

# Contactless Parcels Service

Our study aims to propose a product and corresponding service process to fulfil the need of contactless logistics for the student. We will focus on providing a stable, efficiency, user-friendly and reliable contactless service for package sending and collecting automatically.

## Group 6

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## Theory

Last-mile Delivery  
Present Situation  
Future Direction

## User Research

Field Observation      Persona  
Interview                Rational Design

## Practice

Framework              User Test  
Storyboard              High Fidelity  
Product                  Future Oppotunity

## Last-mile Delivery

Last mile delivery refers to the final step of the delivery process from a distribution center or facility to the end-user.

Last-mile delivery accounts for approximately 70% of the cost of transport operators (Brown and Guiffrida, 2014) [3].

## Present Situation

### Low efficiency of package dispatching

62% of their work time spend on on-foot-delivering because of every home delivery and unfamiliar with the house location. [1]

### Bad user experience

56% of the UK adults had the bad experience in 2017. Increasing from 53% in 2016, 47% in 2015. [2]

## Future Direction

More companies are concentrating on updating the service process by applying high-tech during the process because of higher and higher demand.

In recent decades, more terms emerge, like dark grocery (large warehouse facilitate click-and-collect service) and stay-at-home economy (economy pattern based on users’ daily routine on the internet). All of them indicate there will be more parcels in the future.

Moreover, this trend has been exacerbated recently, because of the COVID-19 and lockdown policy. Of all the UK consumers who purchased discretionary items online, more than 50 percent wanted their orders to be delivered to the door instead of click and collect in person. 47% of consumers also stated that they are willing to spend more for convenience.

Reference:

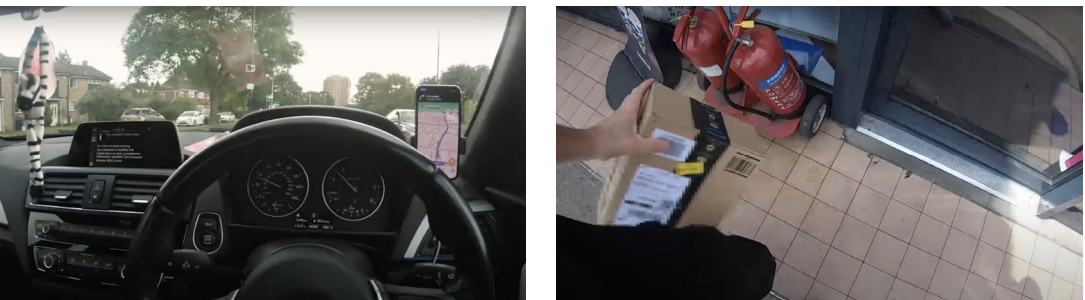
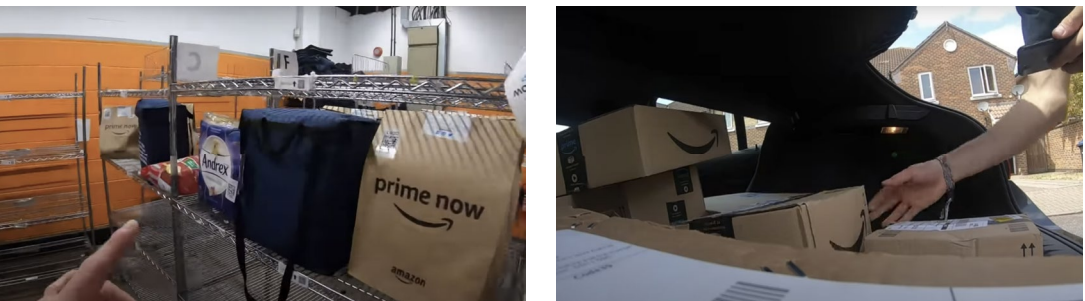
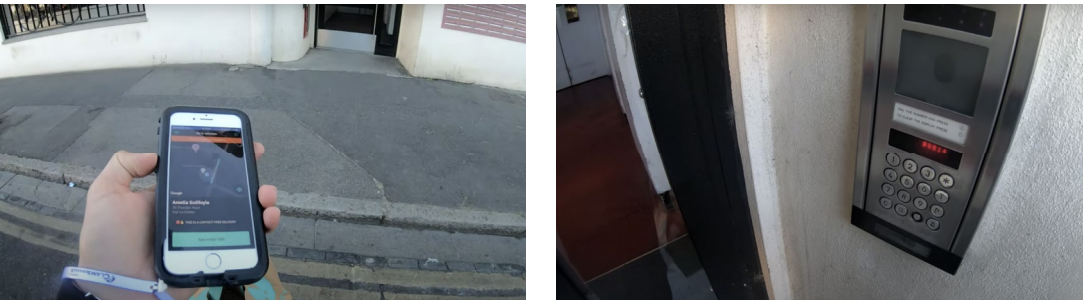
[1] Oliver Bates et al. “Transforming Last-Mile Logistics: Opportunities for More Sustainable Deliveries” . In:Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems. CHI ’ 18. Montreal QC, Canada: Association for Computing Machinery, 2018, pp. 1 - 14.isbn: 9781450356206.doi:10.1145/3173574.3174100.url:https://doi.org/10.1145/3173574.3

