

# Sparrow Last Mile Mobility

Team project given by  Autodesk® and Lunatic Koncepts - Year 3

## BRIEF

Creating a personal mobility service for a public transport user to make his commute from the transport hub to house or office bearable in order to help commuters better utilize other forms of transport rather than making big investments in personal vehicles such as cars.

## MY ROLE

Ritvik Kulshresta & Myself being the team leaders, we decided the **timeline** of the project, our checkpoints & approach to solve the design brief.

We assigned work to the team members and also worked with the team in every design stage.

I was mainly responsible for the **3D digital model** and the **prototype** in the final stages.

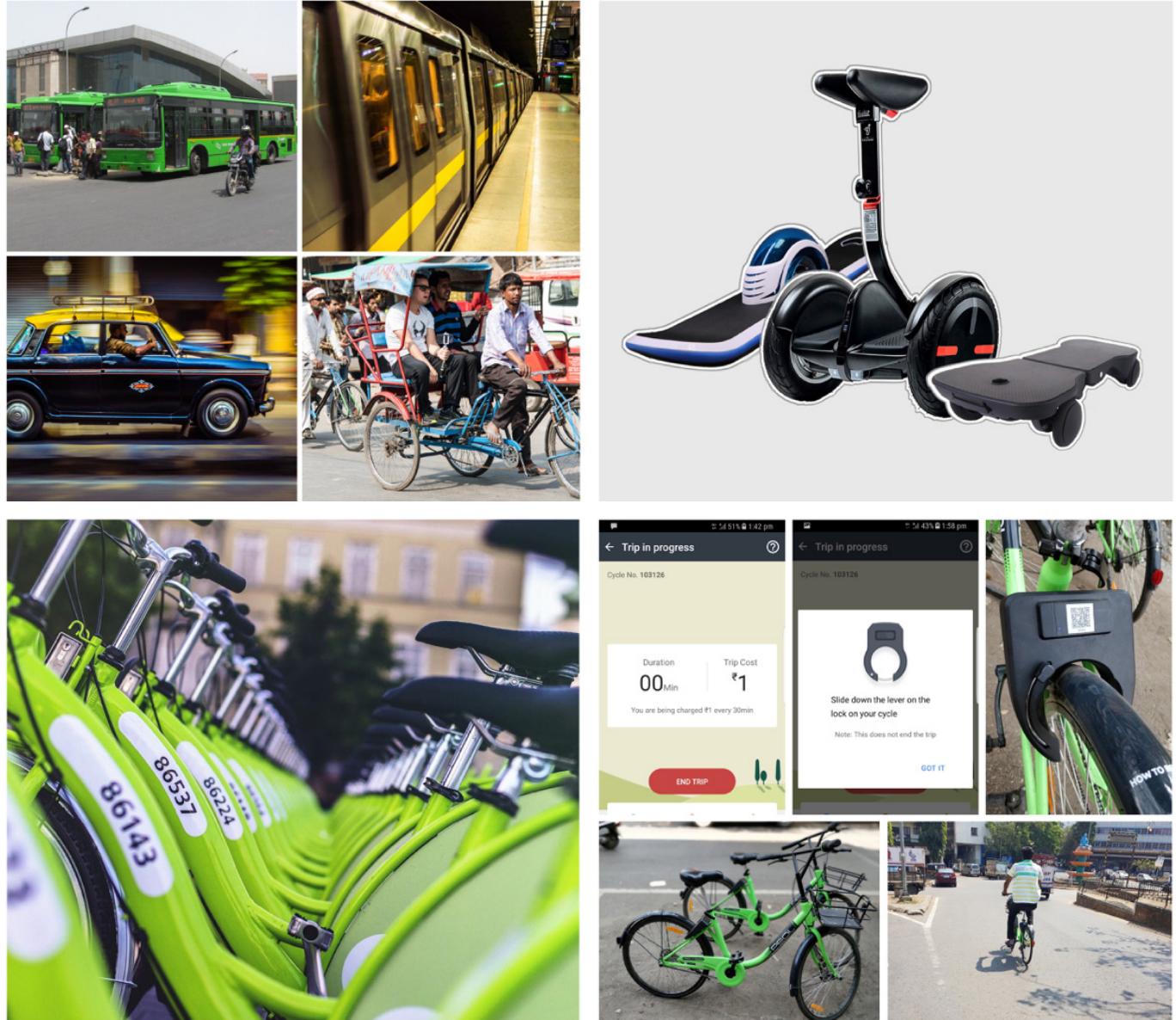


We looked at **current scenarios** at Indian metro cities since we were supposed to design for Indian cities.

