

# Auto Dasher

Design Sprint

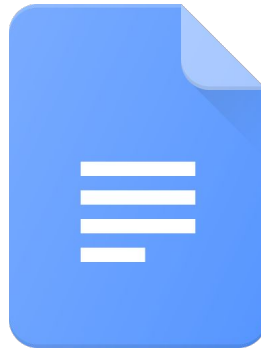
**Product Manager: Ying Shan**



# Set the stage

Set the stage for the Design Sprint by framing the problem

# Initial PRD



Link your PRD

# Understand

Create a shared understanding of the space, problem, and goals

# How Might We

Use these digital stickies to capture your ideas. Feel free to rearrange. Colorize. Etc

How might we  
get feedback  
rate

How might we  
get award if  
emergency  
happened

How might we  
confirm the  
item has  
successfully  
delivered

How might we  
track the  
delivery  
progress

How might we  
get delivery  
fee

How might we  
improve the  
speed of robot

How might we  
keep the food  
warm

How might we  
remote the  
robot

How might we  
handle bad  
weather

How might we  
improve the  
reliability of  
robot

How might we  
monitor the  
robot

How might we  
confort  
customers  
who don't like  
auto service

How might we  
let customers  
to trust robot

How might we  
help  
customers if  
robot don't  
work properly

How might we  
inform  
customers if  
the robot get  
lost

How might we  
let customers  
to get their  
foods

How might we  
teach robot to  
understand  
human  
language

How might we  
schedule the  
delivery time  
for multiple  
robots

How might we  
maintain the  
robot

How might we  
teach people  
to collaborate  
with robot

How might we teach users to interact with humans?

How might we teach robots to avoid trouble?

How might we make robots not scary for dogs?

How might we keep vermin away from the robots?

How might we keep robots odor free, even when carrying smelly food?

How might we make routes more efficient?

How might we use robots to make people excited about our brand?

How might we have robots entertain customers at delivery?

How might we have robots signal distress when something goes wrong?

How might we give robots a personality?

How might we share robot progress with consumers?

How might we teach robots to avoid obstacles?

How might we move robots to a safe place before stopping?

How might we make our robots tamperproof?

How might we change robot's appearance?

How might we see real-time traffic on the route?

How might we communicate with humans around the robot?

How might we monitor robot progress?

How might we confirm that the robot is at the right address?

How might we anticipate mechanical failures?

How might we teach robots manners?

How might we handle edge case issues that may arise?

How might we ensure food gets delivered without incident?

How might we control robots?

How might we deal with accidents that might occur?

How might we alert consumers if their delivery is delayed?

How might we determine when to recharge robot batteries?

How might we establish preferred routes?

How might we determine the best area for launching this program?

How might we allow users to help us with tracking and feedback?

How might we mitigate accidents between robots and pedestrians?

How might we train our operations team on monitoring and controlling a robot?

How might we use existing technologies?

How might we track each robot?

How might we collect data about where the robot got stuck?

How might we get food to people quickly when the robot fails?

How might we use greener energy to power our robots?

How might we leverage existing tools to better track our robots?

How might we create ML/AI models to help robots learn to get better overtime?

How might we build redundancy into our system?

How might we detect when a robot needs help?

How might we overcome technical glitches during a delivery?

How might we program robots to address customer returns?

How might we enable "emotion" modes in robots?

How might we Increase robot speed?

How might we streamline communications between operators and robots?

How might we address a sudden power outage?

How might we program robots to address delays in deliveries?

How might we enable robots to interpret and speak different languages?

How might we make interacting with robots more fun?

How might we allow robots to detect real-time traffic patterns?

How might we prepare robot to handle deliveries to persons with disabilities?

How might we accept tips that some customers may want to give a robot?

How might we enable robots to detect missing items in the order during pickup?

How might we make our robots act like people?

How might we alert operators of need for robot intervention conveniently?

How might we program robots to address order cancellations?

How might we teach empathy to robots?

How might we enable robots enter a crowded restaurant to pickup food?

How might we help robots talk to people?



