

PROJECT 3: NOVEL INTERFACES

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CLEANOMATIC 3000

PROJECT 3: NOVEL INTERFACES INTRODUCTION

For our design ethnography, we have chosen bars as our setting, with the specific activity to study being the bartending process. Bars are some of the oldest institutions in the world and integral to many communities, including Madison, making them excellent candidates to perform a design ethnography. In addition, Bryan, one of our group members, practices amateur bartending, experiencing first-hand the difficulties and processes of bartending. Thus, we recognized the opportunity to gain a better understanding of all stakeholders in the bartending process and find relevant breakdowns or inefficiencies that we could design a novel solution for.

To begin our understanding of the setting, we visited two upscale bars in Madison, the Statehouse in the Edgewater Hotel and Heritage Tavern. Both bars offer a craft cocktail list, a luxury atmosphere, and skilled professional bartenders with drinks averaging approximately \$10.00. The customers we noticed at these establishments appeared to range from young professionals to retirees, a varied mix, but generally all of some higher income level. Missing was undergraduate aged students (i.e. 18-23), however some of the younger clientele could possibly be in a graduate program. Both establishments offered bar and table seating without any areas meant for standing. The atmosphere was quiet enough to hold a normal conversation easily with neighbors. The bartenders themselves often held conversations with the customers about local events, areas around the city and other topics of interest. The staff at both establishments were seasoned and well trained to handle an



upscale crowd and also deal with a sudden surge of customers.

The upscale bars we visited gave us an idea of one end of the bar-going experience, but to fully observe Madison's bar scene and understand our setting, we had to visit the other end of the spectrum. Thus, a few nights later we also visited The Nitty Gritty and Kollege Klub, both college bars serving undergraduate college students. Like the more upscale bars, both had a large variety of drinks to serve, but because the clientele's incomes and expectations are different, customers most often order their cheaper drinks ranging from \$1 to \$6. One perfect example of these specific customers' expectations and desires is the Nitty Gritty's famed "Power Hour", where Miller Lite beer is sold for \$1.25 and mixed drinks for \$1.75 from 11PM to midnight. For college students

this is a steal and incredibly popular, which is Nitty Gritty's intention because to make any profit off of these incredibly cheap drinks, college bars will pack in customers until they reach their maximum capacity. Even with plenty of booths and tables at these bars,

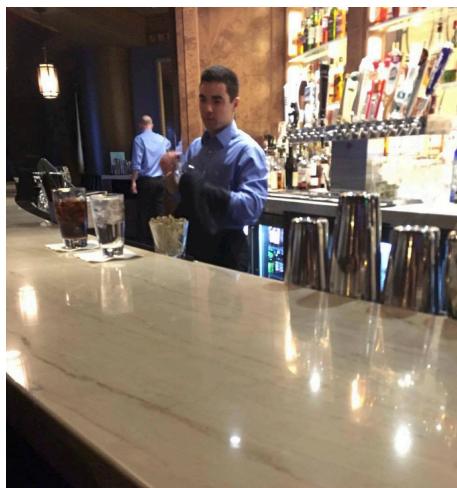
because of the bars pricing strategy and clientele expectations, standing around the bar is the norm. Customers will even form lines outside these bars waiting for others to exit the bar to get a chance at these low priced drinks, something more upscale bars won't likely see in their entire existence. Ultimately for the bartenders, due to the large amount of people in each bar it makes bartenders strain to handle customer orders, even if the bar has a full staff of over 5 bartenders plus bar-backs.

PROJECT 3: NOVEL INTERFACES UNDERSTANDING

During all four of our ethnographies we wanted to make sure we had a complete understanding of every detail of our activity in its setting so we made it a main goal to stay at each bar for around 1 to 2 hours taking notes on every detail we noticed. To embrace the fly on the wall style of observations we went into each bar trying to keep a very low profile and look like we were a normal customer, drawing the least amount of suspicion. To accomplish this, we decided to take notes on our phone or tablet opposed to bringing in a notebook and pencil. Since our activity involved a lot of monitoring the bartender and bar-backs we took a seat at the bar whenever possible, however this was more difficult at college bars as it was often too busy to get a seat at the bar. We were able to interview two bartenders as well as a bar-back, all of which were at the two upscale bars we visited. Trying to interview bartenders at The Nitty Gritty and Kollege Klub was hard to accomplish because they were so busy. Bartenders could barely keep up with drink orders, let alone spare a few minutes for an interview. However, a few brief conversations gave us the idea that these bartenders would desperately appreciate something, anything to improve their current hectic workflow.

