ASSIGNMENT 3: ENVISIONING PRODUCT-SERVICE-SYSTEMS

DAVID BARTER

INDS 3008: Systems Thinking - 004

PRESENTATION OVERVIEW

CLIENT & BRIEF

MARS SOLUTIONS LAB

MaRS Solutions Lab is an innovation hub in downtown Toronto that provides various innovation incubation services to help solve complex systemic design challenges in urban Canadian society.

As the client for this project, their brief aims to solve the challenge of envisioning how urban mobility in Canadian cities might be transformed in the short and long term as a result of new technologies and in support of a circular economy model.

Through the lens of an aging population, their aim is to provide urban mobility solutions that function across all stages of life, with the opportunity of using modular vehicle interiors as a focus.

SUMMARY OF TRENDS

MICRO-MOBILITY

Traffic jams, noise and air pollution are triggering a shift to mobility solutions such as e-scooters, bikes, hoverboards, that cover “First and Last Miles”

DATA-DRIVEN MOBILITY

Ability to harness insight from big data analytics in real time presents opportunity to optimize transportation networks, as well as discover new ones.

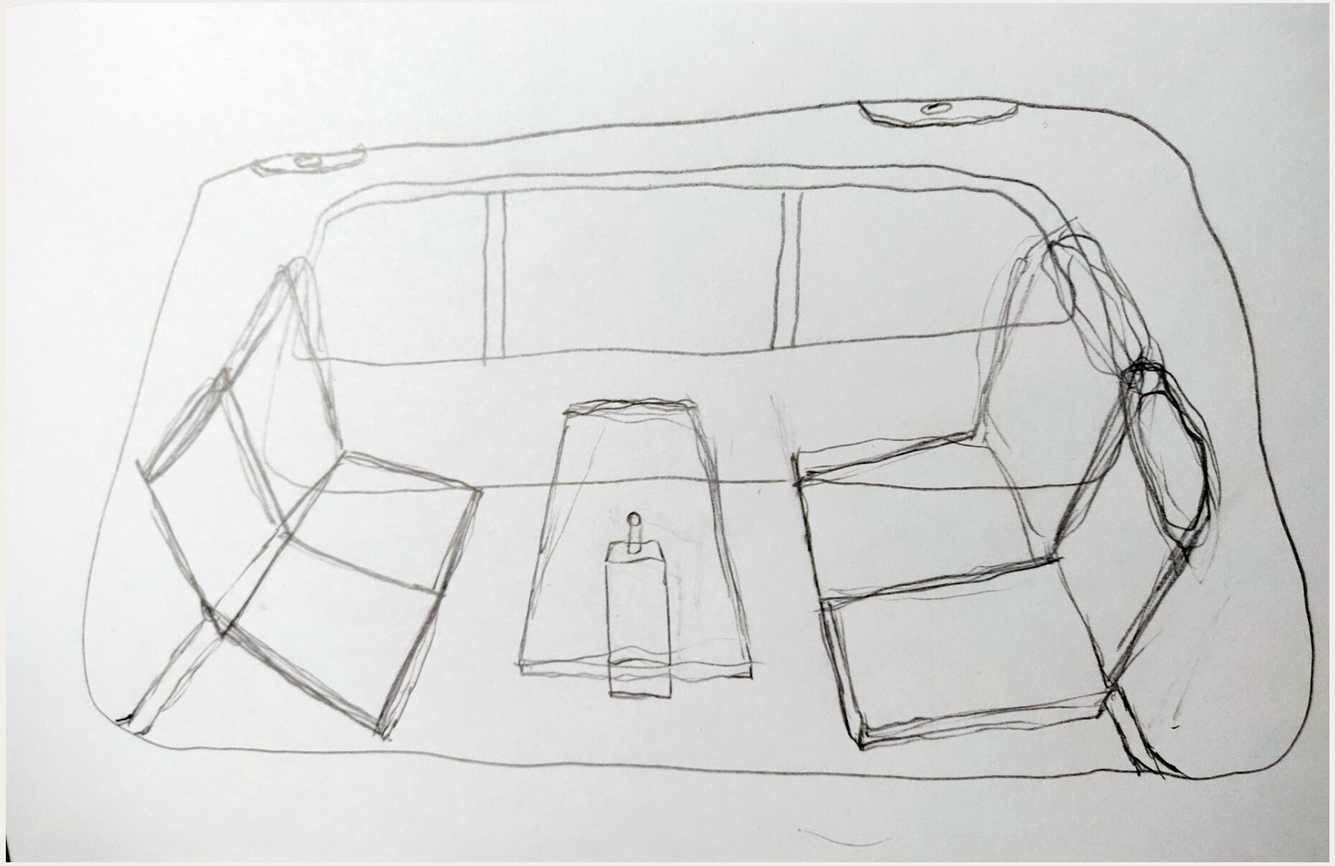
CARS NO LONGER A STATUS SYMBOL

Growing interest in alternative mobility offerings. Safety, flexibility, availability driving alternative choices, owned vehicle abandonment.