# [Robot]

How might we maintain the robot

[Maintain]

How might we keep the food warm

How might we keep robots odor free, even when carrying smelly food?

[Container]

How might we enable robots to interpret and speak different languages?

How might we help robots talk to people?

How might we teach robot to understand human language

[Voice interaction]

How might we teach robots to avoid obstacles?

How might we make routes more efficient?

How might we allow robots to detect real-time traffic patterns?

[Route Optimization]

How might we improve the reliability of robot

How might we improve the speed of robot

How might we increase robot speed?

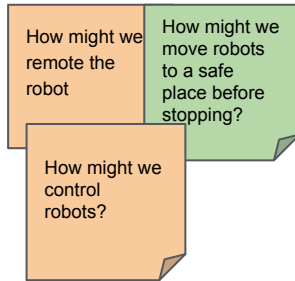
How might we handle bad weather

How might we use greener energy to power our robots?

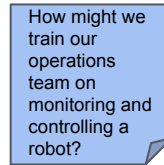
How might we make our robots tamperproof?

[Hardware Performance]

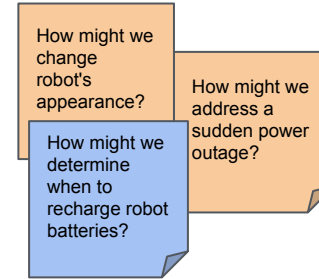
# [Collaboration system]



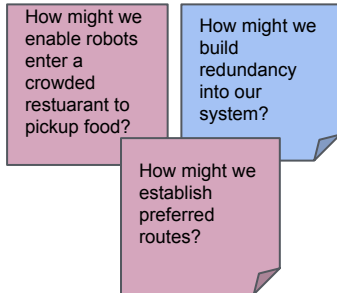
[Remote]



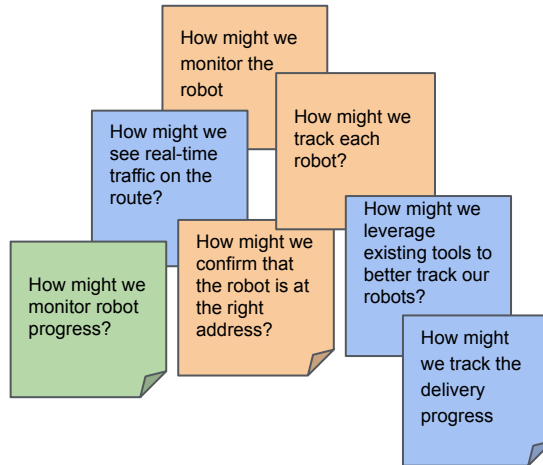
[Training]



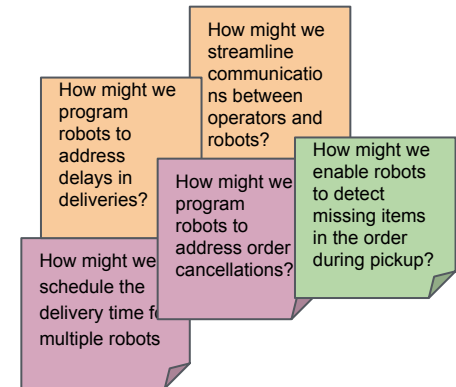
[Device attribute]



[Route planning]



[Tracking]



[Operation]

# [Customers service]

How might we prepare robot to handle deliveries to persons with disabilities?

[Special service]

How might we get feedback rate

How might we confirm the item has successfully delivered

How might we allow users to help us with tracking and feedback?

[Feedback]

How might we program robots to address customer returns?

How might we let customers to get their foods

How might we have robots entertain customers at delivery?

How might we share robot progress with consumers?

[Customers inform]

How might we get delivery fee

How might we accept tips that some customers may want to give a robot?

[Payment]

How might we teach people to collaborate with robot

How might we confort customers who don't like auto service

How might we make inertacting robots more fun?

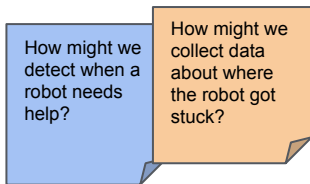
How might we teach users to interact with humans?

