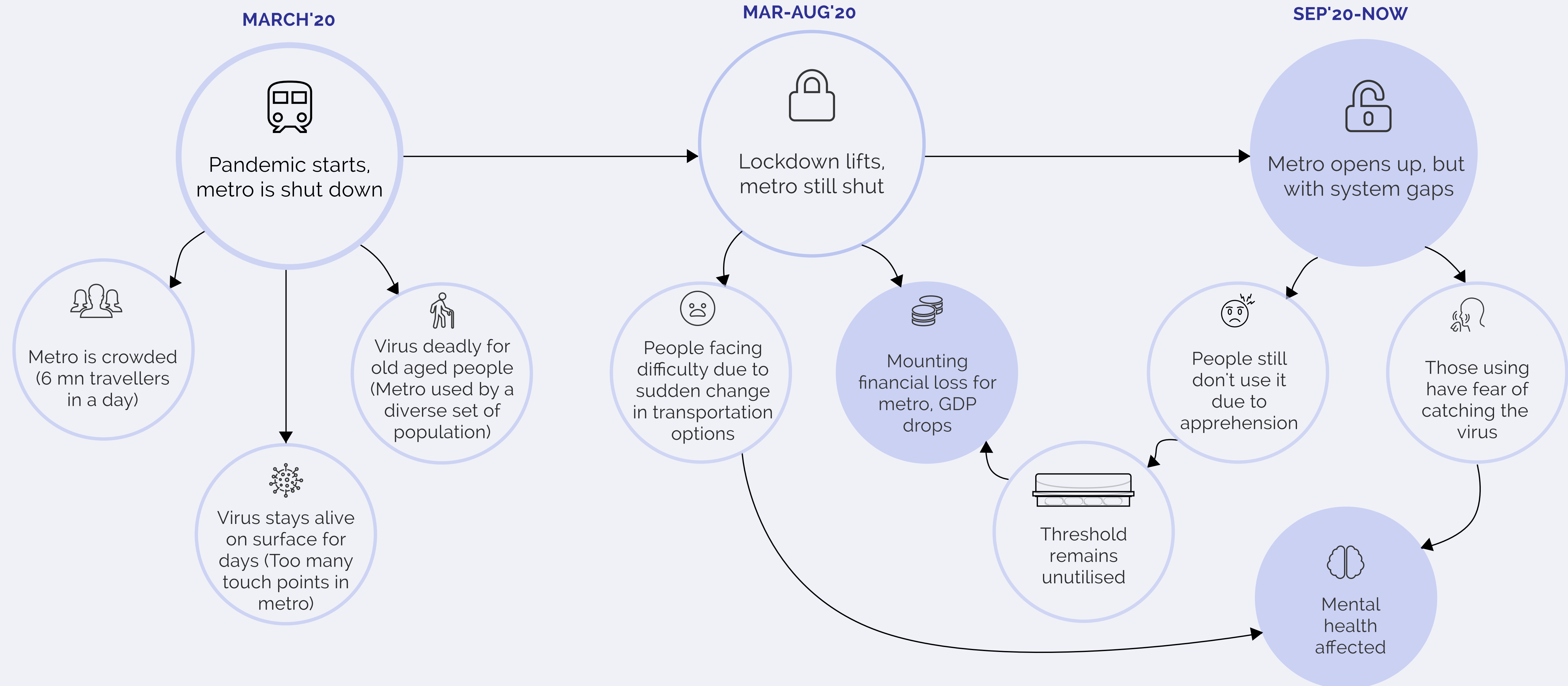**DELHI METRO SYSTEM 2.0**

Metro in COVID-19: A timeline

Problem Statement: Faulty reopening of DMRC services, which is unable to build trust in commuters, and hence continues facing financial loss.

MARCH'20

Pandemic starts, metro is shut down

Metro is crowded (6 mn travellers in a day)

Virus deadly for old aged people (Metro used by a diverse set of population)

Virus stays alive on surface for days (Too many touch points in metro)

MAR-AUG'20

Lockdown lifts, metro still shut

People facing difficulty due to sudden change in transportation options

Mounting financial loss for metro, GDP drops

Threshold remains unutilised

SEP'20-NOW

Metro opens up, but with system gaps

People still don't use it due to apprehension

Those using have fear of catching the virus

Mental health affected

Primary Research:
What does the user say?

I **interviewed 6 people** from the urban landscape- 3 who have been travelling regularly ever since the metro has reopened, and 3 who have either never travelled even once or have travelled 1-2 times but didn't continue to further.

Some notable quotes and observations have been given below:

"I haven't travelled at all through metro. My friend told me that the **metro authorities are not strict at all, which is why even some people get relaxed**."

Lack of two-way accountability

"There's no point of **Aarogya Setu** as a pre-emptive measure since no authority checks it."
"**I check it daily for my own safety**."

Willingness of people to care for own security, especially in face of system fails.

There are two routes that I can use, either by changing on Rajouri or on Rajiv Chowk. I get off at Rajouri first, and if the **crowd is less I go through that**. **If the crowd is a lot, I go via Rajiv Chowk even though it is more time consuming.**

People prefer safety over time taken

The main problem of social distancing occurs inside the train. **Some coaches are too crowded, some are too empty**"

Unequal distribution of coach traffic

"I have travelled only a few times in the past month, and it has been **completely empty**, until it reaches Peera Garhi (6pm, rush hours) and a **huge crowd** comes in"

"It **felt safe** before Peera Garhi even though other rules weren't being followed, but after that once everyone entered at once, the **threat of catching COVID suddenly felt real**."

