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### Background

Over the years, there has been an increase in the usage of service robots for many domestic and industrial needs. They are deployed in a wide variety of applications ranging from simple household to a complicated medical environment. Service robots powered with artificial intelligence, using computer vision and deep learning, have also entered into logistics and delivery services, where they can make nearly human-level intelligent decisions. This creates a greater opportunity for companies to automate their operations to a great extent.

### Problem

Small deliveries have always been a pain area for DoorDash due to its higher operating costs and low returns. This is also a problem for human dashers who would not get a fair tip for their service and also for the customers who hesitates to make small orders from restaurants. These problems exist for the competitors as well, but we would be in the upfront if we start focusing on this segment now. We could convert this problem into an opportunity by automating the delivery process using service robots instead of human dashers. We assume that there could be lots of potential interests from customers to make small orders if they don’t get the feel of being judged. A service robot meant mainly for small deliveries would give them the comfort they need and this would reduce the delivery and service charges from their total amount. Small deliveries here mean, an order with just one or two inexpensive items, like for example, an order with just a dessert or a snack. From the companies perspective, the operating costs of service robots would be insignificant compared to human dashers. This allows Human dashers also to focus on bigger and long distance delivery orders which could get them a decent better tip for their service.

### Goals

* To build an app for the operations team
  + to track and control the robots
  + to view the status of their deliveries
  + A positive feedback from the operations team and the users in customer support team
* To increase number of small orders that are apparently delivered by robots
* To receive more positive reviews and ratings from the customers / restaurants for the support offered by the operations team

### Key Features

|  |  |  |
| --- | --- | --- |
| Priority | Feature | Description |
| P0 | Sign-in with employee ID | The users are in the operations team of Door dash. The expectation is that they hold a valid company email ID or employee ID, which they can use to login to this app |
| P2 | Direct link to ‘IT Support’ in login page | There must be a direct link from login page to connect to ‘IT Service’ department, in case of any issues with logging in.  This feature is not very critical to be in the software and the user can directly call the IT support. However, this can be considered as a P2 priority feature that can be implemented later. |
| P0 | List of all tasks in the main menu | There must be a main menu that shows the list of all tasks that the operations team can do using this app.  Organized list would help them go directly to the required pages. |
| P0 | Check status of delivery | Operator must be able to enter just the customer’s registered email ID or phone number to retrieve the status of the active order of a customer. |
| P0 | Track status of the dasher delivering the active order | The operator must be able to track the exact position of the robot dasher who is delivering a particular order. He should also read the estimated time of arrival at the destination. |
| P1 | Track live status of the robot (that is delivering an order) on a map | The operator must be able to view the current position of the robot dasher in a map and could see the live update as and when the robot is moving. |
| P1 | Control Route guidance of the robot delivering an order | From the tracking status of a robot dasher, the operator would be able to control the robot   * To change its route guidance |
| P2 | Add a new job in the queue of the robot delivering an order | From the tracking status of a robot dasher, the operator would be able to control the robot   * To add a new job into its queue |
| P2 | Read logs from robot delivering an order | From the tracking status of a robot dasher, the operator would be able to control the robot   * To read its error logs |
| P3 | Enter user feedback for a particular order | From the tracking status of a robot dasher, the operator would be able to enter user’s / customer’s feedback for that particular order |
| P1 | Track status of any dasher | From main menu, operator should be able to track the status (job status/location) of any robot dasher by inputting the unique ID of the dasher |
| P2 | Assign job to robots | From main menu, operator should be able to assign a job to any robot dasher. He can input Restaurant ID and can search for all robots nearby. On clicking any robot, he can assign a job to that robot. He can sort the list of robots using its ‘distance to Restaurant / job status / battery status’ |
| P1 | Control robots (Route guidance) | From main menu, operator should be able to control any robot dasher. He can input the robot ID and can   * change its current route, if it’s active on a job |
| P1 | Control robots (open trunk) | From main menu, operator should be able to control any robot dasher. He can input the robot ID and can   * Open the trunk of it |
| P1 | Control robots (control Alarm) | From main menu, operator should be able to control any robot dasher. He can input the robot ID and can   * Control Alarm of the robot |
| P1 | Control robots (Manual guidance) | From main menu, operator should be able to control any robot dasher. He can input the robot ID and can   * Guide manually by pulling it over on the side street |
| P1 | Control robots (control power) | From main menu, operator should be able to control any robot dasher. He can input the robot ID and can   * Control power of the robot |
| P2 | Read logs from robot | From main menu, operator can search for any robot by entering a robot ID and could   * Read latest logs from robot * Read battery status * Read older logs from robot * Clear the logs in the robot |