How might we let customers to trust robot

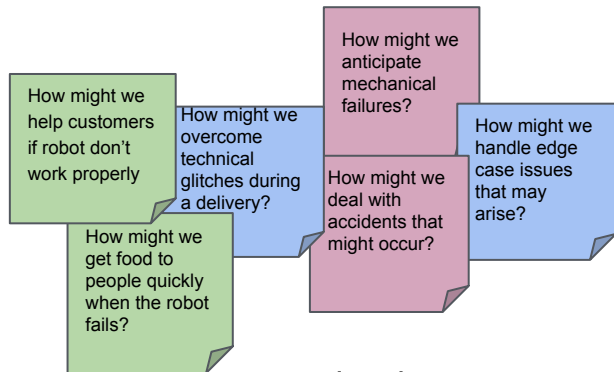
How might we communicate with humans around the robot?

[Customer Acceptance]

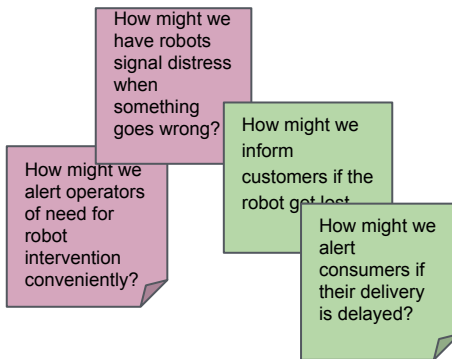
# [Risk & Mistake]



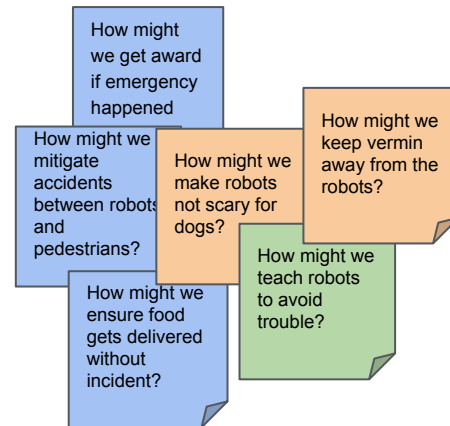
[Forecasting risk]



[Deal risk]

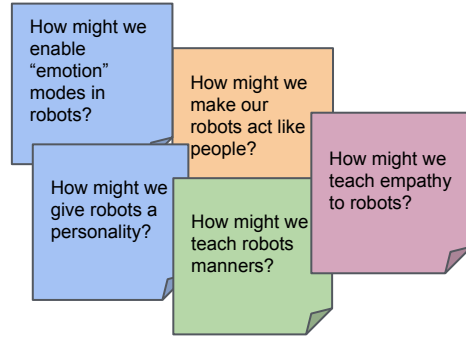


[Risk warning]

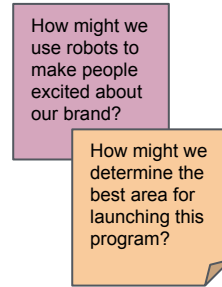


[Aviod risk]

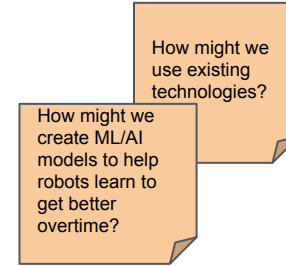
# Others



[Personification]



[Marketing]



[Technologies]

# Sprint Focus

<b>Focus</b>	Collaboration System
<b>Slide #</b>	Slide #10
<b>I selected this theme because</b>	<p>Collaboration system is the primary part of the product. This part closely related the advantage of our product.</p> <p>Other parts of the product are relatively independent, while the collaboration system covers the most functions of the product. In addition, the MVP can be validated with the collaboration system.</p>

# Define

With an understanding of the problem space, create focus and align on specific outcomes for the Design Sprint