There are times when the metro is either under-utilising its threshold (number of people that can travel), or stretching it out too much.

Persona + User Journey
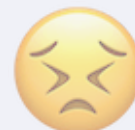
● Points of intervention   ● Design Directions

Ms. Ritu Kumar, 43 years old

Office goer, **travels daily by metro in fixed rush hours.** Has accustomed herself to the onset of **panic at seeing crowd**, with people disregarding rules and precautions.

1. Waits outside metro as threshold of station reached
😖

2. Enters once guard allows, thermal scan + hand sanitizer
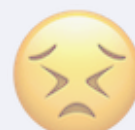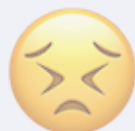😬

3. Security check + RFID gate
😬

4. Uses escalators, social dist. followed
😊

5. Moves towards ladies' coach (less empty and safe)
😊

6. Metro travel: Masks worn, but less social dist. as no space
😖

7. Exits metro on a crowded station (no social dist. when exiting coach)
😖

8. Similar experience on return journey
😖
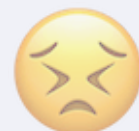
9. Checks Aarogya Setu at night to make sure no threat
😬

Mr. Hritik Sharma, 20 years old

College student, **travelling for the first time via metro** to meet up with friend. Travelled at 11am in **empty metro (after initial rush hour,) but in evening saw the metro crowd and panicked**

1. Enters station as no rush, thermal scan + hand sanitizer at gate
😊

2. Has to recharge card using cash as does TVM not working
😖
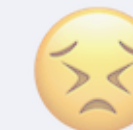
3. Security check + RFID gate
😬

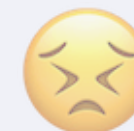4. Uses stairs for platform, boards train from nearest coach
😬

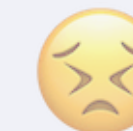5. Metro travel: Moves to side coach as it is more empty, masks worn
😊

6. Exits mero easily, as no rush at that time.
😊

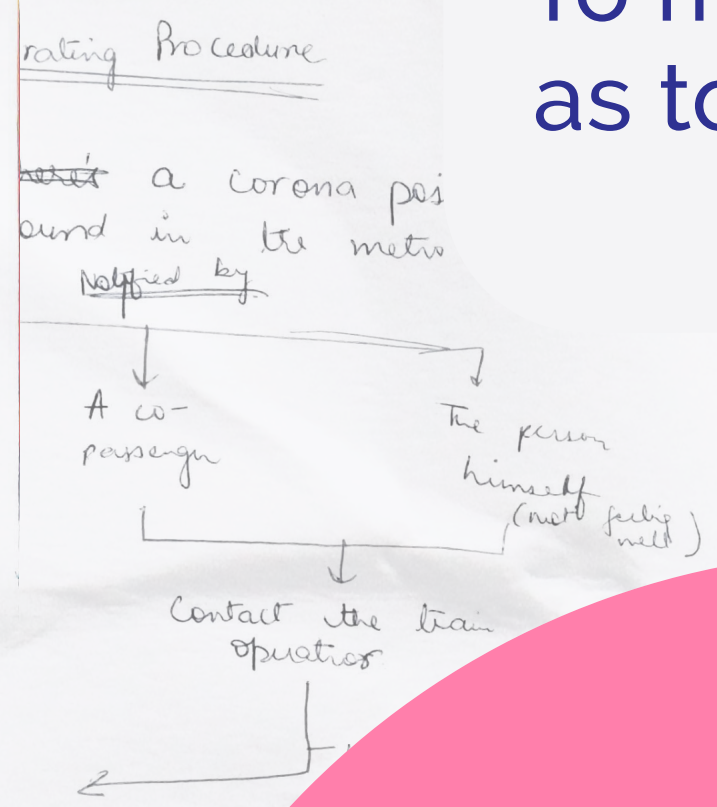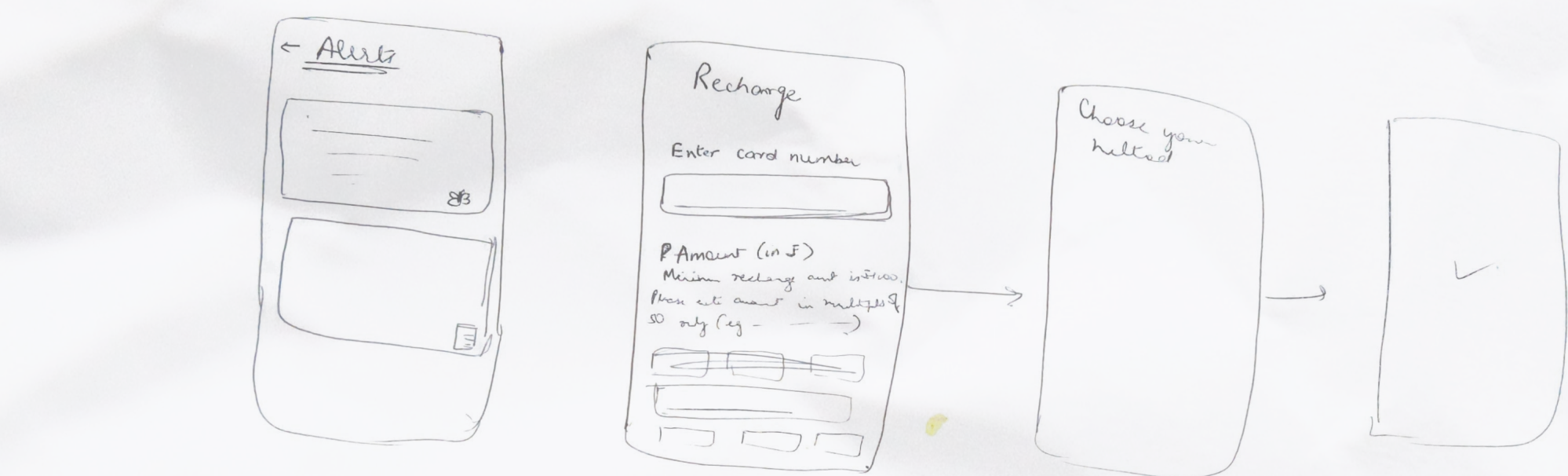7. Return during rush hour, has to wait outside station until rush minimises
😖