### Success Metrics

* For the App being developed: To receive more positive reviews from operations team in terms of usability and ease of supporting customers using this tool/App. To receive 4 star rating from users of operations team.
* Because of a better support offered by the operators, there must be an increase in the small food orders or deliveries from the customers by 20%

### Target Market

**Target Users of the App**: Operators within DoorDash company who want to view the status of any food deliveries made using DoorDash and to remotely take control of robots that need intervention.

**Customers**: Customers are the real Doordash customers who have ordered food online and would like to know the status of deliveries using customer call-center/ support or the customers who like to call the support just to make a new order for food.

Target users are catering to the needs of end customers using this tool / app.

### Core UX Flow

[Prototype](https://www.figma.com/proto/U9uLu0BXXEoImLLSBFSAld/Monitoring-and-controlling-robots?node-id=94%3A6853&scaling=min-zoom)

### Total Addressable Market (TAM)

**Top-Down TAM**:

SF Population: 883,305 as on 2020

Homeless Population : 8597 estimated [Ref: hsh.sfgov.org link given below. 8035 were homeless as on 2019. Added 7% figure and obtained 8597 for 2020]

Average amount spent on food delivery per buyer per year : 579.76$ [Ref: rakutenintelligence link given below]

**TAM calculation (Top down):** (883,305-8597)x579.76 = **$507M**

**Bottom-up TAM:**

we consider the number of households instead of the total population. This could also be estimated with ‘Age’ statistics, but for simplicity, I have just considered only households here.

SF Households : 359,673

Per-order value: $36.59 on average

Approx. number of orders per year: 10 [assumption: approx. 1 order per month. Most of the bigger cities like New York / Boston have more than 10 orders per year. For SF, I have just considered the figure of 10]

**TAM calculation (Bottoms Up):** 359,673 x $36.59 x 10 = **$132M**

Actual case specific to DoorDash:

Percent of food delivery orders done using DoorDash : 26.1%

market share : $132M x 26.1% = $35M

But this is not a TAM value. This is just a figure to know how much we can expect / target based on the current scenario

**Assumptions**:

* DoorDash offers delivery services to all customers across United States and Canada. But for this project, since we roll out the robot dashers initially in San Fracisco, CA, I’d like to estimate the TAM within SF first. This would give me an idea what to expect as returns on initial launch
* For bottom-up approach, it is assumed that there will be one food order per household (to estimate the worst case TAM figure)

**References**:

<https://worldpopulationreview.com/us-cities/san-francisco-population/>

<http://hsh.sfgov.org/wp-content/uploads/2019HIRDReport_SanFrancisco_FinalDraft.pdf>

<https://www.rakutenintelligence.com/blog/2019/food-fight-doordash-starting-to-edge-past-uber-eats-in-battle-for-food-delivery-market-dominance-1>

<https://www.statista.com/statistics/259191/ordering-takeout-delivery-from-restaurants-in-the-us/>

### Competitors

**Postmates**:

Revenue: $1.2B as on 2018

Number of deliveries made : 35 Million

Number of cities operated: 2940 US cities

Number of US households that Postmates is available to : 30 Million

**Ubereats**:

Estimated Annual revenue : $2.5B

Actual revenue (worldwide) : $1.46B as on 2018

Number of users: 91 million monthly active users of the platform

**Assumptions**:

No assumptions made in the above analysis. All figures are in the reports given in the references below. Only point to be noted is all the figures above are as on 2018.

**References**:

<https://www.owler.com/company/ubereats>

<https://craft.co/ubereats/revenue>

<https://www.foodabletv.com/blog/uber-eats-data-and-financials-have-been-unveiled-in-ubers-ipo-prospectus>

<https://en.wikipedia.org/wiki/Postmates>

<https://postmates.com/EconomicImpactReport.pdf>

<https://expandedramblings.com/index.php/postmates-statistics-facts/>

### Acquisition Channel Strategy

Channel 1: Advertisements through Facebook, Twitter, Youtube

Reason why this channel would work for the product:

Social networking reaches to wide range of customers. DoorDash has reached many customers through Facebook and Youtube in the past. This would be the right channel to advertise our new products to the market.