We took a look at some **existing products** in the personal mobility category. In order to quantify our research we rated each of the vehicles we explored.

We also took a look at some **existing services** in the personal mobility category.

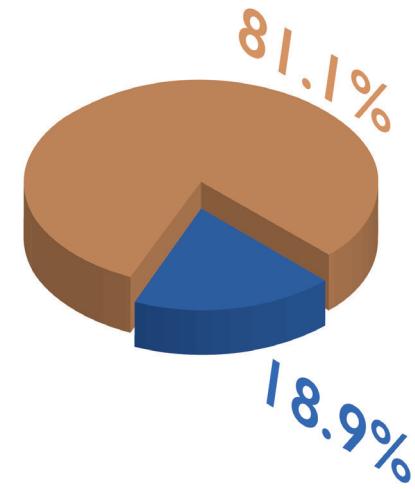
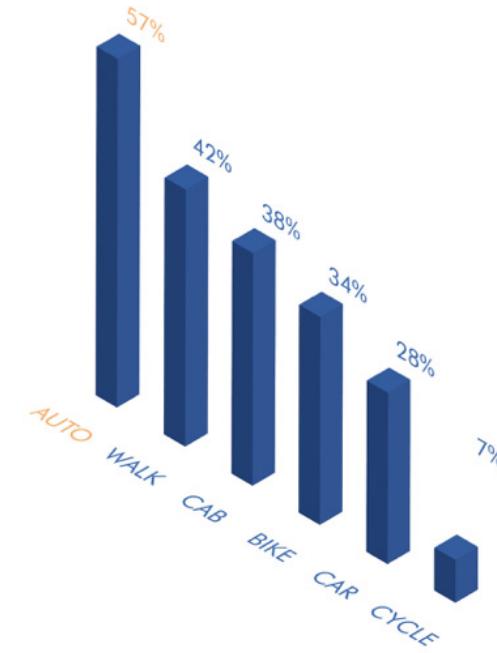
Since the service had recently started in pune, we decided to drop by and **try it out** for ourselves.



We conducted **user survey** to get to know the quantitative trends from our perspective users and their interactions from their environment.

The two major things we found out was:

- Autorickshaw was the mode of transport people significantly use for their last & first mile commutes. Further preferences are walk, cab, bike, car & cycle accordingly.
- 81.1% of the users have to commute less than or equal to 5km as their first and last miles.



We concluded that the best way to do **technical research** would be to practically make a quick prototype as we would get to understand the processes involved and hands on experience, which would help during the stage of making the final prototype.

#### **Exploring manufacturing techniques:**

1. Arc Welding: To join the sections of the frame to each other and the handle.
2. Steel laser cutting: We used mild steel considering the strength and cost.

#### **Final Mule and learnings from the exercise:**

- Designing for laser cutting.
- Choosing the right materials.
- Welding techniques.
- Installing bearing mechanisms.
- Understanding tolerances.
- Planning for parts in advance.



### **The chosen direction:**

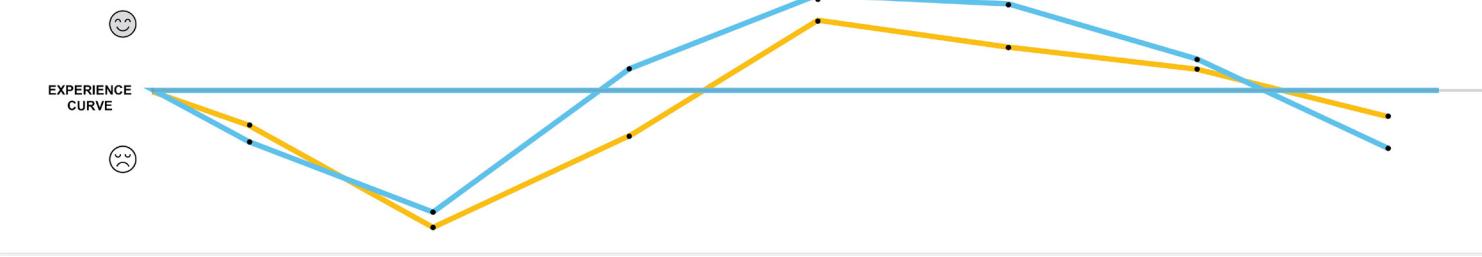
After analysing the research content and ideating on the possible directions. We shortlisted three directions:

1. More than mobility.
2. Mobility for all.
3. Mobility on demand.

With the suggestions from the analysis jury members we chose to go ahead with **Mobility on demand.**



	BEFORE			DURING			AFTER	
	01	02	03	04	05	06	07	
Activities	Opening the App Checking availability Entering Destination Cost checking Booking	Calling and Explaining the location Waiting Arrival and identification	Getting in Confirm Destination Start trip	Relaxing and keeping an eye on the map	Reaching the destination(giving direction) Ending Trip Payment Collect Belongings	Payment and review	Mobile Notification Walk to the desired destination	
Points of contact	Open the app Search for the nearest destination Minimum balance required - Rs 20	Going/Walking to the hub Booking the vehicle	Locating your vehicle Scan QR code Start trip	Lock and unlock to stop between a ride	After 30 mins, get notification to update the booking	To end trip and find the nearest hub Payment	Go to the nearest metro-/bus station	
Expectations	Knowing proper address Knowing if you are in there service map radius Cheap	Common Language Arrives quickly	Safety of luggage Driver knowing the final destination	Privacy and space Comfort Less interaction with the driver	Proper time to stop Choice of destination Time factor	Should have money Money /Change Internet (Payment App)	No further contact from driver Contact details privacy Benefits to daily users	
	Nearby hubs	Easy to reach the hub Easy booking	Finding vehicle easily Good condition of vehicle	Personal Safety	No time limit	Close by hub to destination Easy to Reach/ Easy to End trip Easy to park and cheap	Close by places suggestions Benefits to daily user	



## Diving deeper; analysing Pedl and Uber

We took a look at the contrasting services in Pedl and Uber. With pedl being an up and coming cycle sharing service and uber being an established player in the taxi business.

We used an **experience mapping** of both services, simultaneously, to give us leads regarding stakeholders, liabilities and contact points of either service.

## INSIGHTS

### Cost

The cost of renting parking spaces is substantial in metro cities, especially around public transport hubs.

### Dependence

A lot of commuters are forced to depend on someone directly for their mobility, for instance autorickshaw drivers. Hampering their freedom.

### Green trend

The awareness of electric vehicles is seeing a global rise. With global manufacturers and governments working together to implement this vision.

### Inconvenint

Cycles, though eco friendly, are inconvenient due to the physical strain and unruly traffic of India.

## OPPORTUNITY

" A service provides the user an experience of **independent, convenient and environmentally friendly mobility** for the last mile commute."

## **Target users**

After talking to our pool of users, we narrowed down to two sets of users namely, the student, the young professional.

**The student.**



**The young professional.**



**Needs**

Cost effective, fun and something perceived as cool.

**Needs**

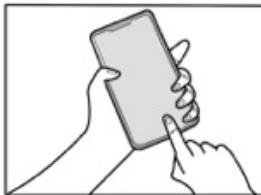
Presentable, comfortable and able to carry belongings

### The chosen service concept:

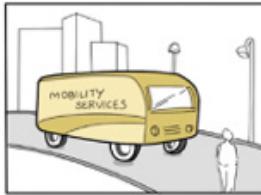
After analysing the research content & experience maps and ideating on the possible concepts. We shortlisted two directions:

1. Concept having mobile hubs.
2. Concept having compact stackable stationary hubs.

With the suggestions from the analysis jury members we chose to go ahead with a hybrid service concept where we have a combination of both stackable hubs near the public transport hubs and mobile hubs near the residential areas.



The user books a ride on the app.



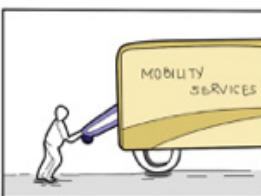
User gets the location to the nearest hub.



The user books a ride on the app.



App guides the user to the nearest hub.