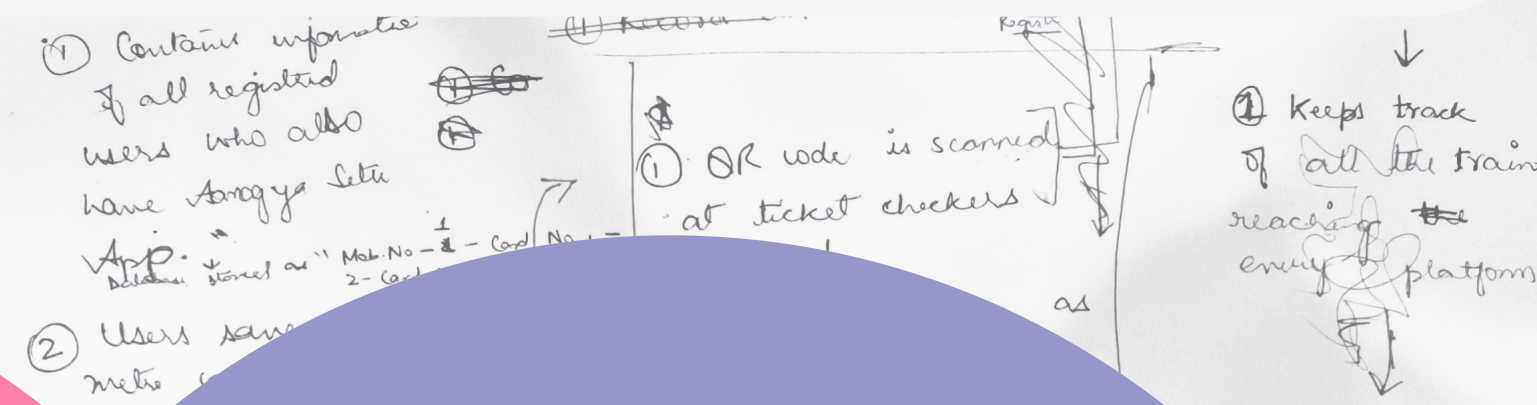8. Coaches jam packed, no social dist. followed
😖

