

Parshant Mittal

EAS 009

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Dorm Security

### Design Goal

Penn's dorms currently employ security machines at the entrance of each dorm. These machines provide a certain level of security and ease of use to the residents of the dorms. My design team, however, would like to increase the level of security and the level of ease of use for users of the machines. To improve the design, we decided to focus on the needs of our personas. Before we disclose our design, we would like to introduce the personas, for whom we have created the design.

### Personas

Dan Blueberg is a freshman in the Wharton School at Penn. He lived with his family in a townhouse in Long Island before he came to Penn in September. He currently lives in Riepe College House in the Quad. Dan is an active member of many Jewish clubs on campus and he regularly attends the Entrepreneur Club's meetings. He also plays basketball everyday in Potruck and he often carries his basketball bag with all his sports gear. At other times, Dan is busy working on his Management 100 project or studying late in Huntsman. Finally, Dan visits Hillel on regular basis to meet his friends and discuss issues concerning Penn.

Dan loves Penn and he loves the Quad because it is very social. However, Dan is annoyed by the security checkpoint at the entrance of the Quad. Every time Dan enters the dorms, he has to swipe his card (he often has to swipe it multiple times before the machine can read his card) and then enter in the last four digits of his social security number. Swiping the card and entering his social security code is a big problem for Dan because he is often carrying his basketball equipment. He would like to enter the dorm buildings without having to swipe his card or enter in his code. Furthermore, Dan would like the sliding glass doors, which open when the security checkpoint is cleared, to be padded so that the gates don't close on him and hurt him. Finally, Dan wants the new design to make him feel safe and secure in the Quad.

Catalina Mareno, a Latina, is a janitorial worker in the Quad. She lives in Center City and comes at 7 A.M. to clean Ware College House. She works in Ware for about eight hours daily. In the late afternoon, she goes to her second job at Drexel where she cleans dorm buildings as well. She has been working in Ware for the last two years but is not happy with her job. As a result, she is currently searching for a job in Center City. Furthermore, she often brings food from the food carts back into the Quad so she can eat with her co-workers. However, swiping her card when she has food in her hand is a hassle. After lunch, she takes a break to smoke on Spruce Street and returning back to the Quad takes a long time because the machines are slow to read the magnetic strips on the cards. She thus has to wait in a long line to enter.

Much like Dan, Catalina is not happy with the current security machines at the Quad. First, she forgets the code she has to punch in to enter after coming back from a

long break. She then has to go to a security office to get her code. Catalina would prefer that she not have to punch anything in, but if she has to, then she would like to change her code easily. She would also like to have the security machine's operational instructions in Spanish so that she can read and understand them better. The most important feature she wants is the security machine to make her feel safe when she uses it. Since she comes so early for her job, she often finds some drunken students sitting outside the Quad yelling obscenities. As a beautiful young woman, she feels vulnerable when she sees such students. All in all, she wants to feel safe and respected when she is working in the Quad.

Jay Patel is an M&T student at Penn who resides at Hill. He lived most of his life in Princeton, NJ and he spent few summers studying at Princeton University. Jay had a perfect SAT score and a stellar school record and thus he was offered admission at many prestigious universities. He visited many of them and thus he is aware of the security systems present in other universities. However, he decided to attend Penn because of the M&T program and is now pursuing a Pre-med Bioengineer major along with a concentration in Finance from Wharton. Jay has two sisters and one of them will attend Penn next fall. He is pleased with Penn overall, but he doesn't like the inconvenient security check to enter Hill.

Jay is very concerned about security at Hill because he wants to feel safe when he enters his dorm building. Another reason for his concern is his younger sister, who is coming to Penn next year and he would like to make sure she is safe. In addition to security concerns, he would like to see some changes that make the system easy to use.