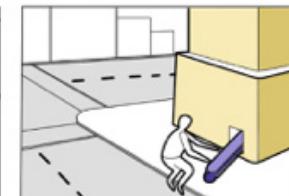
The user receives the vehicle, and starts the commute.



The vehicle can be parked mid-trip.



The user books the vehicle with a pre-registered thumb print.



App guides the user to the nearest hub.



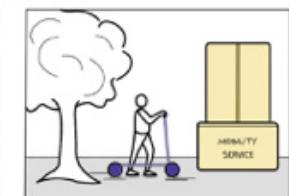
The commute commences.



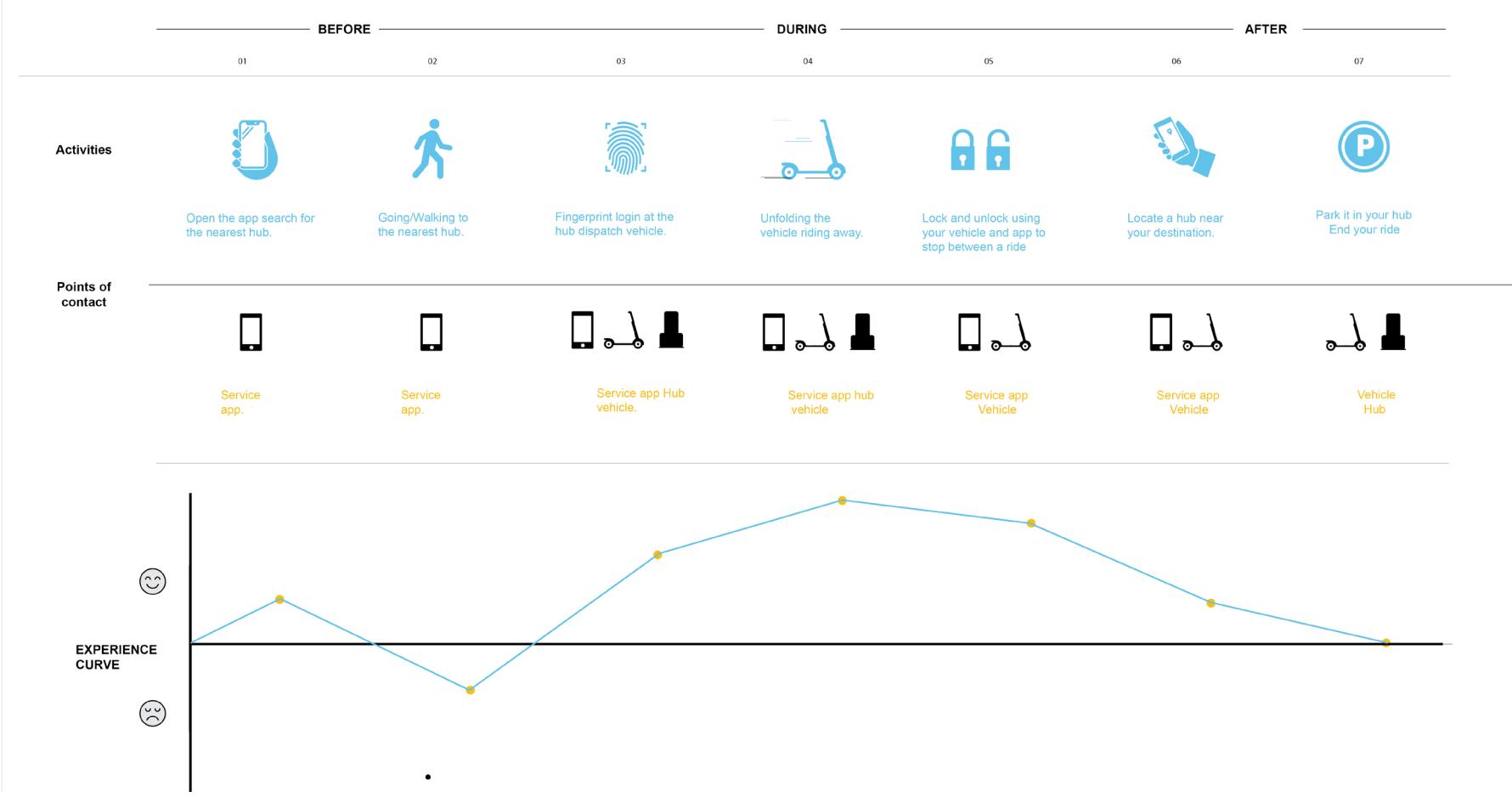
The user returns the vehicle to another hub.