9. Plans to try 2nd route of travel next time, or to never use metro again
😬

"To manage passenger use of Delhi Metro better so as to prevent spread of COVID-19, build trust, and increase travel footfall"
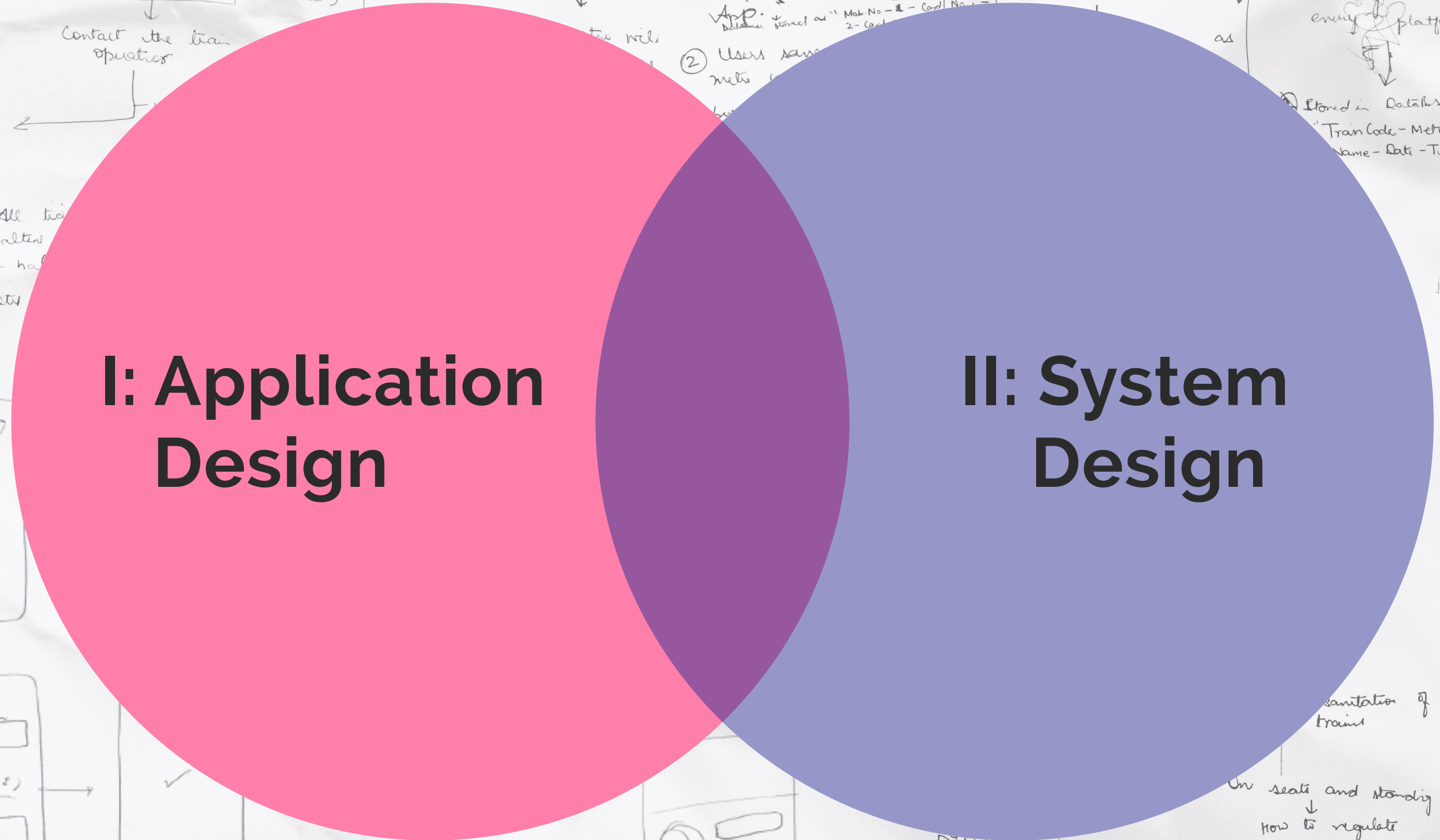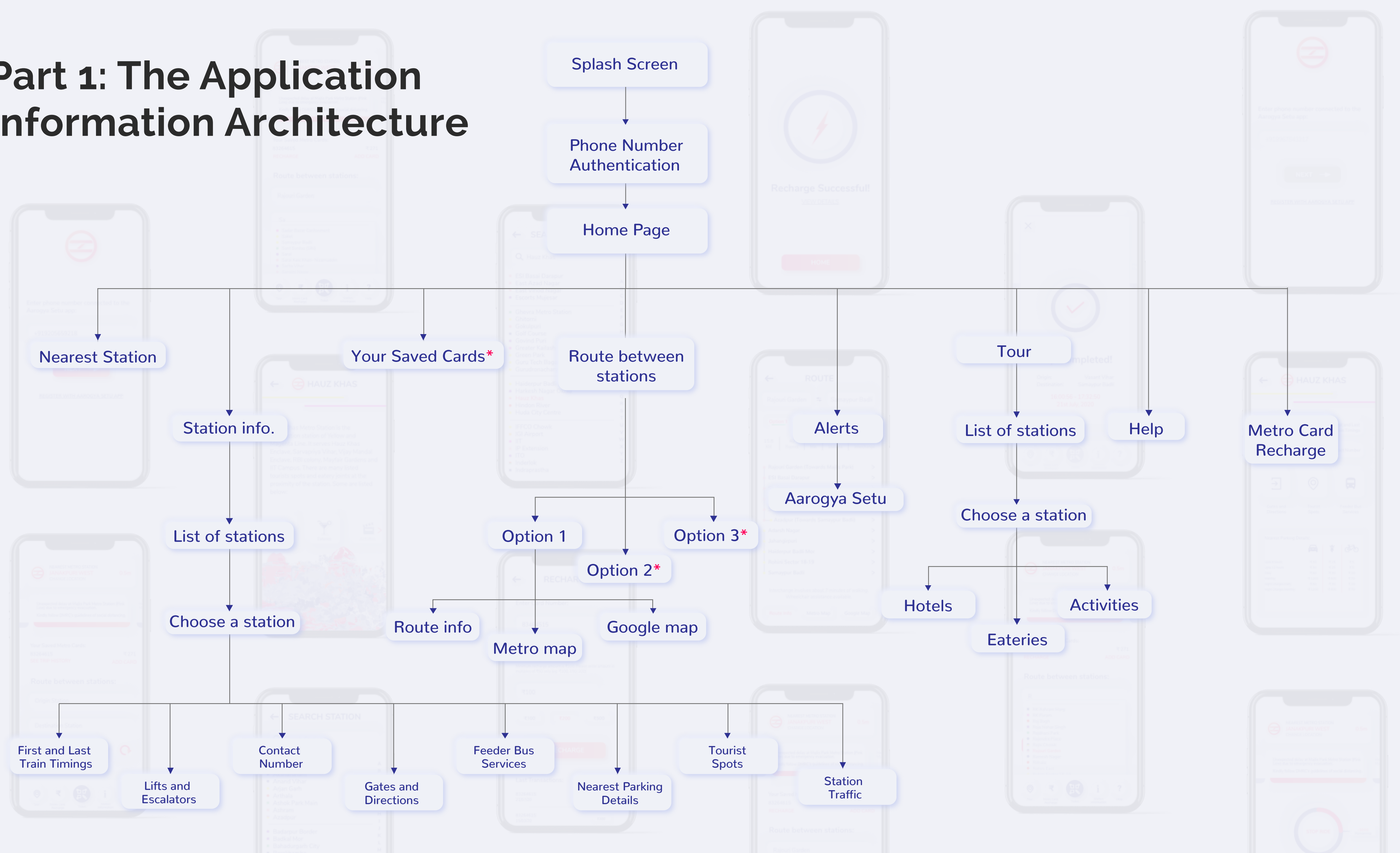
FOCUS AREA