INSTANT ECONOMY

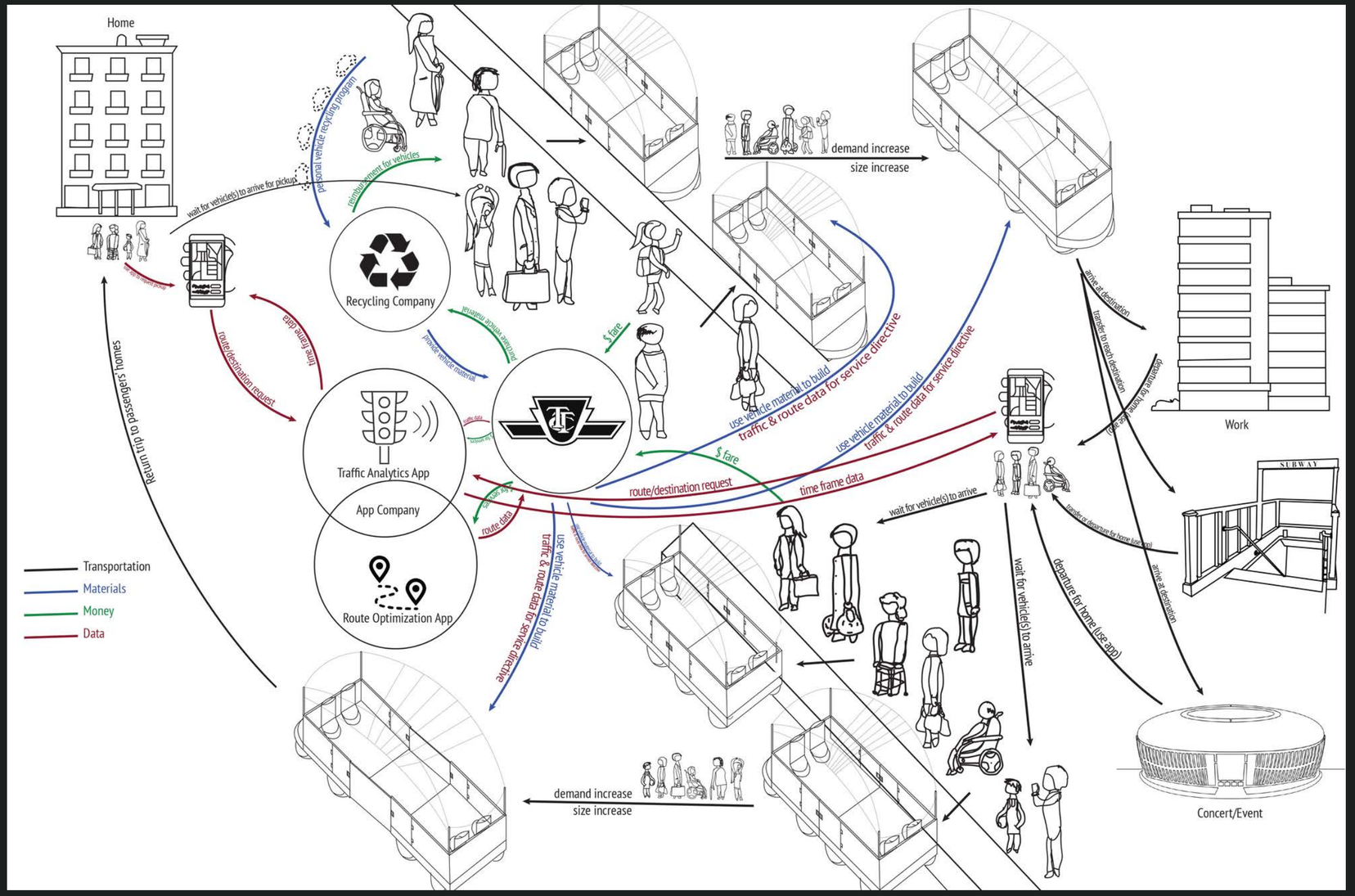
On-demand production and on-demand delivery. An expectation for “instant fulfillment” on retail orders from drone and robotic last-mile delivery services.