The commute commences.



The user finds the nearest hub to their destination and deposits vehicle.



### Experience map of the chosen service concept:

We mapped out our concept in detail to figure out the details of the service; the Stakeholders, the points of contacts and the expectation of the users at each stage. This helped us construct our scenario.

## BRANDING THE SERVICES

### Why sparrow?

- This sparrow is a symbol of **simplicity and community**. It also represents joy and protection.
- Being a small bird who travels short distances, sparrow emphasizes our brand aptly.
- Similar to sparrows, who come in a flock, our vehicles can be collected from a group available at the hub.



#F9B06E

#### **Manhattan**

It is a youthful color, associated with joy, combines the energy of red and the happiness of yellow. It targets the students.



#003366

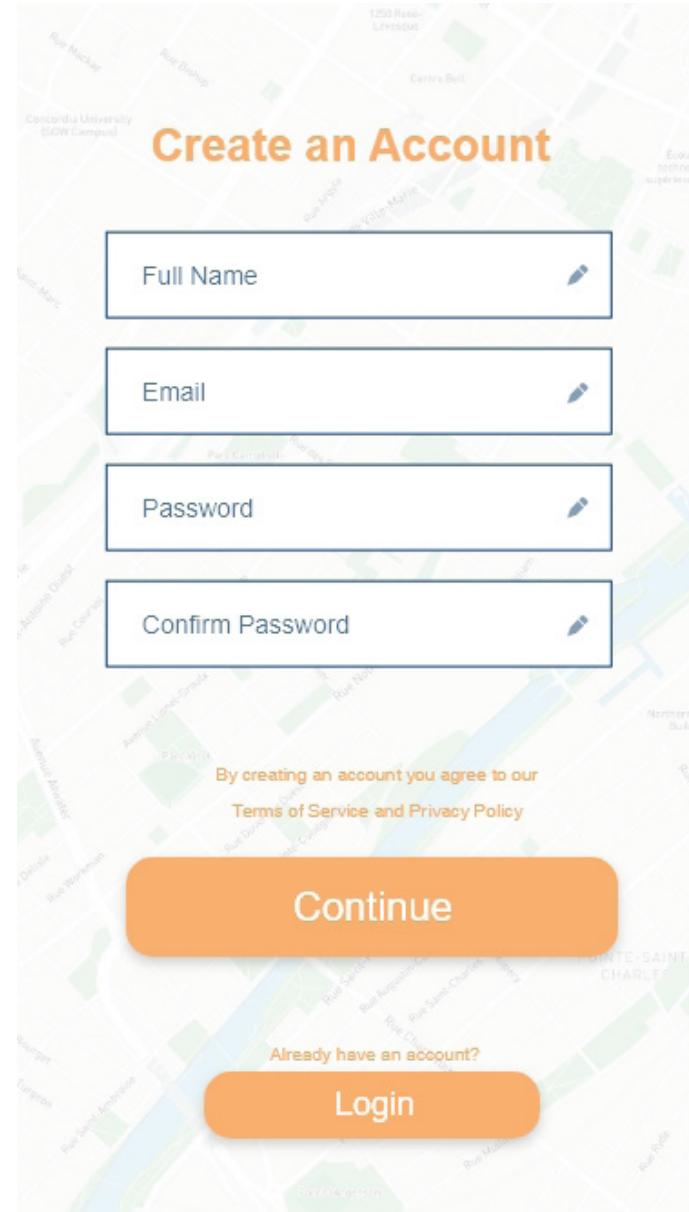
#### **Midnight blue**

It is a corporate color, which signifies trust and reliability. It targets the young professional personna.