Crowd Management
+
Transparency

OVERALL EFFECT

Increased Footfall
+
Mental Health

I: Application Design

II: System Design

THE SOLUTION

Part 1: The Application Information Architecture

Splash Screen

Phone Number Authentication

Home Page

Nearest Station

Your Saved Cards*

Route between stations

Alerts

Tour

Help

Metro Card Recharge

Station info.

Aarogya Setu

List of stations

Choose a station

List of stations

Option 1

Option 3*

Hotels

Activities

Option 2*

Eateries

Choose a station

Route info

Google map

Metro map

First and Last Train Timings

Contact Number

Feeder Bus Services

Tourist Spots

Lifts and Escalators

Gates and Directions

Nearest Parking Details

Station Traffic

Enter phone number connected to the Aarogya Setu app:

+919205659218

Register Later   NEXT →

Register with
Aarogya Setu App

NEAREST METRO STATION
🚇 **JANAKPURI WEST**   0.5m
CHANGE LOCATION

[COVID-19] Unexpected delay at Majlis Park Metro Station (Pink Line) due to emergency evacuation.

Kindly follow DMRC's guidelines of social distancing.

Aarogya Setu	17	2
VISIT APP	Safe	Low Risk

Your Saved Metro Cards:
83264615   ₹ 271
SEE TRIP HISTORY   ADD CARD

Route between stations:

R

📍 Tour   ₹ Metro Card Recharge   ▦ Ticket   ℹ Station Info   ? Help

STATION THRESHOLD AND ALERTS
Find out crucial information such as **recent COVID cases in metro**, or the station threshold to know best time to travel via metro. The threshold is achieved when 50% passengers are inside station. More passengers cannot enter until crowd disperses.

← 🚇 **HAUZ KHAS**

It is **SAFE** to travel right now via Hauz Khas station.

---------- Station Threshold ---

8 am   9 am   10 am   11 am   12 pm   1 pm

Lifts and Escalators: 🕐 First and Last Train Timings
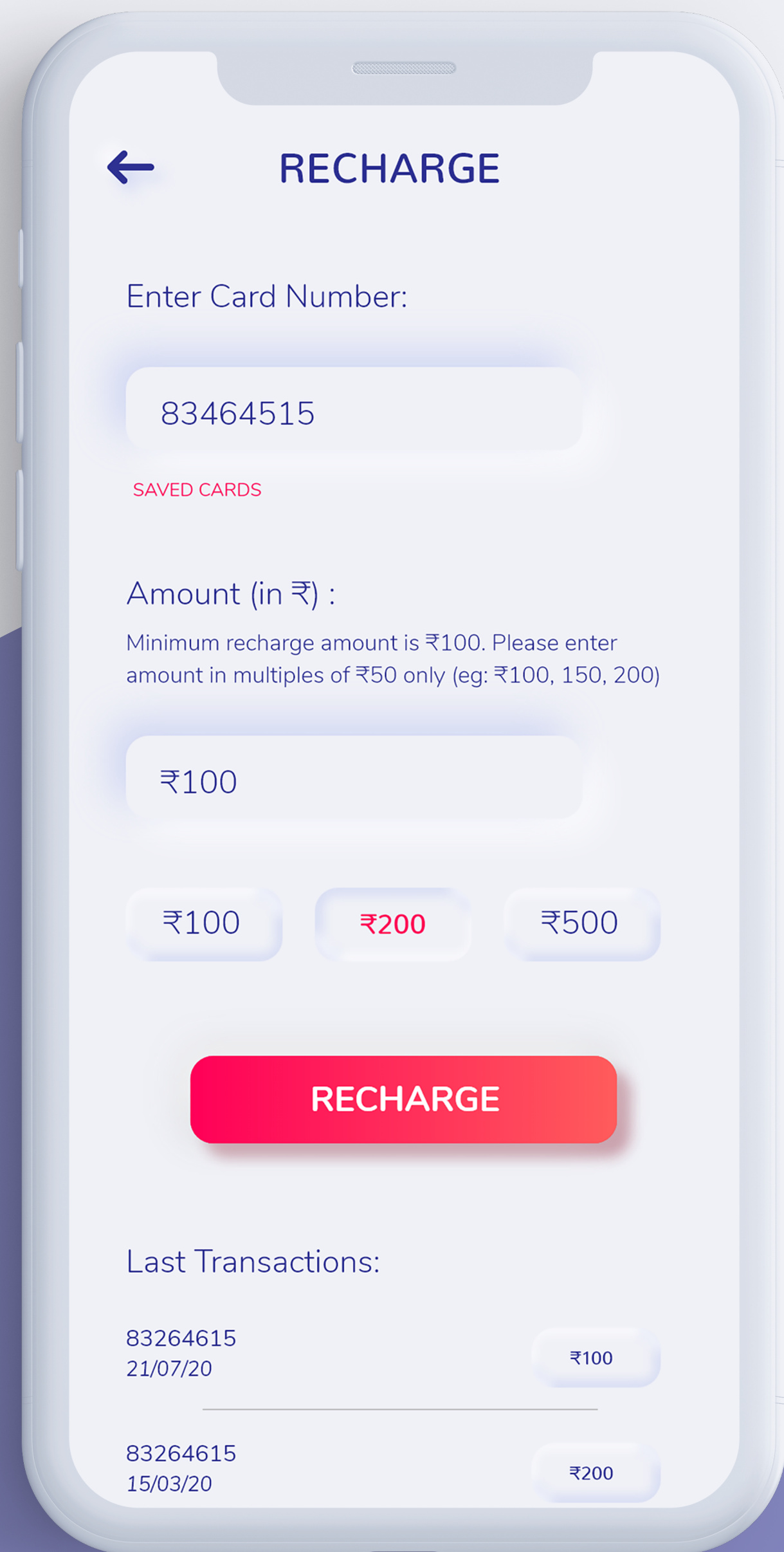
AAROGYA SETU LINK UP
Link with Aaorgya Account on the Onboarding of the DMRC Application itself, and then be able to **view the Aarogya Setu Tag of passengers (who have done the same) around you.**