During the ethnography there were several differences noticed between the classes of bars. The upscale bars presented a

more relaxed and calm atmosphere with medium level music or tv noise. In comparison, the college bars had louder music which forced the ambient noise to increase from people trying to talk loud enough for people to hear one another. The staff at college bars were also working at a much faster pace and appeared stressed.



One major difference between the bars had to do with serving glasses, which is important to the biggest breakdown we found in our observations. College bars used plastic cups during their busy hours as a means to save time and cost, while the upscale bars both exclusively used glass. Thus, unlike college bars that could just throw away their cups, upscale bars had to clean and meticulously polish their glassware for reuse. This process became blatantly obvious during our observations. We watched the bar-backs spend several minutes on one glass to get it perfectly polished. This was a slow, painstaking process that didn't seem to be particularly optimized. Just one little thing like polishing glasses, made up a significant portion of bar-backs' time and slowed down service if a specific glass was needed but wasn't fully polished yet. We knew that this one breakdown was worth spending our time on because fleshing out a novel solution to the problem could save an immense amount of time for the bar and improve customer satisfaction in cleanliness and service.

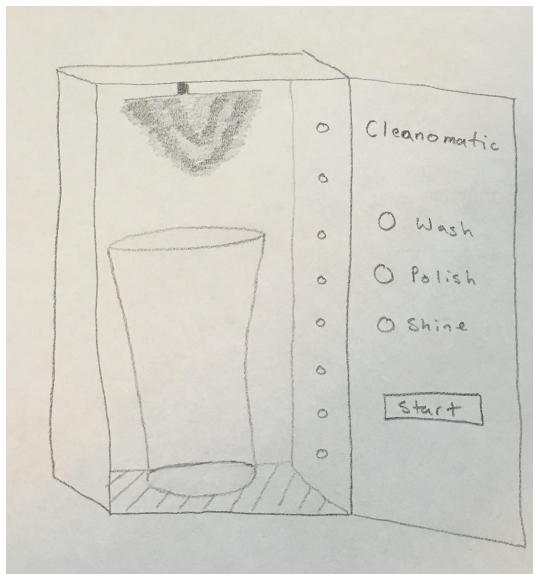
PROJECT 3: NOVEL INTERFACES IDEATION

During our ethnography and post interviews we identified a safety hazard and inefficiency polishing glassware at high end bars. When visiting college bars we found them using plastic cups instead of glass as a means of increasing efficient use of their staff. Due to the obvious operational flaw regarding glassware we decided to take that on as our design challenge. From the start it was clear that automation would solve both issues but the challenge was implementation. High end bars are already tight on space so we needed something compact that could fit unnoticed behind the bar. Both the Statehouse and Heritage had glass washing machines that bar-backs filled with 6-12 glasses and ran for approximately 7 minutes. We decided that replacing this piece of equipment with a dual function; washing and polishing would be the easiest way to incorporate a polishing machine into a space conscious environment. We also noticed the bar-backs taking out the rack of glasses and letting them cool down for a few minutes before polishing and stacking them which we considered inefficient as well.

During our preliminary sketches we designed a robotic system where you would load an entire rack of glassware into it and then it would polish and shin all of the glasses at once. However, after thinking of use cases for this design we quickly realized that it

would still take a lot of time for the bartender or bar-back to then rack each glass after it was done being polished. This machine was also very large, taking in an entire rack of glasses, which would be very distracting to the customer. We went back to the drawing board and ended up decided on an idea of a one in, one out system that would have the option to both wash and polish one glass at a time. This design was much more low profile so it was easy to keep right on the bar for the bartender to use. It was also much easier for the bartender to polish a glass as the customer needs it. They would never be able to do this now, since it takes so long for a bar-back to make sure a glass is completely polished to his liking, but now with our robot we have made that process much quicker allowing the bartender to handle the polishing.

Not only would having our robot improve efficiency and quality of polishing but also keep the bartender and bar-back safe from any broken glasses during the polishing process.



PROJECT 3: NOVEL INTERFACES PROTOTYPING

To best describe the usability and functionality of our robot we decided to create two personas display two different use cases that both bartenders and bar-backs run into on a daily basis. We first want to set the scene for the viewer so they can see the robot in use in a realistic environment. Unfortunately, due to legal and permit reasons we were not able to film at an actual bar. We set out to find the closest replication of a bar scene that we could get our hands on. Fortunately, we were able to find a good closed off area that had a counter top perfect to resemble a bar. Then we began the process of writing a script and finding personas that fit well with the functionality of our robot.

Our first persona would be when there is a normal rate of customers and a bar-back or potentially even bartender would need to wash and polish multiple glasses. Once the customer is finished with the glass the person operating the machine would simply have to stack the glass in a loading magazine. The machine would draw a glass to clean and polish one at a time. Once done the glass would roll onto a cooling rack to be used again. This would keep glasses in a useable state a higher percentage of time instead of all being washed at once and polished afterwards.