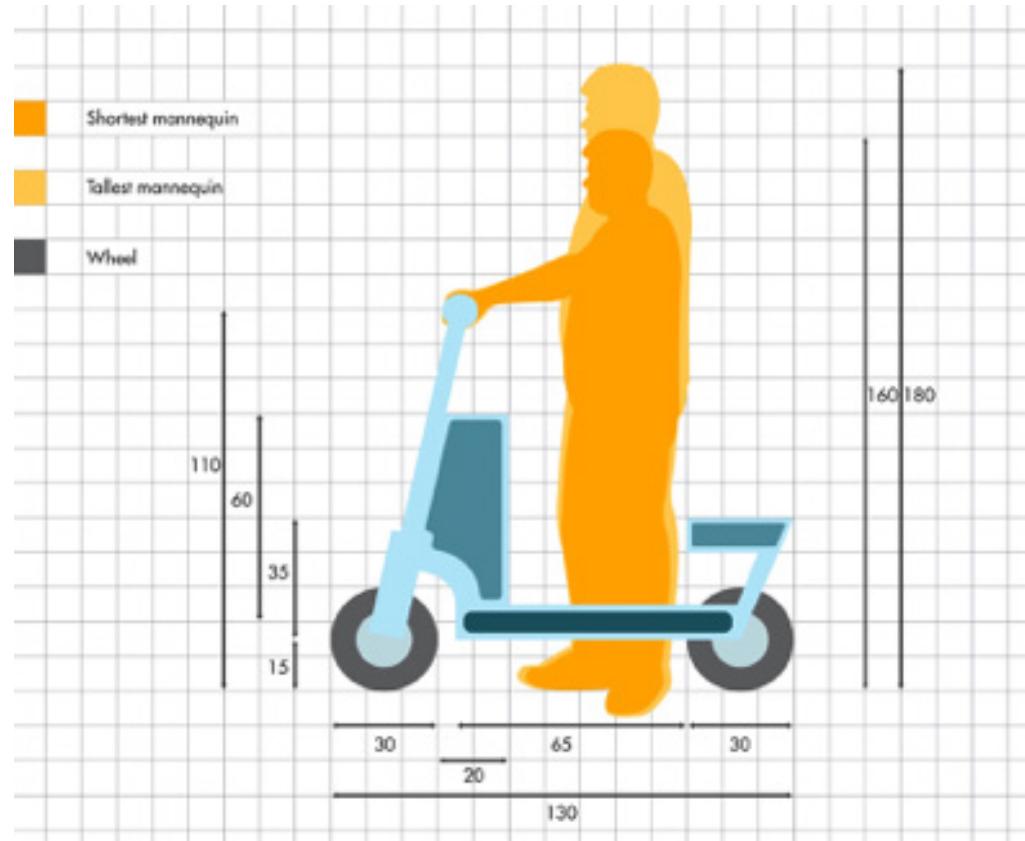
## Mobile Application

The mobile application is one of the primary contact points for the service; so we made a working mockup of the application.





We started with initial **ideation sketch** ideations to explore the kind of architecture the vehicle could have.



### Tentative packages

After the ideation we came up with two packages one with a seat and one without a seat.

We realized that the seat would need to be adjustable for a wide range of users howevermore moving parts would compromize robustness and increase maintainance costs.

The vehicle was designed with few constraints in mind.

- **Compact.**

The cost of renting parking spaces is substantial in metro cities, especially around public transport hubs.