[2] ONLINE SHOPPERS ALIENATED BY POOR DELIVERY EXPERIENCES. 2017.url:https://postandparcel . info / 80040 / news / parcel / online - shoppers - alienated - by - poor - delivery - experiences

[3] Brown, J.R. and Guiffrida, A.L. (2014). Carbon emissions comparison of last mile delivery versus customer pickup. International Journal of Logistics Research and Applications, 17(6), pp.503 - 521.

# Field Observation

We first watched many vlogs on delivery and recieving parcels to get familiar with the process.



# Interview

We decide to organize interviews in semi-structure, and our outline contains three main parts.Then we invite 7 participants living in Edinburgh to accept our interview.

## First part (user basic information)

- Self introduction (age, gender, location)

## Second part (experience)

- Any experience on online shopping & food delivery? frequency?

- Describe the latest experience (which software, why, emphasize)

- Covid-19, any change?(frequency, worry)

- Any experience on amazon locker?

- Sending parcels' experience?

## Third part (comments and ideas)

- Any inconvenience?

- Any expectation?

	Pain points	Ways to solve
1	Time period of reception to collect parcels is too short Locker don' t know which door may open Locker can' t scan code	<ul style="list-style-type: none"><li>map to show parcels' location</li><li>information of delivermen update</li><li>database of residents information</li></ul>
2	Noise made by delivermen Security risks for delivermen entering apartments Hygiene risks on fresh food	
3	Lockers code are comlicated to type Sterilization Distribution duration is long Effeciency is low for informing by email	
4	Have no idea on health condition of deliveryman Lockers have small space Frequency of utilization of lockers is low	<ul style="list-style-type: none"><li>fuctions on paying the fees</li><li>underground space</li><li>many ways to inform</li></ul>
5	Sending parcels needs to go to post office Fees on locker Parcels might be checked by reception	
6	Deliverman only knock the door Parcels packaging	
7	Privacy problem	<ul style="list-style-type: none"><li>privacy protection</li><li>sterilization function</li></ul>

# Persona



## Basic Information

Age	22
Occupation	student
Location	Edinburgh
Relationship Status	single

## Features

- Living in accommodation with reception
- Paying attention to own security during pandemic
- Loving online shopping



# Rational Design

## New proposals

- UK government has proposed many different technical solutions that could be deployed to provide last mile delivery.
- No single solution suits all scenarios so we aim to solve the problems with students living in apartment with reception.
- The use of autonomous robots and drones for delivering goods is an ideal solution in situations such as the current pandemic but which have lower acceptance and adoption.
- For example, there is also a potential security concern around detecting which drones are being operated with malicious intent and which are legitimate delivery vehicles.

## Why we didn' t choose food business

- To keep the virus out of the food environment is challenging for food businesses which required including upgrading of cleaning and sanitation measures, disinfecting surfaces and high-touch points, educating staff on the virus.
- More than 40% of all UK respondents chose online purchase as the preferred option for most non-essential or discretionary items such as clothing and electronics, due to restricted access.