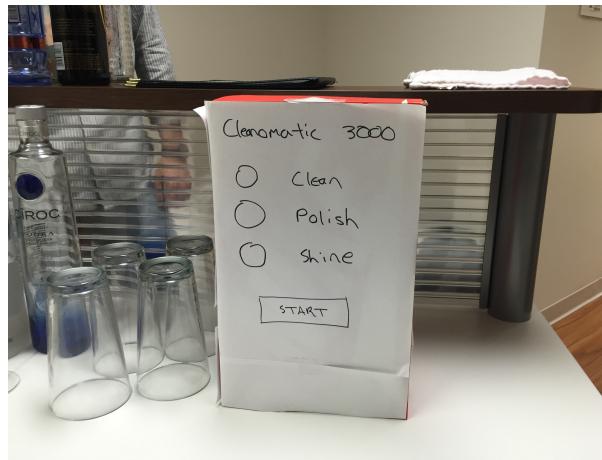
Our second persona would be when where a customer orders a drink that requires a specific glass for which there isn't any currently clean. This scenario was noticed several times in our ethnography and required the bartender to pick out a dirty and wash it by hand which took time. Our

machine would offer an on demand wash and polish feature that would allow for a single glass to be placed directly into the machine and processed. Having this one demand feature would free up the bartender to move on to other parts of the drink preparation such as gathering the necessary ingredients.

After writing a full script for both personas that described in detail how and why each user would use our robot, we started setting up the environment to make it look like a bar scene. We were able to bring in multiple bottles of liquor, different style of drinking glasses, bar menus, and of course our robot. After the scene was looking great and

resembling a bar quite well we began filming our first scenario but instantly ran into a major problem which halted production. We very quickly realized that none of us could act at all and due to our poor acting skills it would distract the viewer from the real message of our video.

Putting our minds together we quickly came to a solution that would make our video more professional and get across our point in a better way. We decided to shoot only still images of all interactions and events that happen, with this method of filming we can draw the viewer into exactly what we want them to see and then narrate exactly what is going on over the images. This created a much smoother style of shooting our video because we didn't have to waste time with constant outtakes and reshooting particular scene we would constantly mess up on.



PROJECT 3: NOVEL INTERFACES FINAL SOLUTION

After producing our video, we realized several elements to our design that we could improve on. At first we imagined a large dishwasher type machine that would polish six to twelve glasses at once but after realizing that counter space was limited at many establishments we refined our design to be slightly larger than a shoebox that would only process one glass at a time. As mentioned above, this would allow for both on demand polishing and also be designed for an add-on option that would permit users to stack glasses in a magazine for bulk glass polishing. We decided that the magazine loader would be a separate add on to appeal to a wider audience such as the home bars that wouldn't need bulk processing. In order to save additional room, we decided that a cleaning function could potentially be built in as well, making it perfect for smaller commercial establishments as well as the extreme home bars.



We hope that the on demand polishing function would have the capability to polish a glass in less than 20 seconds and have a clean and polish speed of less than 50 seconds. There would be a highly visible status light to indicate the remaining time left until the polishing is done so the bartender would feel comfortable enough to start on other tasks such as readying fruit or garnishes for the glass. This function would be especially useful for bartenders who have a sudden influx of customers and not enough time or personnel to run a full load of glasses through both a cleaner and polisher.

In addition to having the on demand polishing function we would design a magazine holder as an add on that would feed glasses one by one into the machine which would operate unattended and free up personnel. Currently traditional wash only machines take approximately seven minutes to complete a wash cycle. Current wash only machines wash six to twelve glasses at a time averaging 35 to 70 seconds per glass, depending on capacity. After calculating in an additional 45 to 60 seconds to polish each glass using a traditional washer we believe our machine would offer a substantial time savings. Our intent is to create a magazine holder compatible with a wide range of

cocktail and wine glasses but we do recognize that we may have to design multiple magazine or one with a range of adjustments to accept all shapes and sizes. An added benefit to a single wash and polish system with a magazine style feeder is that it allows glasses to cool down and be reused faster as compared to a traditional wash all at once design.

Lastly, the most important aspect to our system is safety. Through our ethnography we realized that polishing glasses, especially wine glasses, has a high risk of injury. Taking this step out of the bartender's responsibility will unquestionably make their job safer. Our machine would be tested to ensure tolerances are consistently maintained to prevent glass breakage yet still provide a quality end result. We would still design our machine to provide an easy and safe cleanup of broken glasses inside the machine as glass often has flaws creating weak points we couldn't account for.



PROJECT 3: NOVEL INTERFACES FINAL SOLUTION

