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### Background

Last-mile delivery is the most expensive part of the supply chain for the food delivery industry. With the continuous development of technology, robotics and autonomous driving technology are becoming more and more mature. People have begun to use robots instead of humans to deliver foods. Robots can better handle single and repetitive tasks. The food delivery robot can not only improve the reliability of food delivery services to a certain extent, but also effectively reduce labor costs. As the leader of the market, Doordash decides to use robots for food delivery service.

### Problem

Although robots have been able to handle simple food delivery tasks, there are still some bottlenecks in related technologies. Unexpected circumstances will inevitably occur during the food delivery process. Neither the maturity of the technology nor the acceptance of the society has been able to allow robots to completely replace human labor for food delivery services. Currently, manual intervention is still necessary, and in the future, we need to continuously track and control the robot. Hence, the problem we need to solve is how to enable humans and robots to better collaborate, while reducing human resources, to maximize the role of robots.

### Goals

* Add path planning functions and intelligent obstacle avoidance capabilities for Doordash's food delivery robot to ensure that the robot is more stably and efficiently
* Develop a human-machine interaction platform to ensure that the courier is able to monitor and track the status/position of the robot, and also manually remote the robot when it's necessary.
* Develop a safety alarms system for robots, so that couriers can effectively solve the special situations and problems encountered by robots.

### Key Features

P0 = we shouldn’t launch the product without it

P1 is not launch blocking but nice to have and potentially a fast follow after launch.

Anything higher will likely not be built in a reasonable amount of time

* P0: Self-drive and Traffic recognition
* P0: Real-time video of the surrounding environment
* P0: Remotely take control of robots
* P0: Delivery and robot status tracking
* P1: Abnormal alert and safely control
* P1: Transaction and purchasing record
* P2: Provide alternative options for route navigation

### Success Metrics

* Reduce total food delivery costs by 15% in 1 year
* Enhance the maximum delivery capacity by 30% in 1 year
* Increase the number of users ordering by 20% in 1 year

### Target Market

* Target audience: Doordash delivery man who is looking for improve the reliable delivery times with less labor effort.
  + Revenue in the Online Food Delivery segment amounts to US$26,527m in 2020.
    - <https://www.statista.com/outlook/374/109/online-food-delivery/united-states#market-arpu>
  + DoorDash captured 33% of the U.S. market in 2019
    - <https://www.cnbc.com/2020/01/17/doordash-took-the-lead-in-the-food-delivery-wars-in-2019.html>
  + About US$8753.91m and 36.86m users
* Target market: All fast food delivery service within 2 miles.
* Competitors: (Traditional food delivery companies & Delivery robots )
  + Uber Eat: Uber Eat contains 19% of the U.S. market share in 2019, which is about US$5040.13m and 21.22m users
  + Starship Technologies: The delivery robots market is expected to grow from US$ 11.9m in 2018 to US$ 34.0m by 2024. As the leader of the field, Starship Technologies has more than 100000 deliveries completed.

### Pre-launch checklist

* Get legal approval: Make sure the product has not legal risk or issues.
* Create a launch progress: Make sure all functions and team members are involved, also have a clear schedule plan about the launching
* Launch strategy: Make sure the launch pattern is define properly
* Feedback collection: Make sure the channel for collection of user feedback is ready, and necessary data burial points are set. (Prepare A/B testing is necessary)
* Sales and customer support: Make sure the sales and customer support know enough information about the product, and able to service well for our user
* User guide: Make sure the product have a decent user guide ready, and users may easily access.
* Technical support: Have engineering support on call in case of emergency
* Announcement: Prepare for internal and external announcement, write a launch email that involve all team members and shareholders.
* Bring donuts: Celebrate with all team members and thanks for everyone’s hard work.

### Risk Analyst

* Development costs are too high: The development cost of Auto Dash Dasher is very high. This is a concept product, which has low ROI, but huge potential value. We need to make sure we have enough funding at beginning.
* Robot maintenance is difficult: The product relies on many high edge technologies, include software, hardware and operation. It’s necessary to preinstall a protection and warning function, also a maintenance center for the product.
* Low user acceptance: Since the product is very advance, we need to consider the situation that some user feel uncomfortable to work with robot. (especially for food delivery). It’s necessary to pay attention to social acceptance as promoting products, at the same time find innovative users.

### Test

* Develop a voice message feature. The delivery man can pass a voice message though the robot. If there are emergency happened, the delivery man can explain or ask for help through the robot.
* Testing separate the system to two groups
  + Control group – does not contains the voice message feature
  + Variation group – does contains the voice message feature
* Success metric: Increase the success rate of food delivery task by 15%
* Hypothesiss: The variation group will have higher success rate of food delivery, about 10% of issues during the delivery can be solved. Also, delivery man can leave a message to his/her customer, which may improve humanize of the service, and increase customer reuse

### Core UX Flow

https://www.figma.com/file/HAT0jwXhktjJE561cFcnjg/Auto-Dasher-2?node-id=0%3A1