Abstract:

* Brief intro to Abstract
  + Covid-19 has changed the world forever and because of this we need to change as well. Our goal at Safe Taxi is to design a vehicle that places safety and sanitation above all else, to allow for people to have the peace of mind when travelling without having to worry about the dangers of the Covid-19 pandemic
* Summarize points in paper
  + This presentation will:
    - Let us discuss what our product is, and what problem it is solving
    - Allow us to introduce you to the original product, that being a taxi
    - Evaluate how our product handles different criteria such as
      * Durability
      * Sustainability
      * Performance
      * Public Good
      * User Experience
      * Profitability
      * Affordability
      * Accessibility
    - Allow us to show the changes we made to the original product, in the three iterations leading to the final design
    - And finally show a piece of marketing we plan on using

Background:

Taxi’s/Uber’s are an essential aspect of society, it provides a means of transportation for the people. But due to Covid-19 the Taxi/Uber industry is dying down and has become very unsafe. Covid can be spread through the air particles we breath and through touch. The goal of our team is to reverse engineer the cars used in this industry and make them move Covid-19 safe and efficient car. The product’s function is to prevent touch and block bacteria in order to promote safety of the driver and passengers against Covid-19.The first motorized taxis were vehicles electrically powered, first making appearances in the streets of Europe and The United States in the late 1890s going into the 1900s. However, combustion powered taxis equipped with taximeters first made its appearance in 1907 and have dominated the design and market ever since. Now the idea of taxis was further adapted by large gross companies such as Uber and Lyft. Uber first launched in 2009 by two brilliant entrepreneurs known as Travis Kalanick and Garrett Camp. What started as an idea just a couple months prior now had turned into a service where customers could find a ride just with the tap of a button. The first ever Uber trip was requested on July 5, 2010. Ever since then, it has been nothing but a positive, upward trend for the company. In 2011, Uber announced its international launch, expanding to countries all over the world. From 2014 until 2019, Uber’s annual revenue grew from 0.4 billion dollars a year to the highest it's ever been at 14.1 million dollars a year. Now, in the first quarter of 2020, Uber’s revenue seemed to be increasing at a much faster rate than its previous years, but in the second quarter of the year, it all took a collapse once a global pandemic was announced and the entire world had entered lockdown. To put this in perspective, Uber’s revenue for the first quarter of 2020 was 3.25 billion dollars and in the second quarter was 1.91 billion dollars. Ever since the pandemic, Uber’s revenue has taken a drastic hit.

<https://www.britannica.com/technology/taxicab>

<https://www.businessofapps.com/data/uber-statistics/>

<https://www.uber.com/en-CA/newsroom/history/>

How does it work?

For Our Covid Free Taxis:

* A plexiglass divider installed between the front and back seats to reduce any sort of contact between the driver and passengers.
* Separate ventilation systems with ac/heating unit and HEPA filters so both driver and passengers don't breathe the same air.
* A Scanner device
  + Scans passengers' vaccine passports to identify the current vaccine status.
  + Checks for clients current temperature for any unusual symptoms
    - Once this process is complete the covid free taxis contactless doors will open.
* For Payment:
  + Contactless payment option, where passengers can pay for the service through the app to avoid any sort of contact in the vehicle.

For Covid Free Taxi Professional Drivers:

* Have to be fully vaccinated to be eligible to work.
* A daily screening assessment before the work shift policy implemented to help reduce the spread symptoms of Covid-19.
* Must wear a mask and have alcohol-based sanitary cleaning products available at hand.
* Vehicle is to be cleaned regularly at least 3 times a day unless a passenger is a medical patient, then the vehicle is to be cleaned right after use.