# Success Metrics

- Set at least two user-centered *goals*
- Identify changes in user behavior will *signal* success in reaching the goal
- Create a *metric* to measure each signal

	Goals	Signals	Metrics
Happiness	Save time and labor force for courier	Achieve basic food delivery performance & income target	Avg. time to reach delivery performance & income target
Engagement	More quantity of delivery	Delivery Request	Avg # of delivery per day
Adoption	Share with other courier	The useage of robot for delivery	The total amount of robot usage
Retention	Courier like to work with robot	The courier who has already used the robot has applied for another	Reuse rate of food delivery robots
Task Success	Reliability of delivery time	Waiting for receive the delivery	Avg. time of waiting for delivery



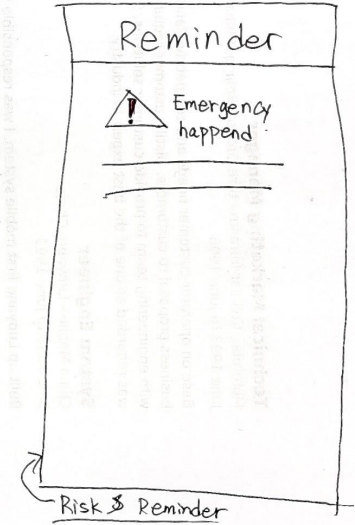
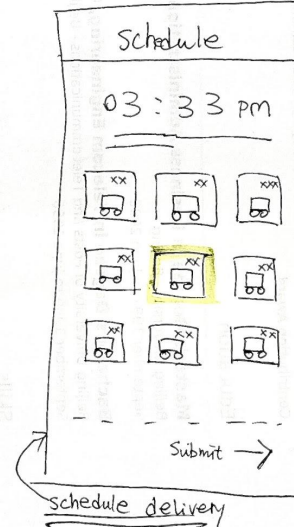
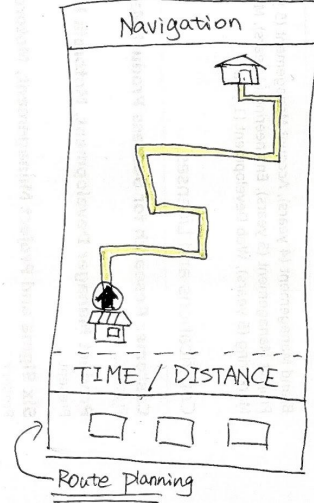
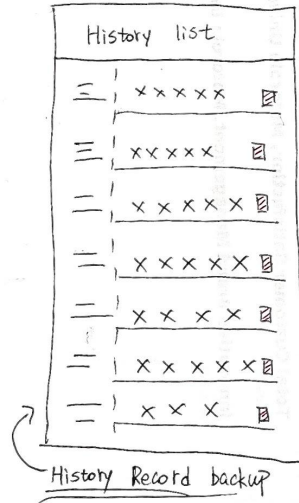
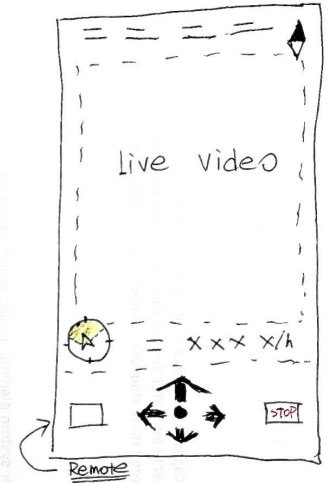
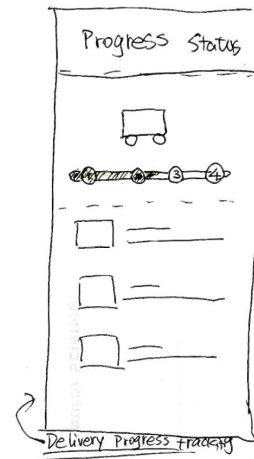
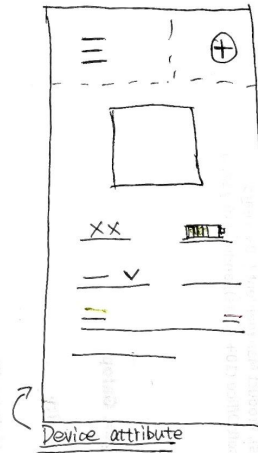
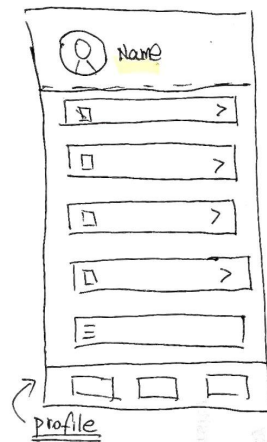
# Auto Dasher - The Future of lifestyle