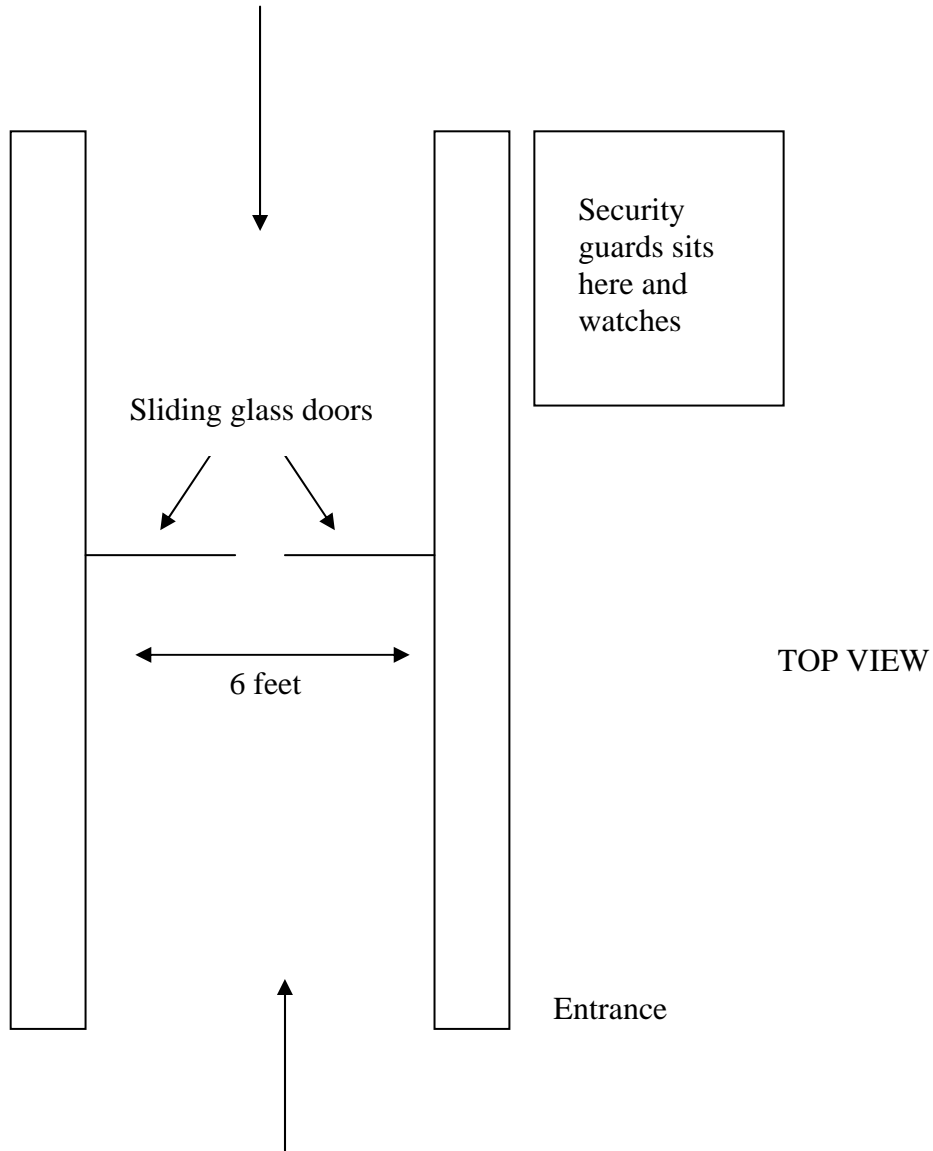
Some changes that Jay has shown interest in are the security door's ability to open wide so that when he is moving his things into Hill, he can do it with ease. He also doesn't want to swipe his card. He wants to walk through the gates and have the system recognize him. Furthermore, Jay would like to know his security personnel and have them greet him as he comes into the building. Jay's main concern is security and ease of use.

## Design

Looking at the various goals for the three personas, not wanting to swipe the card is common among the three. We would like to use a smart chip in everybody's PennCard so the machine can detect the user's PennCard in his or her pocket as the user walks through the machine. If a valid card is detected then using sophisticated photographic techniques the machine matches the user to the picture on record for the PennCard detected. If the picture matches, the two sliding glass doors, in the middle of the machine, slide in so that the user can walk past them and enter the building. Furthermore, these sliding doors will have light padding on the edges in case a student is stuck between the two doors and the doors close. Additionally, the machines will have instructions written in multiple languages so that people of different backgrounds can learn to use the machine. Finally, the best way to increase the sense of security is to use the security personnel in addition to the machines. The security personnel will be placed inside a glass barrier so that they can monitor everyone that enters and leaves. They will also greet people as they walk into the building; this way people will feel secure. Please

observe the design illustration below that addresses the issues with the current security machines.

When a user is in this area and walking towards the glass doors, the machine detects the user wants to exit and opens the sliding glass doors.



When the user is in this area, the machine detects if the person has a PennCard with them.