For Covid Free Taxi Passengers:

* Have to be fully vaccinated to be eligible to receive our services .
* A screening assessment before the ride policy is implemented to help reduce the spread of any symptoms of Covid-19 and must be taken to move on into selecting a ride.
* Masks must be worn throughout the duration of the ride.
* Use the sanitary products provided before and after and the ride.
* Passengers must be aware of the safety guidelines and are to be responsible for all of their personal belongings.
* <https://www.toronto.ca/home/covid-19/covid-19-reopening-recovery-rebuild/covid-19-reopening-guidelines-for-businesses-organizations/covid-19-guidance-taxis-ride-shares/>
* <https://eohu.ca/en/covid/covid-19-guidance-for-taxi-services-and-ride-sharing-vehicles>

Our taxis have been designed in order to completely keep the clients safe but regulations still have to be followed.For the drivers, they must be fully vaccinated in order to be eligible to work. A daily screening assessment must be completed before the work shift. A mask must be worn at all times while passengers are in the vehicle. For the passengers, they have to be fully vaccinated in order to use the service.A screening assessment will have to be completed as well as a temperature check and a confirmation of a fully vaccinated status which will be done by the driver. A mask must be worn throughout the duration of the ride.Passengers must be aware of the safety guidelines and are to be responsible for all of their personal belongings.

* <https://www.toronto.ca/home/covid-19/covid-19-reopening-recovery-rebuild/covid-19-reopening-guidelines-for-businesses-organizations/covid-19-guidance-taxis-ride-shares/>
* <https://eohu.ca/en/covid/covid-19-guidance-for-taxi-services-and-ride-sharing-vehicles>

The design features in the product include a plexiglass divider installed between the front and back seats to reduce any sort of contact between the passengers and drivers. Separate ventilation systems for the AC/Heating unit along with HEPA filters to provide clean, bacteria free air for both the driver and passengers. A scanning device which scans passengers' vaccine passports to identify their vaccination status, and if it is confirmed that the passenger is fully vaccinated only then will they be allowed to enter, a temperature check is also conducted during this process. For payment, a contactless payment feature is available where passengers can pay for the service through the app to avoid any sort of contact in the vehicle.

Limitations

Talk about how our product was effected about Covid-19 and how it limits it

* One limitation of our product is that if it is going to be used for UberPool. UberPool means that a group of people would be splitting the uber. Since the product separates the passengers and driver, it would be fine if the passengers were from the same household, but if they are random people, more separation would be required, the ventilation system would also have to be modified more based on the separation and the contactless payment option would have to be available for all passengers.
  + If more separation between passengers is needed then it is highly likely that in a five seater car the middle seat can not be used

Evaluation: (Section 1)

The team at SafeTaxi took many precautions when designing the SafeTaxi, as such they tested many aspects of the vehicle, specifically eight conditions, those being Durability, Sustainability, Performance, User Experience, Profitability, Affordability, Accessibility, and Public Good.

* Durability
  + Starting with Durability, the testing team found that our design did not have any effect on the durability of the vehicle, they did many of the crash tests done on normal vehicles and found that the SafeTaxi handled them just as well as any other car would. As for the devices that we added, the design team took great effort in ensuring that the devices were as Durable as possible, we only compromised in one area that being the replaceable seats which are made of paper. This decision was made in order to improve sustainability, by allowing for the seats to be recycled thus reducing the effect on the environment.
* Sustainability
* Performance

Evaluation: (Section 2)

* User Experience
* Profitability
* Affordability
* Accessibility
* Public Good

Iterations:

1st iteration:

* The first iteration of the design had the bare minimum to keep people safe and protected when using the taxi
  + It had contactless pay, as well as a contactless door, installed to make sure that people do not have to worry about have the virus passed on to them through direct contact
    - The contactless pay works by using an app on your phone ensuring maximum safety from the virus
    - The contactless door works by allowing people to wave their hand in front of the door allowing it to open on it’s own
  + We also installed the first design for replaceable seats, they take the form of plastic coverings that envelope the seats, once a passenger leaves they can be taken off and cleaned. They are designed to make sure that people do not have to worry about coming into contact with the germs of past passengers.
  + We also installed the first design of the passenger shield, taking the form of a clear vinyl pane separating the driver from the passenger. This ensures that airborne germs cannot be spread between the passenger and the driver.
  + Finally we also installed a highly sophisticated device that uses Ultraviolet light to disinfect all surfaces in the vehicle from Covid-19. Based on research done by the U.S. Food & Drug administration (**research found here:** <https://www.fda.gov/medical-devices/coronavirus-covid-19-and-medical-devices/uv-lights-and-lamps-ultraviolet-c-radiation-disinfection-and-coronavirus> ) We found that UV light can be used to disinfect surfaces of Covid.