RECHARGE

Enter Card Number:

83464515

SAVED CARDS

Amount (in ₹) :

Minimum recharge amount is ₹100. Please enter amount in multiples of ₹50 only (eg: ₹100, 150, 200)

₹100

| ₹100 | ₹200 | ₹500 |

RECHARGE

Last Transactions:

83264615
21/07/20 — ₹100

83264615
15/03/20 — ₹200

RECHARGE METRO CARD

A streamlined redesign of recharging metro card from app so as to **simplify the process and discourage cash transactions and TVMs (since virus could transfer through cash as well)**
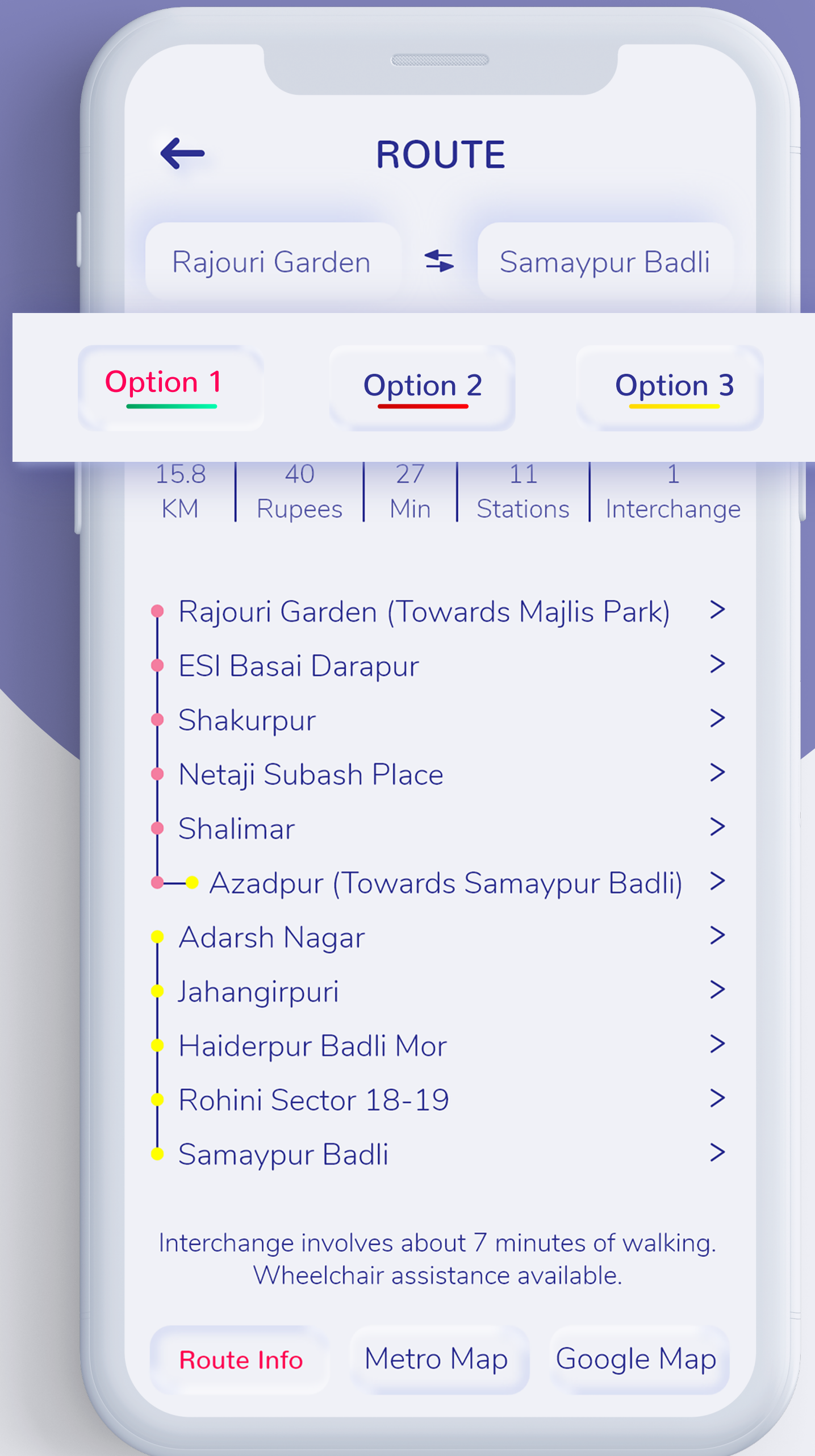
CHOOSE ROUTE AS PER CROWD