- This is amazing because it is Fast and reliable delivery service like never before. How could I live until now without Auto Dasher? This is simply the gospel of the food delivery staff. You can complete meal delivery service and get income without leaving home. Work anywhere, anytime, regardless of weather and time.
- I love Auto dasher because it is changing the way people live with technology. This is a big step forward of the collaboration between machines and humans. It will effectively improve the quality of life and productivity of workers.

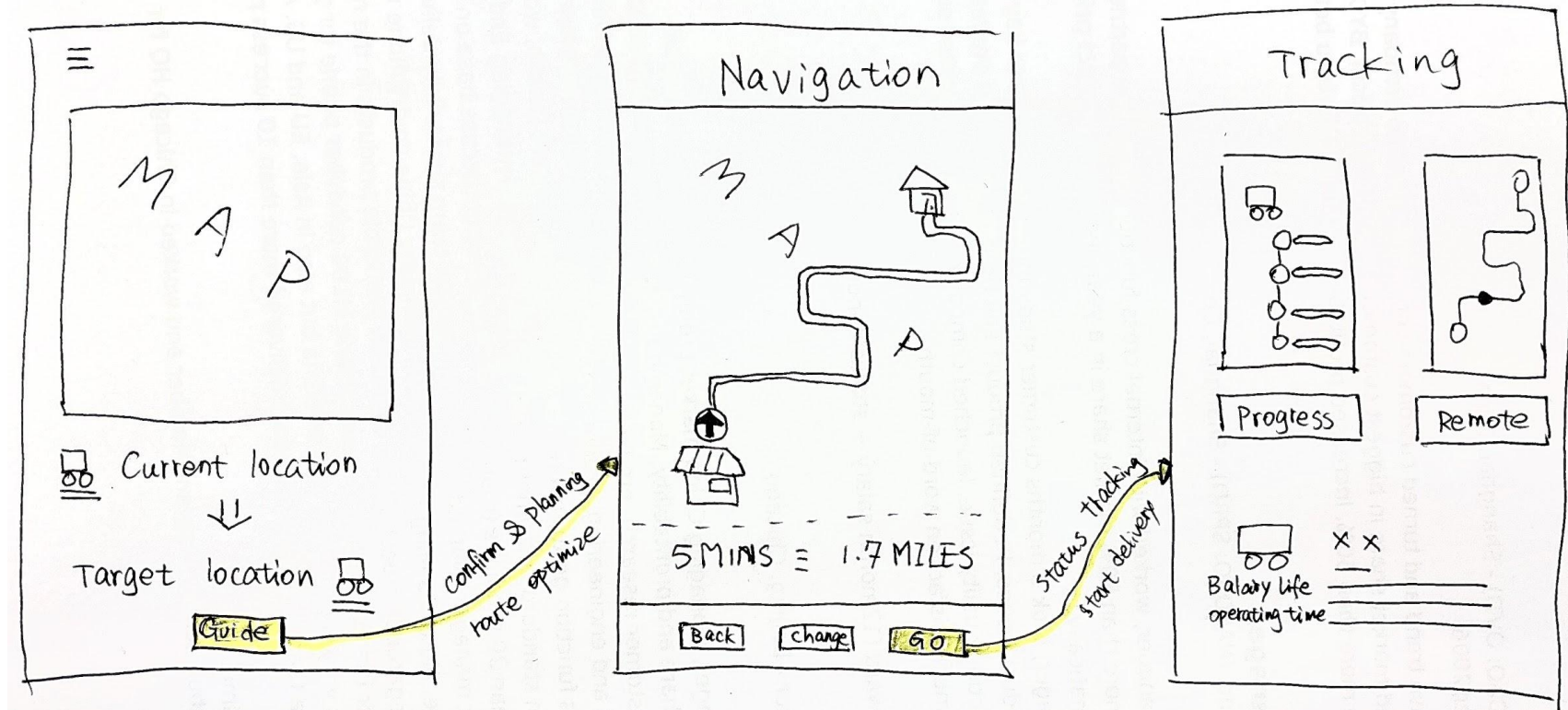
# Sketch

Generate tons of ideas, then narrow them down to two in depth solution sketches

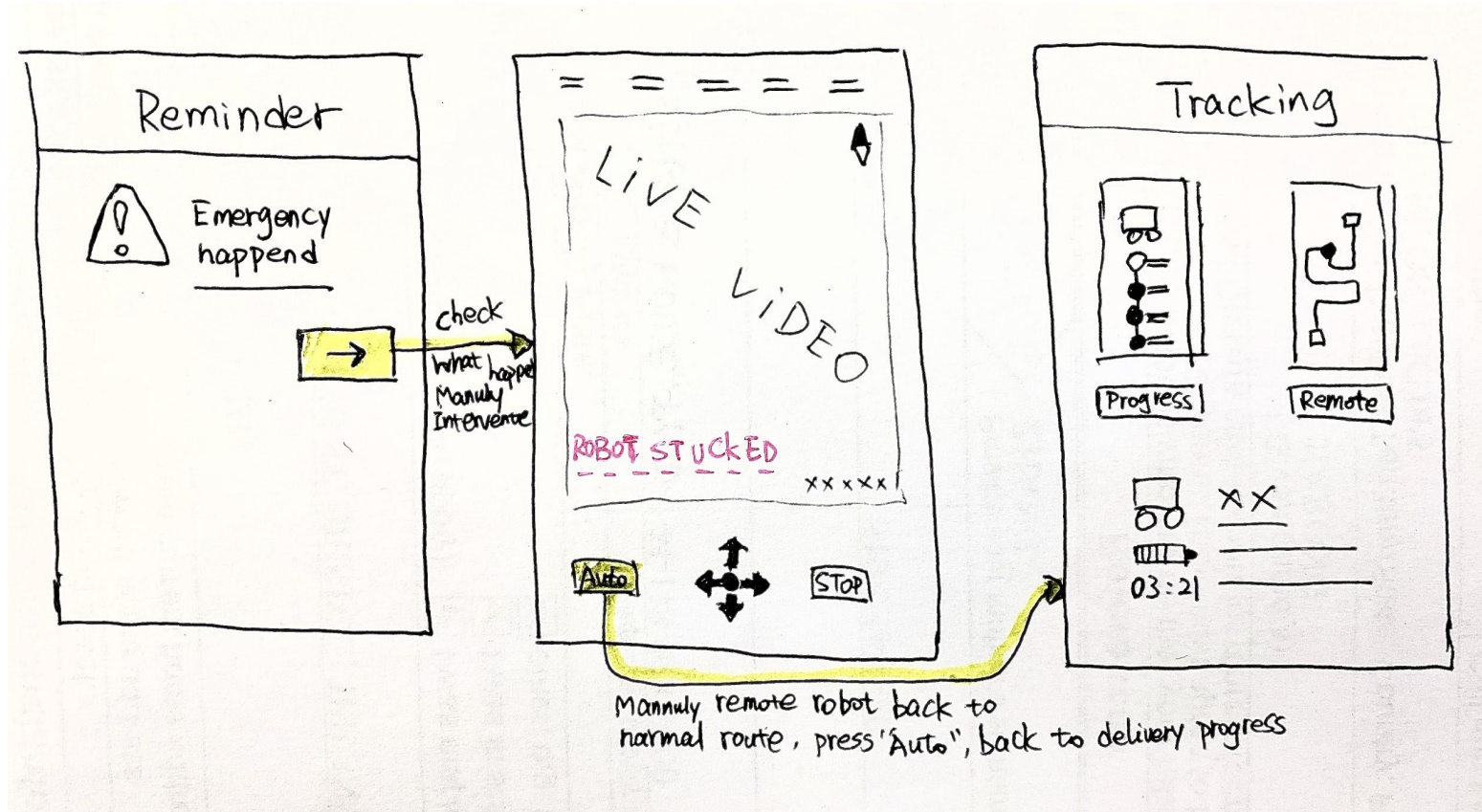
# 8 Sketches



# Smart Planning



# Problem Monitor



# Decide

Pick the final concept that you develop into a prototype

# Decision

## Decision

Smart Planning

## Rationale

The Smart Planning function is the core function of the entire robot-courier collaboration system. Firstly, this part contains the robot's task scheduling function and the robot's automatic path planning function. Secondly, this part is well connected with other functions, including robot status monitoring, manual remote control robot and express process tracking.

# Prototype

Turn your concept into a realistic, interactive prototype that you will use to validate your assumptions and ideas



# Storyboard



Link your plot



## SCRIPT

A severe flu virus broke out and everyone was quarantined at home and unable to go out. Many people want to order takeaway food, but people who deliver food are not allowed to go out as well.