SUMMARY OF OPPORTUNITY

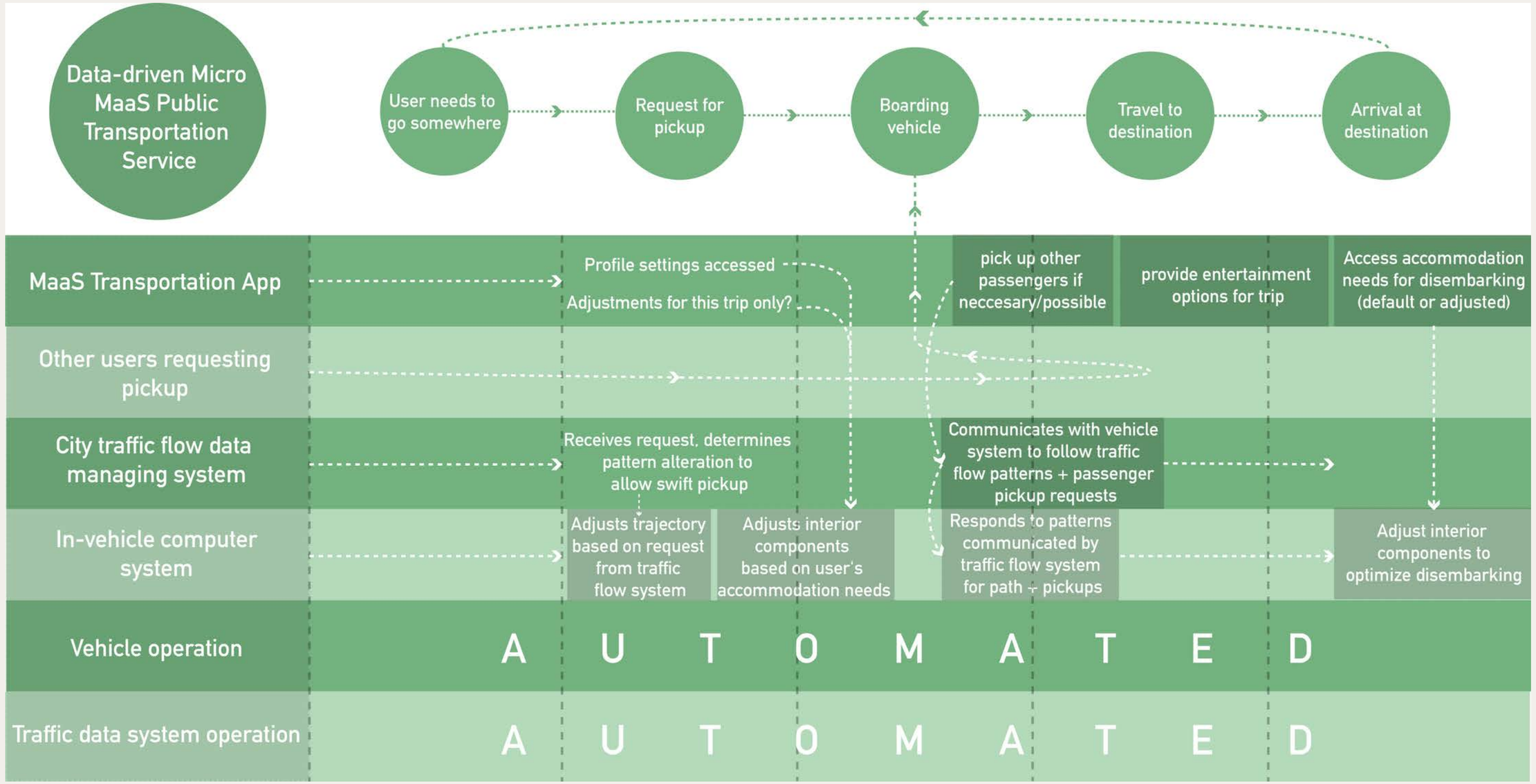


MODULAR MICRO-MOBILITY AS A SERVICE

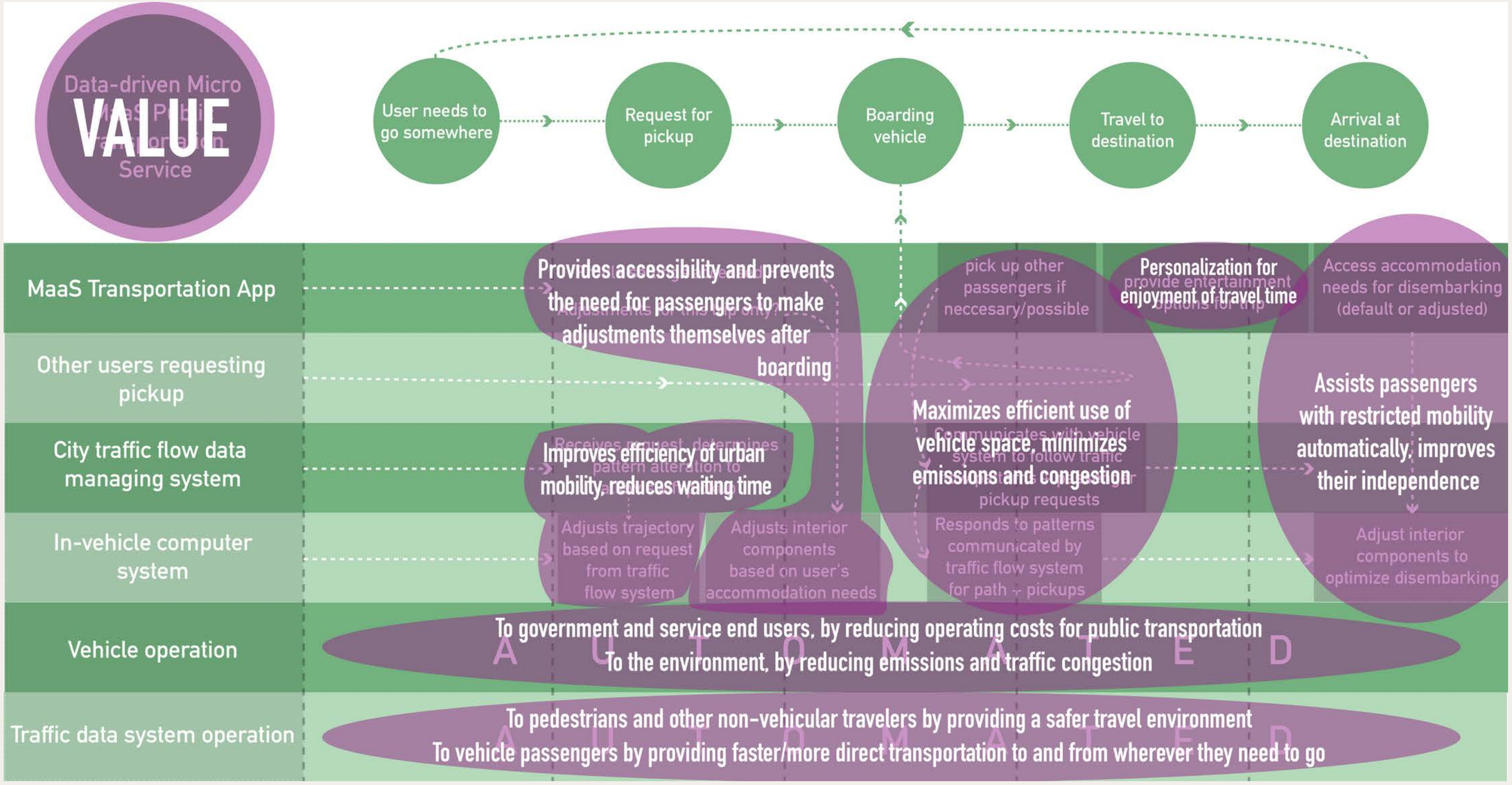
- Integrated, on-demand micro-scale transportation service.
- Personal vehicles and slower public transportation vehicles replaced by (and recycled into) small electric, autonomous service vehicles.
- Traffic/route optimizing data and user requests through app defines when, how, and where service is to be provided.


