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## **SI 482: Updated Design Problem Statement, Team 11**

The problem that we are researching is transportation to and from class for temporarily disabled students on the University of Michigan campus. This community is underserved by the University and creating a better transportation infrastructure to support them would benefit not only students but also the University. We are targeting this specific audience because they are often left temporarily disabled unexpectedly; from injury or other factors. Kids are forced to quickly figure out how to live and be a student with unexpected barriers. This can be problematic for students, so creating a better interface and system around their transportation needs will ease their troubles.

Currently, there is the Paratransit service at U-M that provides transportation for these students. However, our research has uncovered that it is often difficult, inconvenient, and unreliable for students to use. The only way to schedule a ride is by calling 24 hours ahead of time to set schedule a pickup. Students are burdened by having to call ahead and plan rides in advance. If there was an interface like a mobile app where students can upload their schedule then not only will the student's ride be personalized, but it would also be easier for them to schedule multiple rides at once. Another problem is that the service was largely unreliable. Students have complained of drivers who have parked too far away from their current location, drivers who have forgotten to pick them up, and most frequently, of the fact that since there is only one bus that provides this service. If one student were late for pickup, it would delay future riders. The problem must be resolved to provide students with the help they need. We are suggesting that more vehicles be used to help solve this problem. The interface of the service that we are designing for the would have trackers so the students can track when their buses are near. We believe that a more interactive interface that allows for two-way communication between the passenger and driver will help alleviate the flaws we have found with the current service.

For this new design to be successful, we need to create an interface, online or in the form of a mobile app, that can easily perform the actions that these students need. This would include uploading your schedule with pickup times, bus tracking, GPS location for pickups and more. These features would be there specifically to help solve the problems we found with current services available: poor scheduling, unreliable transportation, and pick-up locations. We believe that this space has a lot of room for improvement.

### **Competitive Analysis:**

Our research has uncovered five factors that must be addressed for our design to be successful: scheduling pickups, pickup locations, the bus schedule, the status of bus feedback, and hours of operation.

First, we look into how our direct competitor, the U-M paratransit service, addresses these issues. To schedule a ride, students must call at least 24 hours ahead of time. Students must set their pickup time and pickup location, such as "South Quad", along with their drop-off location, such as "North Quad". Once done, students must wait outside at their scheduled time, without knowing where the bus will be and when it will show up. There are also frequent delays due to students being late for their pickup time, which leaves others waiting without any feedback. The service operates from 7:40 A.M. to 10:30 P.M., so rides after 6:30 P.M. and overflow rides are completed through Blue Cab, which is paid for by the university.

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A partial competitor can include MBus or The Ride. These are free transportation services that students have available to get around on and off-campus. An advantage of both these services is the live feedback through their respective applications and websites, which can provide notifications, such as changed or delayed routes. These two systems have set routes and schedules that are easy to find so that students can plan accordingly. However, students are turned off by this mode of transportation due to crowding, long distances to the nearest pickup location, and lack of schedule personalization. Temporarily disabled students are not their target niche, but they fall under their target population by being university students.

Our analogous competitor, Uber, also solves these problems but in a different way. Through the Uber app, users can schedule rides in advance or request one right as needed, so that the closest driver will pick them up. It uses geolocation off cellphones to direct the driver right to their current location and allows users to select drop-off locations from the map. Once a ride has been requested, a committed driver appears on the map with an ETA and the user's route. The flexibility in this service lends itself nicely as a backup plan for students who may miss the paratransit service due to the service's odd hours. Unfortunately, unlike the Blue Cab service that the university covers, students must pay for their Uber out of pocket which can be expensive.

## **Summary of Lessons Learned:**

After completing our competitive analysis, we have a good grasp on how we compare with other companies that provide transportation to a variety of users around the University of Michigan campus, as well as the strengths and weaknesses of each of these services. To differentiate ourselves, we need to ensure that our tool enables a relationship between the driver and user that is accessible for all types of users, regardless of physical ability. Additionally, the scheduling capabilities of our ridesharing featuring needs to be heavily based, and able to be predicted, on a user's class schedule. Long-term scheduling based on pattern recognition should promote ease of use.