Channel 2: Promotion emails to all existing customers (vendors or restaurants, customers and dashers)

Reason why this channel would work for the product:

Existing customers are the solid base for our future growth. Its easier and quicker for us to test a new feature and get quick feedback from them. They have the confidence in our existing service and would like to get new services too.

Channel 3: Advertising on Blogs (DoorDash, influencers, SEO optimization)

Reason why this channel would work for the product:

More details can be explained in the DoorDash blogs. How to use features, user guide, etc can be easily shared in the blogs.

All these channels above would bring to the attention of all existing and new potential customers that DoorDash has been introducing robot dasher service in the market. Further DoorDash has included a fail-safe mechanism by adding technical and customer support that has access to high-end tools and application which could help the end customers.

### Marketing Guide



### Pricing Strategy

Pricing:

This App is meant only for internal operations team and is available free to be used within DoorDash’s AppStore.

Revenue Goal:

There would not a direct revenue earned out of the usage of this fleet management app. This is meant to be used by the internal operations team to track or control the robots on job. However, this tool should influence the revenue indirectly, by increasing the number of deliveries especially in the small food delivery segment (because of the increase in the number of robots employed). Increase in the number of deliveries is influenced by less number of issues in the field and a best operations support from the team in case of issues.

### Pre-Launch Checklist

|  |  |
| --- | --- |
| Teams to interface with | Discussion item |
| Technical Writer | To get help on writing ‘Learning /Help center information and articles’, ‘Guidance article for the Customer Support team’, ‘User Guide’, ‘Release notes’ |
| Engineering | To get support on the launch day for any technical issue |
| Representative from Operations and Customer Support / Product Specialists | To get feedback on the features planned and developed before rolling out to the entire operations team within the organization.  To interact with the customer support post-launch to get feedback on their level of support and the customer satisfaction index |
| Marketing | To interact with Marketing team to know the impact of the tool on the overall food ordering behavior of the customers |
| Leadership / Management | To keep them in the information loop (to show a big picture on the status of the Launch) |

### Risk management

|  |  |  |
| --- | --- | --- |
| S.No | Risks | Mitigation |
| 1 | Network issue between the app used by the operator and the robot in the field | * High bandwidth, dedicated connectivity established for communication with robots * Redundant communication channel planned * Possibility to trigger the field support team to check on the status of the robot manually |
| 2 | Irrevocable damage or technical issue in the robot on job (that couldn’t be controlled from the App) | * Possibility to pass the order to another robot dasher / human dasher in the vicinity * Information sent to the field support team to address the issue in the robot immediately |
| 3 | Technical issues when we roll this App out to the global operations team | * Discuss with the Engineering team to confirm that our system can handle the extra pressure of the market expansion, is the solution / system stable enough and scalable |

### Training Guide



### User Guide



### Post-Launch iteration

Problem identified:

There are customer reported issues in 25% of the food deliveries executed by the robots.

Assumption made:

They are caused by the technical issues in robot. Robot malfunctions.

Root cause:

It is observed that there are customer reported issues in couple of deliveries made by robots. The operations team were not informed about this issue on time, thereby leading to the delay in the food delivery. It’ll be too late by the time the operations team are being informed about the robot malfunction.

**A/B Testing:**

Solution / proposal:

Currently the tool is designed in a way to track the status of a robot only on request basis. Requests to check the status of robots are generally due to a complaint call from the customer asking for the status of their food. This delay must be avoided and any field issues because of robot malfunction should be automatically informed immediately to the operations team. A notification feature needs to be installed in the app which would inform the operations in case of any issues with the robots.

Success metrics:

Reduction in the customer complaint calls because of technical issues with robots to less than 5%

For the users in the control group (50%):

we will do nothing (group A). They still work with the App without notification mechanism

For the users in the variant group (50%):

We add the notification feature that notifies the operation team immediately on any issue with the robots on job (Group B)

Our hypothesis

There should be atleast 50% reduction in the customer complaint calls because of technical issues with robots

### Launch Email