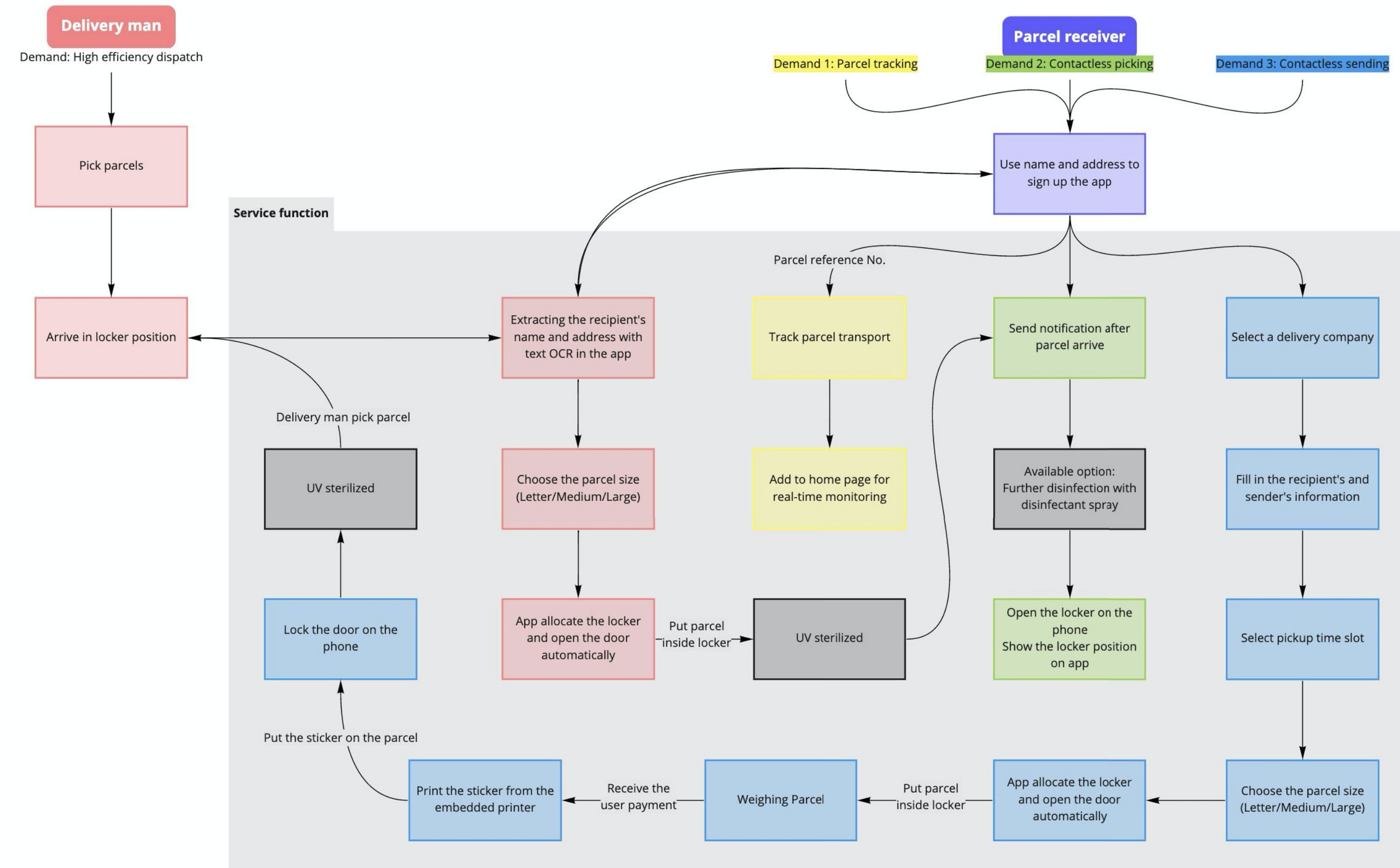
## Why we didn' t choose locker

- Smart lockers are scalable, customisable, electronic, and often cloud-based systems that give onsite and remote workers and users can easily access space for the retrieval of letters and parcels.
- Compared with traditional home delivery services, the use of smart lockers offers benefits to three stakeholder groups.
- Operators: using smart lockers for last-mile deliveries eliminates the inefficiencies allowing consolidated shipments to clustered locations (i.e. self-collection hubs), which can reduce the number of delivery trips.
- Customers: using smart lockers avoids the need to wait at home for a delivery (Djelassi et al., 2018). Customers' shipments are temporarily stored in smart lockers to retrieve at their convenience.
- Societal perspective: using smart lockers minimises externalities such as traffic congestion, noise, and environmental pollution because of the greater level of consolidated shipments and fewer delivery trips (Chen et al., 2017; Ranieri et al., 2018).

## Why we choose service design

- Significant psychological barriers to Autonomous Delivery Robots (ADRs) adoption because of lacking trust.
- E-commerce companies and on-demand delivery platforms of ADRs to the end-users will focus on: publicizing the operational procedures (e.g., interactive unlocking, theft prevention measures) and potential advantages (e.g., delivery speed, flexibility, contactless handling, and convenience)