## ACTION

Enter text here...

1



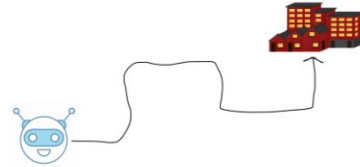
## SCRIPT

Tim is a food delivery courier and he receives take-out orders from customers. Although Tim can't go out to deliver meals by himself, he can ask a Robot to help. Tim collaborates with the robot via his mobile phone.

## ACTION

Enter text here...

2



## SCRIPT

The robot calculated the distance between the food and the user, and planned the action path through the algorithm.

## ACTION

Enter text here...

3



## SCRIPT

Under the supervision of Tim, the robot successfully got the food that ordered by the customer, and started to drive towards the customer's place.

## ACTION

Enter text here...

4



## SCRIPT

Tim can track the entire delivery process through his mobile phone. Tim can view the status of the robot and every service progress in real time. If any accident happens, Tim can remotely start manual intervention.

## ACTION

Enter text here...

5



## SCRIPT

The robot successfully delivered the food to the customer. The customer confirmed after receiving the food.

## ACTION

Enter text here...

6



## SCRIPT

Tim collaborated with the robot to complete the delivery service at home. The customers successfully got food at home.

During the epidemic, customers got food delivery services and Tim got paid. Tim and customers both are happy

## ACTION

Enter text here...

7

# Prototype

## Description

- High level overview of the prototype
- What does it do?