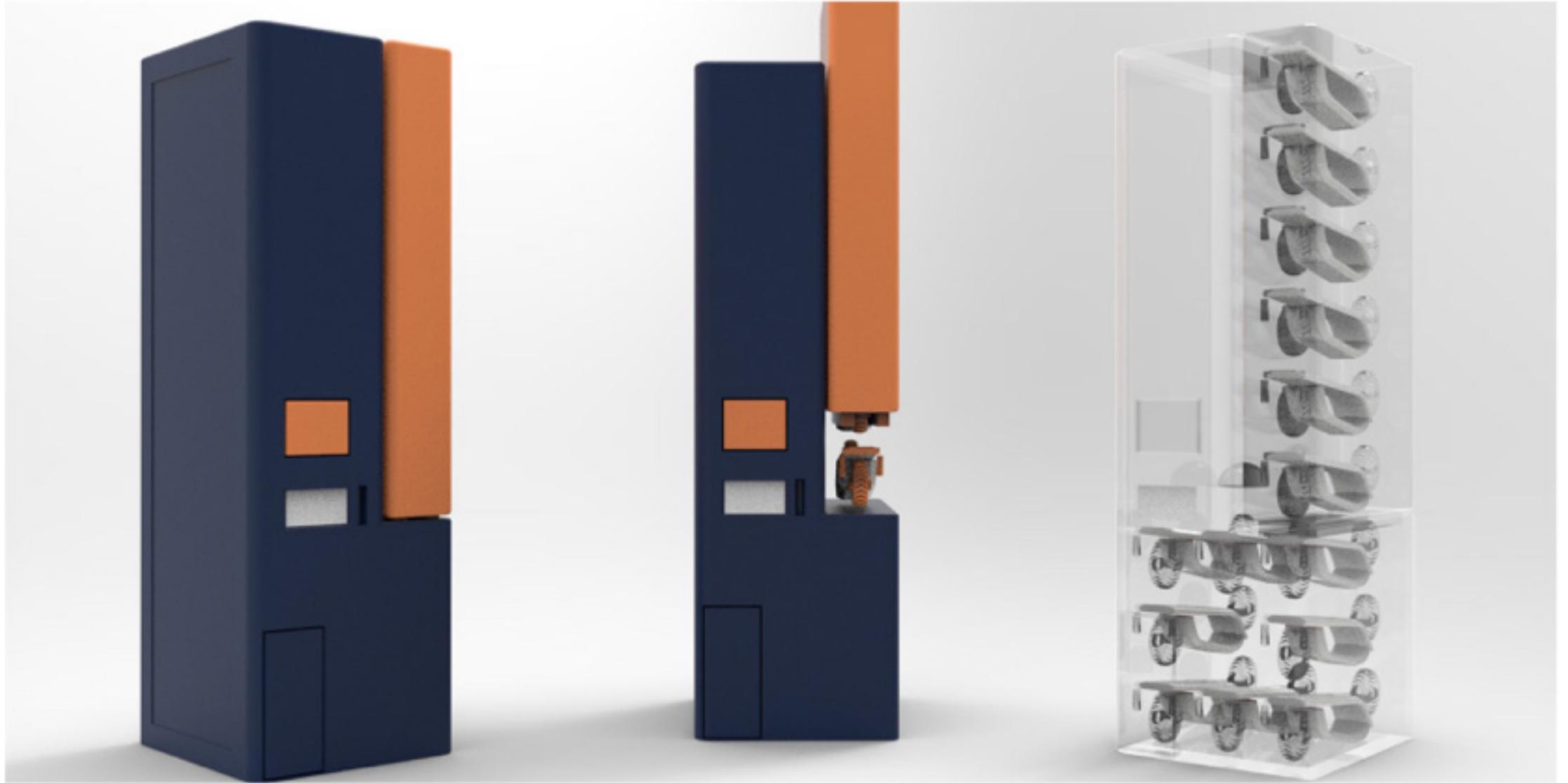
- **Low maintenance.**

A lot of commuters are forced to depend on someone directly for their mobility, for instance autorickshaw drivers. Hampering their freedom.

- **Robust.**

The awareness of electric vehicles is seeing a global rise. With global manufacturers and consumers.





The Hub.

Scooter refill

Internal stacking

## The Scenario:



1. The user leaves home.



2. He opens the app and looks for the nearest sparrow hubs.



3. The user locates the hub and walks towards it.



4. He verifies his account through fingerprint identification.



5. He receives the vehicle from the Sparrow hub.



6. He starts riding.



7. He stops at a shop and locks the vehicle through the vehicles monitor.



8. He unlocks the vehicle using the app.



9. He comes out with the parcel.



10. He places the parcel on the hook.



11. He rides to the hub, closest to his destination.



12. He puts the vehicle in the hub.

## Render animation and the working prototype

Please watch these videos.

- A 33 seconds render animation video highlighting the features of the vehicle.  
<https://youtu.be/283zh0yJKNw>



- 2 minute 18 seconds video showing casing the working prototype and explaining the build we chose.  
<https://youtu.be/SyMSAJtYNOs>
- 4 minute 30 seconds video of me explaining the project to a journalist in Autodesk University Meet Delhi 2018  
[https://www.youtube.com/watch?v=Oa\\_](https://www.youtube.com/watch?v=Oa_)



Thanks for watching.