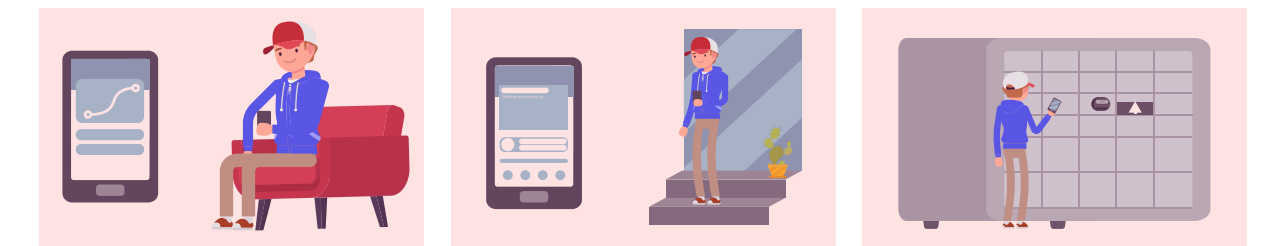
# Framework



## Storyboard

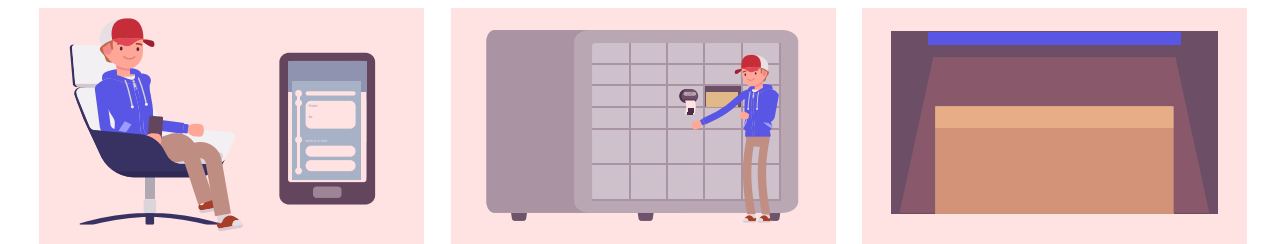


## Receiving part



After placing an order on website, users could check logistics information in our APP.	When the parcel arriving, users can receive the locker information.	Users use button on our APP to open the locker door.
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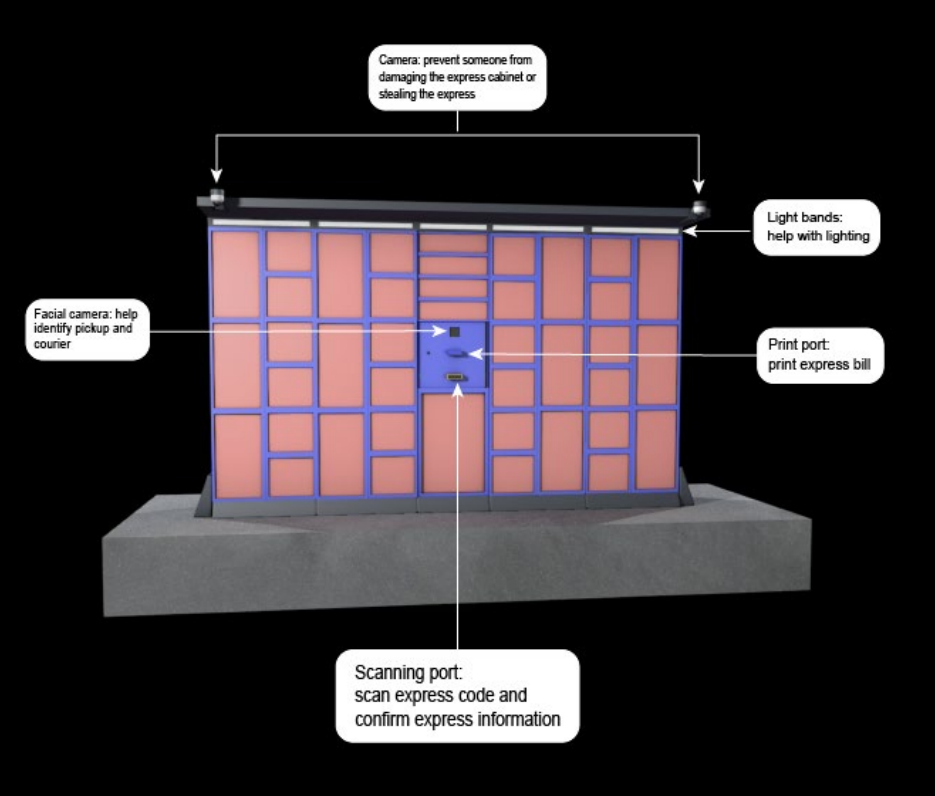
## Sending part



Users could make an delivery appointment on our APP with filling a form, selecting the parcel' s size and choosing a time slot to use the locker.	Considering with the size of parcel, the locker distributes a box. Our locker weigh the parcel, calculate the price and produce a sticker with parcels' information.	When detecting items are put in and the door is closed, our locker starts to sterilize. The same process happens after deliverman putting parcels in.
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# Product