My prototype shows a typical user case for Auto Dasher. A delivery man Tim received a pizza order from Anna. Tim use the system through smart phone to active a delivery robot that near the restaurant. The robot planned the route and automatically delivery the pizza to Anna. Time tracking the whole progress though the system. After the delivery is successful, the robot back to charge station, and Tim close the deal and get payment.

## Assumptions

- Any assumptions within the prototype

- Only one order issued
- No emergency happened
- Customer did not change her mind
- The robot is in good condition
- The customer has accept service from robot

## Tasks

- What are the tasks that a user can complete in the prototype?

- Login the system
- Manage order from customers
- Assigned task to robot
- Define locations and planning route for robot
- Tracking the delivery progress
- Close the deal and get rate and payment



Link your  
prototype

# Validate

Users will go through your prototype and provide feedback on your concept. This is also an opportunity to have an engineering feasibility discussion

# Plan and recruit for research



Link your  
research plan

# User Testing

## Key Findings from Participant 1



[Link your notes](#)



[Link your audio recording](#)

### What worked well

- Prototype is clear and easy to understand
- The scenario make sense
- User answered all questions
- User provide valuable feedback

### Where participants got stuck

Navigation map is hard to read. There are two pins, Since the robot location is too close to the restaurant on the prototype, user is not able to figure out the distinguish between the robot and the restaurant.