Choose which route to take (if options available) based on the level of crowd. Indicator of crowd level shown by colour:
Green- Safe, no crowd
Yellow: Low risk, low crowd
Red: High risk, huge crowd

ROUTE

Rajouri Garden ⇄ Samaypur Badli

| Option 1 | Option 2 | Option 3 |

| 15.8 KM | 40 Rupees | 27 Min | 11 Stations | 1 Interchange |

- Rajouri Garden (Towards Majlis Park) >
- ESI Basai Darapur >
- Shakurpur >
- Netaji Subash Place >
- Shalimar >
- Azadpur (Towards Samaypur Badli) >
- Adarsh Nagar >
- Jahangirpuri >
- Haiderpur Badli Mor >
- Rohini Sector 18-19 >
- Samaypur Badli >

Interchange involves about 7 minutes of walking. Wheelchair assistance available.

| Route Info | Metro Map | Google Map |

Solution 2: The System

● Already implemented by DMRC post Sept'20   ● New solutions suggested by me

MONITOR USERS
Mandatory Face masks and Thermal Scanning

CHECK THRESHOLD
Metro to operate at 50% threshold to prevent overcrowding. Gates to be monitored and updates to be set via mobile application

GATE

6ft STICKERS
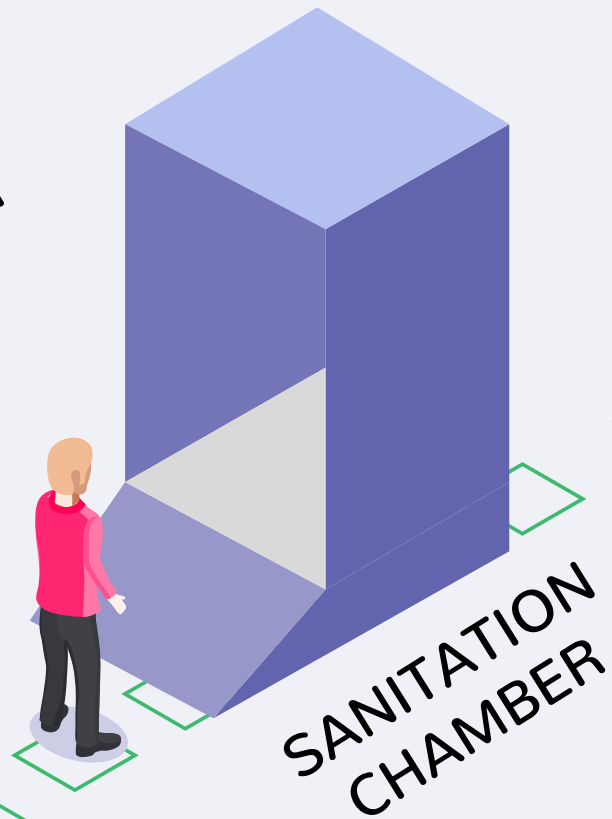To regulate social dist.

THERMAL SCAN

LIFTS, ESCALATORS
Only 3 people to travel in lift at once.
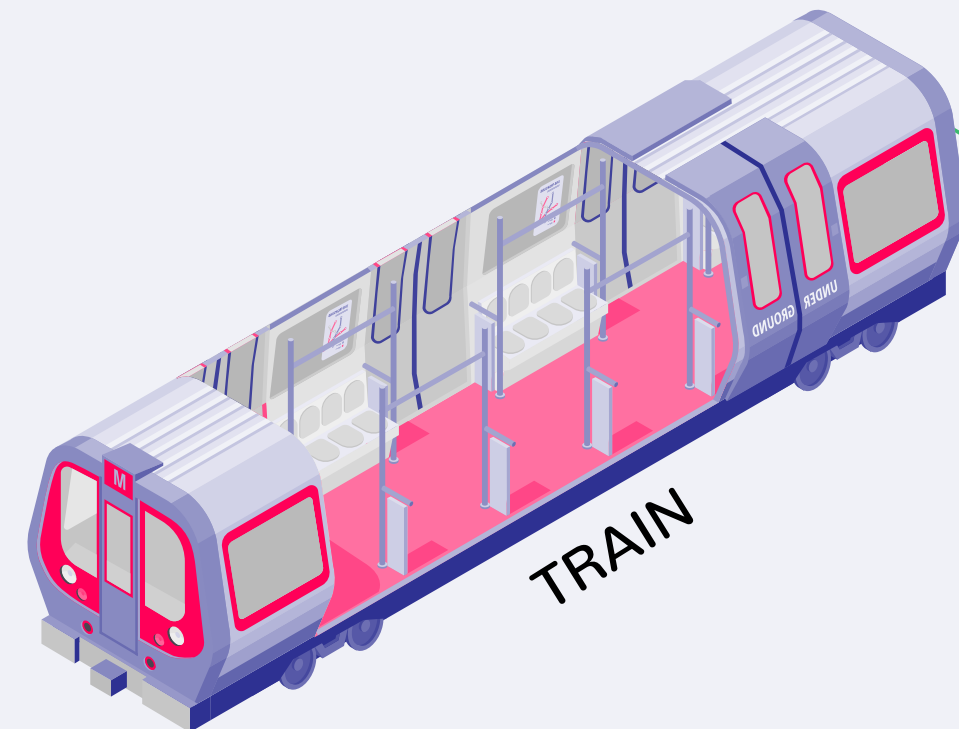Alternating stairs on escalator colour coded

