as different design possibilities, they gave no solution to problem they found. Although the design is feasible, it is not yet plausible and therefore cannot be implemented. Half & Half also did not think through all the details of their design. Although it is plausible and able to be implemented, it is not very practical. They did not consider the future use, or lack of use, of these boards. This makes the installation of interactive whiteboards a poor investment and therefore also poor design.

Another criterion that was compared between the designs was that of cost efficiency and effectiveness. Although Team eHill did not make the most inexpensive design, it was the most effective and efficient. S Cubed's layout for the UGLi basement would cost $630,000. This is not only more expensive than Team eHill's design, but S Cubed did not take into

consideration costs, labor costs, and clean-up/rubbish removal costs. Poseidon 301's design did not consider cost at all, making it impossible to compare cost. Also, this shows that Poseidon 301 was not considering a budget in their design. In Half & Half's price, they only considered the amount it would cost to purchase these interactive white boards. They did not consider installation of these interactive whiteboards as well as the technology needed to run and use them. Even though Team eHill did not spend the least money, they were the most thorough in consideration of cost as well as reaching a well estimated cost.

Team eHill's design for the Hideaway is the best design of the four projects I reviewed. The team was able to use old research and information to create a design that is ready to be executed. The consideration of detail is what makes this design stick out from the other three. This is the main idea I hope my team does in our design for the final project. This consideration makes the design possible and therefore the best of the four designs reviewed.