### Other observations

- User feel lost at the navigation map page.
- User can not figure out how to remote the robot
- User seems prefer to know more information about the customer.

# User Testing

## Key Findings from Participant 2



[Link your notes](#)



[Link your audio recording](#)

### What worked well

- Prototype is simple and clear
- The process is straightforward
- User can easily relay the project with Uber eat
- User point out the idea of chatbot

### Where participants got stuck

The user test is very successful, everything is smooth. Since the prototype is quite simple and clear, nothing got stuck during the user interview. However, the user mentioned that it will be better if I can provide more detail for each page (such as fancy design)

### Other observations

- Since the concept of the product is related with high-edge technology, which will happen in future. The user is prefer to see a much fancier user interface.
- It's necessary to have a support team or call center for the service.

# Improvements

<b>Improvement #1</b>	<b>Better Navigation mapping page</b>
Rationale	Re-location the robot and Pin also clarify the message, user can easily understand the navigation information. This is important for both delivery man and customer.
<b>Improvement #2</b>	<b>Add a manually remote mood for robot at tracking page</b>
Rationale	One of the most important feature is manually remote robot. It is necessary for user/ delivery man to figure out where and how to remote the robot.

# Feasibility

## Your Assumptions

## Specific feasibility questions

### Drawing the UI

- *What data is needed to draw the UI on the screen?*
- *Where is the data coming from*

- User profile data
- User transaction
- Robot profile data
- Environmental data of robot
- Route tracking data

- How to obtain personal data of users and whether it is safe
- How can the robots obtain environmental data to ensure autonomous driving?
- Can robot data guarantee real-time performance?
- How to trace transaction data

### User generated data

- *Is it stored?*
- *Where/how?*
- *How will that data be used again?*

- User and robot profile data will store locally, and update lively.
- Environmental data and route tracking data will store in cloud, cloud computing is necessary for processing data
- Money transaction is rely on third-party security database

- How to store user's credit card information
- Can we store users' personal information
- Whether the robot's state tracking and path planning can be successfully implemented

### Latency

- *How quickly should things load?*
- *Are there any operations that might slow down load time (ie: a call to another service)?*

- A massive of environmental data is required be process, which may cause latency
- There might have some latency for the route tracking

- The delay of robotic autonomous driving is probably
- Is there a delay in tracking food delivery?
- Is the payment real-time



# Iterate

Leverage learnings from your first two user interviews to make changes to your prototype. Then run another round of user interviews.

# Prototype v2

## Description

- High level overview of the prototype
- What does it do?

The new prototype update the navigation page and the tracking page, and other pages stays the same.

The update of navigation page distinguish the bot, restaurant and final destination, in order to get rid of confuse contents of the page.

The update of tracking page make the content more clear and user able to know that he/she can remote the robot manually

## Assumptions

- Any assumptions within the prototype

- Assume there is only one order is required
- Assume robot is ready and work properly

## Tasks

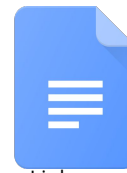
- What are the tasks that a user can complete in the prototype?

- Login the system
- Manage order from customers
- Assigned task to robot
- Define locations and planning route for robot
- Tracking the delivery progress
- Close the deal and get rate and payment



Link your  
prototype v2

# User Testing Round 2



Link your  
notes



Link your audio  
recording

## Key Findings from Participant 3

### What worked well

- The participant come up some new ideas
- The process is straightforward
- The robot status is useful and clear
- The navigation part is easy to understand

### Where participants got stuck

The participant is not quite sure whether he was food delivery staff or takeaway customers. The Participant thought that the robot would have its own special path, not on the same road as pedestrians and vehicles.

### Other observations

- The design of user interface can be better, more focus on branding
- When I make the navigation page much easier to read, the participant start to consider about how to improve the route path algorithm, like recommendation of alternative route.
- Point out the risk of loss control if allow user manually remote the robot

# Handoff

# Updated PRD



Link your PRD