User Guide

Background:

- Autonomous delivery is one of the important emerging technology for food delivery, e-commerce and retail companies.

- People living in cities expect immediate or schedule delivery of their food. There are bottlenecks as traffic is increasing daily. And with increasing orders we have to **increase delivery staff** as well, thus leading to **high operating cost** and increase in delivery time.

- It is stated that automated delivery can reduce the delivery cost by 80% to 90%. Companies are developing different type of ADV from sidewalk robot to autonomous truck with focus on solving the last mile delivery problem as it is considered to be 50% of the overall cost.

Problem

Why we are here?

- The operational cost for last mile delivery is considered to be very costly. Salary of delivery person, fuel expenses and late deliveries all affect the last mile delivery.

- This operating cost can be reduced by using automated vehicles such as robots for last mile deliveries.

- These robots can walk alongside walk, cross streets, stop at crossings and can even walk up or down the steps.

What are others doing? (**Competitors**)

- With companies like Uber which have already started testing of drone delivery and Grubhub in testing phase of delivery robots, it’s about time we innovate and get into tech delivery space.

Grubhub:

- Grubhub is a customer acquisition company where they focus on getting restaurants and customers on their platform. Its an online food delivery platform that connects diners with local restaurants.

- Grubhub has less complex and more intuitive Grubhub central app where you can manage menu, process order, review operations and finances. Grubhub is pilot testing both drone and robot deliveries in urban environment.

- The market share of grubhub was 34% in 2018 and has decreased to 30% in 2019. It is been predicted that the market share will be decreasing moving forward with increasing competition. Grubhub has been acquiring smaller outfits and growing its logistics capabilities. Just take away may buy gruhub for $7.5 billion.

Sources:

- https://www.statista.com/statistics/1080850/market-share-grubhub-us/#:~:text=In%202018%2C%20food%20delivery%20company,to%2029%20percent%20by%202022.
- https://www.pymnts.com/news/delivery/2020/grubhub-mulls-sale-as-market-share-dips/, https://fortune.com/2019/03/11/doordash-tops-grubhub-on-demand-food/

Uber Eats:

- Uber eats is an online food ordering and delivery platform launched by Uber.

- Some features of uber eats include smart curation, ordering food in advance with pre order option, an analytics app which helps in data driven decision to finetune food quality, delivery strategy and optimize user satisfaction, real time GPS tracking.

- Uber eats has been experimenting robot delivery with help of Kiwi and drone delivery with VOXL. They are using cloud services and 4G to communicate between drone and Uber.

- The market share of Uber eats is 24% as of 2018 and is predicted to increase by 3% to 27% by 2022. The revenue of Uber eats in 2019 was $1.9 billion. Although its revenue is increasing, its projected losses of $1.1 billion. Although uber eats has sold its operations in India, it’s still standing strong in Europe and USA and has been scaling its operation by moving to smaller cities.

Sources:

- https://sifted.eu/articles/uber-eats-future-of-food-delivery/, https://www.statista.com/statistics/1080844/market-share-uber-eats-us/#:~:text=In%202018%2C%20food%20delivery%20company,to%2027%20percent%20by%202022., https://www.businessofapps.com/data/uber-eats-statistics/
- https://techcrunch.com/2020/05/07/uber-eats-grew-like-hell-in-q1-but-ubers-still-lost-nearly-3b/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAABGCuB0If-HO2hqWMsl4usdyaKzUrf2b90ieYKXh6Us9KLdsXIvFbcd2neTskgU8y6oLMBUcUR4qSwIDj-cIrA-XaNobyok5LC2v_7usmQKcM_eL_dzRskj-yIeZPQJEe7Yvx53drC6WndVeTgjXfZzSj-ko2V2RaKjb94pr0KO6/

What can we do?

- Using delivery robots instead of human personal we can save huge operating cost in terms of their wages and can also save in last mile delivery costs. As Doordash ventures into robot deliveries we need a tool to operate them in an increasingly complex environment make deliveries safely, efficiently and on time

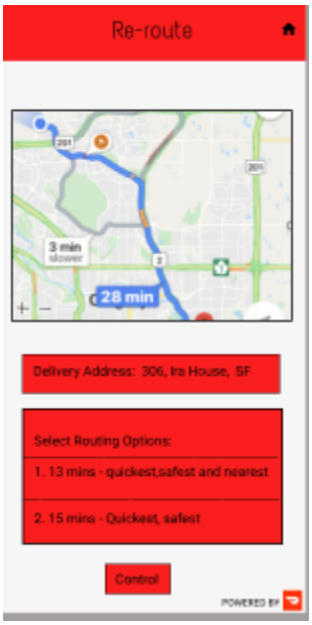
Details:

Controlling the robot:
This will help user control the robot as needed giving them functions such as moving forward, backward, turning left or right. This control option will be present on re-route and status page as well to help user navigate and re-route accordingly.

The operator can see the small screen showing the obstruction faced by the robot. It has option for rerouting and controlling the robot. The application has an option to select the camera view. When selected for rerouting, pushed to the page where routing options available. When selected control, pushed to a page were controls are available.

Re-route the robot - This will help user select the re-routing options available according to specifications such as quickest, nearest and safest. This reroute option will be present on control and status page as well to help user navigate and control situation properly.

The operator upon choosing re-routing function can see routing options. The routing page has Map of all the possible options or routes to select from. It showcases the option numerically and according to quickest and safest route. The page also gives option for controlling if needed.



- Status - This lets user to view the status of delivery along with options of reroute and control if needed.