STAIRS

NO CASH
Only metro card allowed

SECURITY
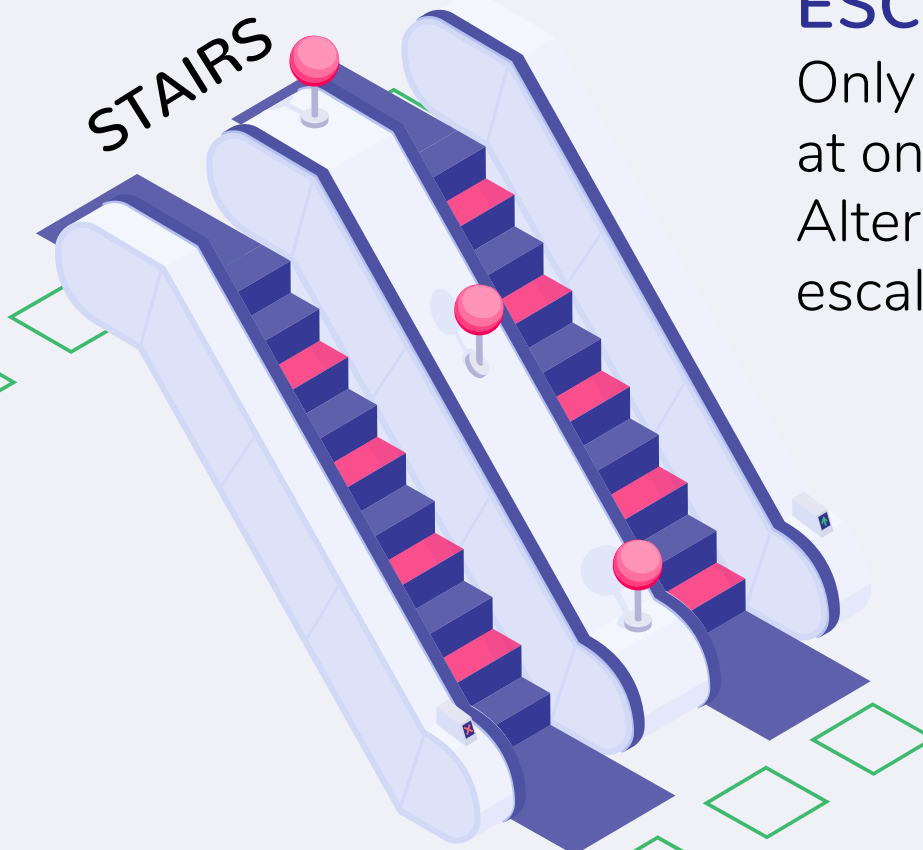
SANITATION CHAMBER
To decrease chances of virus

SANITATION CHAMBER

RFID GATE

ALTERNATE SEATING
"Do not sit" stickers applied throughout the train on alternating seats

ENTRY, EXIT POINTS
Different gates to be used to enter and exit the metro for social dist.

TRAIN

COACH TRAFFIC
Congestion levels inside coach to be displayed on display boards of all coaches. Gives user an option to move towards a lesser occupied coach

Impact:
Potential to scale up

The best part?
Even after the pandemic officially ends, the application and system can be used to even out traffic across all lines, and provide a better travelling experience to users.

10,00,000

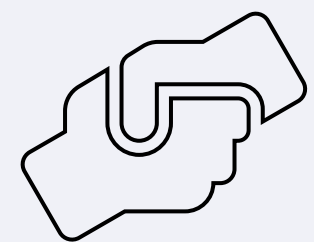Daily ridership since Sept'20 unlock

Until COVID persists

30,00,000

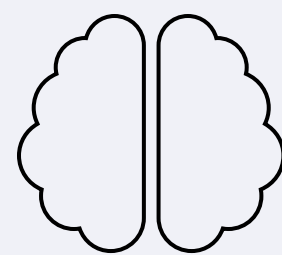Daily ridership under new system (50% of pre-covid ridership)

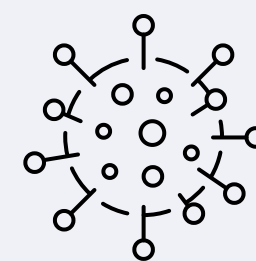When COVID ends

60,00,000+

Daily ridership under new system (More than Pre-covid ridership as routes optimised properly)
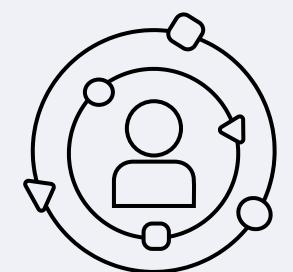
Builds trust in people

Keeps users informed

Reduces risk of COVID transfer

Increases revenue for DMRC

Streamlined travel experience