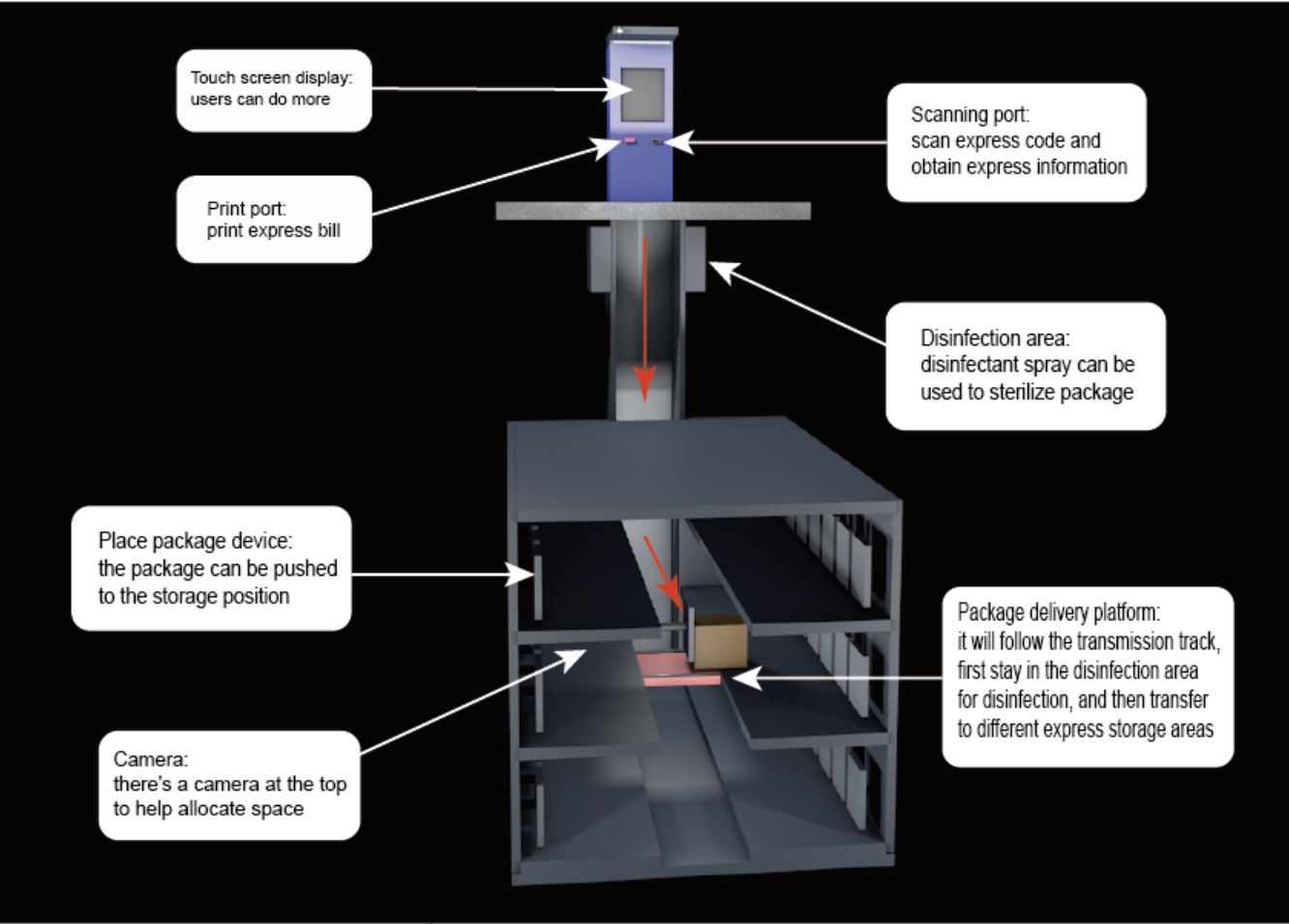


# User Test

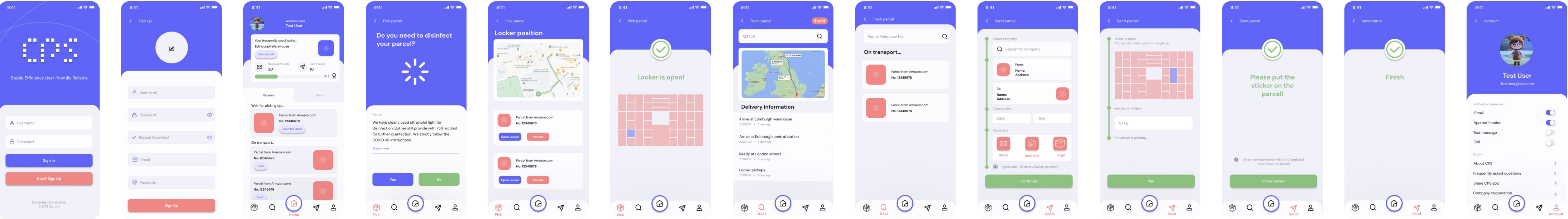


Missions	User experience with our service	Comments on “contactless”	Ways to change
Track	Wish to see more delivery information automatically, such as my old parents’ parcels. So I can pick up for them.	If it went through regions with high COVID-19 cases, I will feel uncomfortable.	Future improvement: Add live monitor to transporting procedure.
Pick	Wish to show which locker is open on the app.	No information about disinfection on APP. Users are unfamiliar with the disinfection process.	1. Add the locker position on send and pick tab. 2. Present information about UV lamp disinfection to the user. Add an optional disinfectant spray function before fetching the parcel.
Send	1. The app button setting is not obvious enough and other buttons will be tried before selecting send. 2. Questioned whether users need to pre-package items. 3. How to weight parcel?	Fulfill the need of contactless.	1. Redesign the navigator bar on app. 2. Add this function in the future iteration. Because it related to parcel sticker. 3. Add parcel weighing function to the delivery cabinet. Billing is done after weighing.

# Future Oppotunity



# High Fidelity



Saving space: underground facility with automatic sorting system

Company cooperation: Optimal allocation of delivery company collaboration

Point to point distribution: delivery to the own front door.