Home
wait for vehicle(s) to arrive for pickup
personal vehicle recycling program
reimbursement for vehicles
Recycling Company
Traffic Analytics App
App Company
Route Optimization App
route/destination request
time frame data
route data
traffic data
$ fare
use vehicle material to build
traffic & route data for service directive
demand increase
size increase
Work
Concert/Event
SUBWAY
arrive at destination
transfer to reach destination
(use app)
wait for vehicle(s) to arrive
departure for home (use app)
Return trip to passengers' homes
Transportation
Materials
Money
Data

SYSTEM MAP

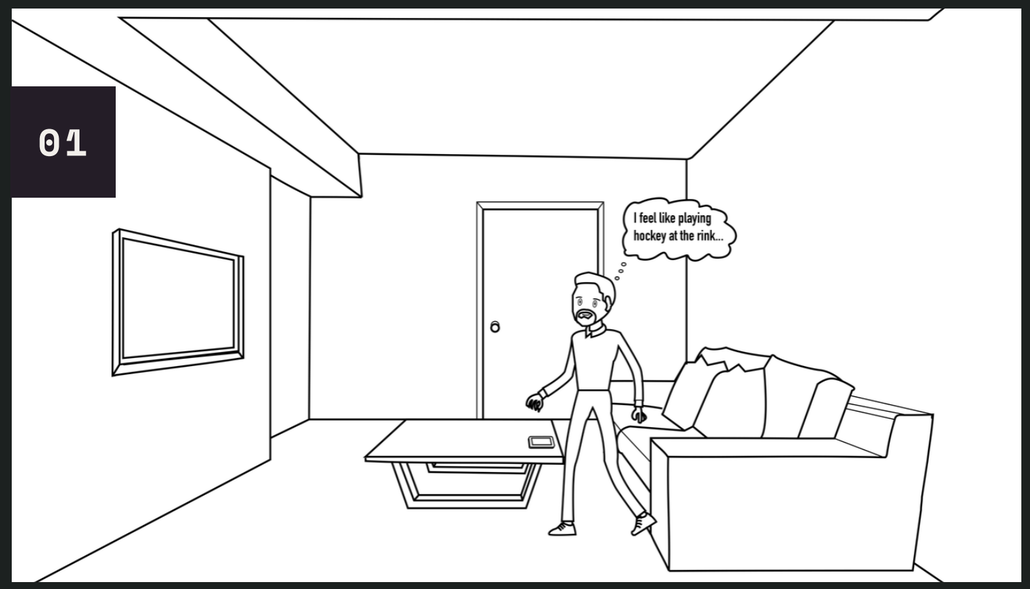


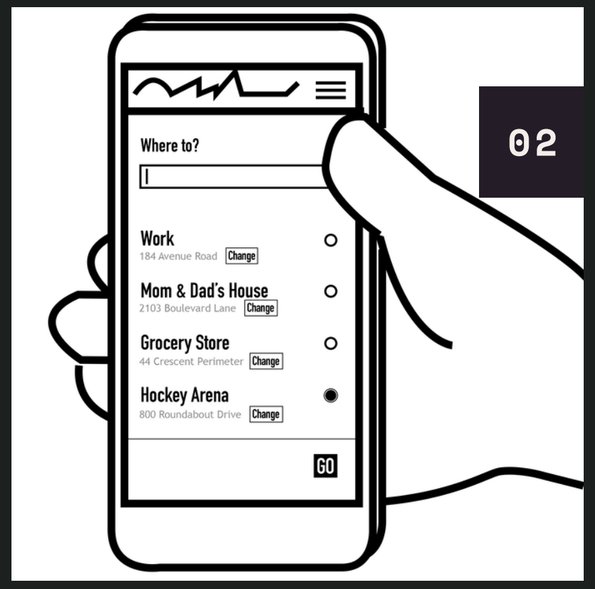
USER EXPERIENCE JOURNEY MAP

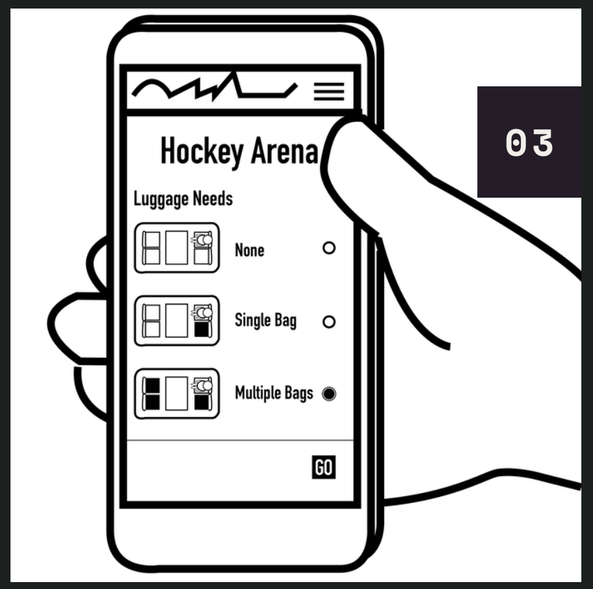


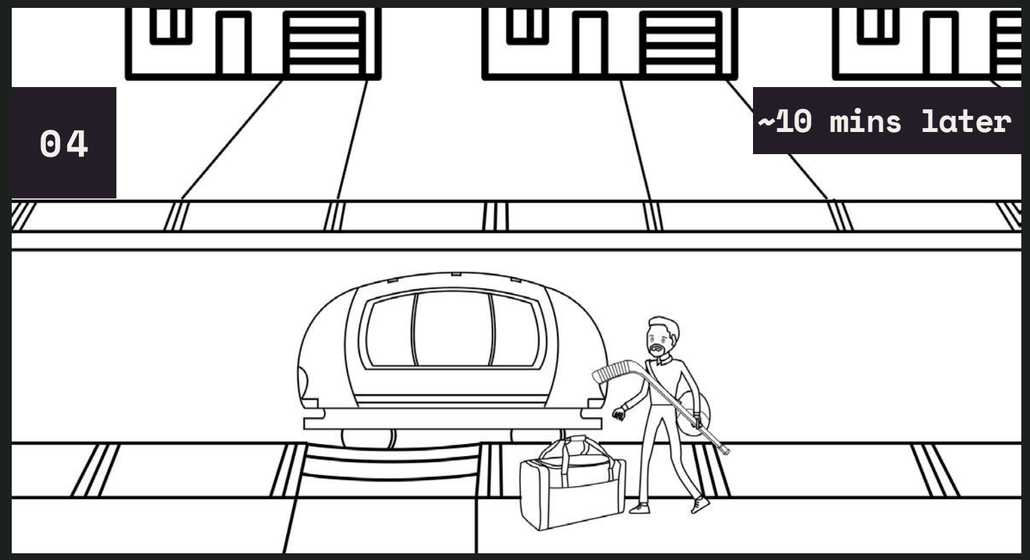
VALUES GENERATED WITHIN USER JOURNEY

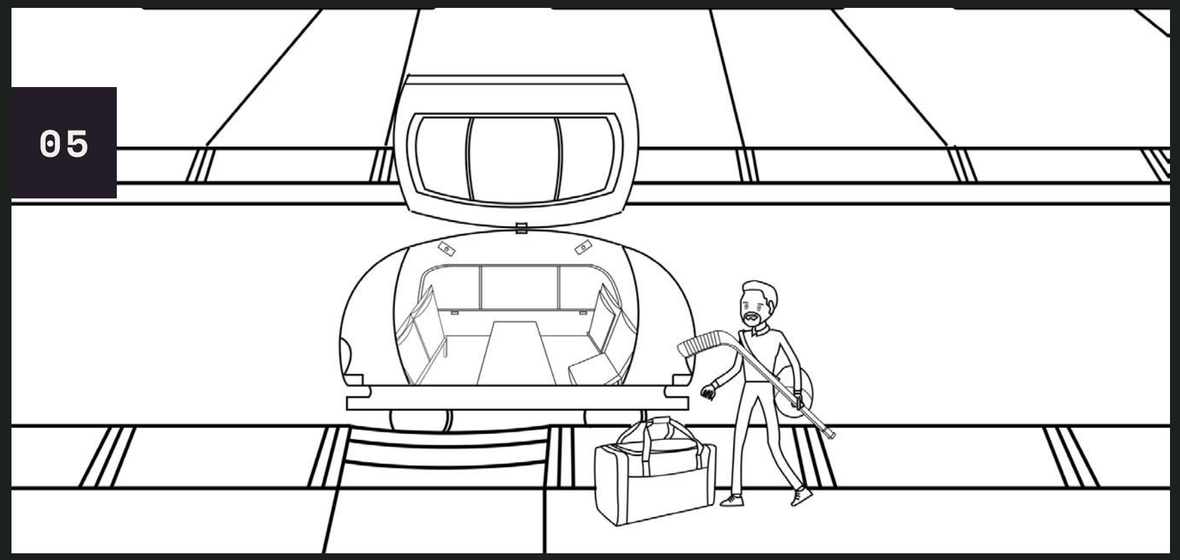
STORYBOARD 1 - PRIVATE SCENARIO











This user's need for extra space for his equipment bags prompts a vehicle with enough space to respond to his request

STORYBOARD 1 - PRIVATE SCENARIO

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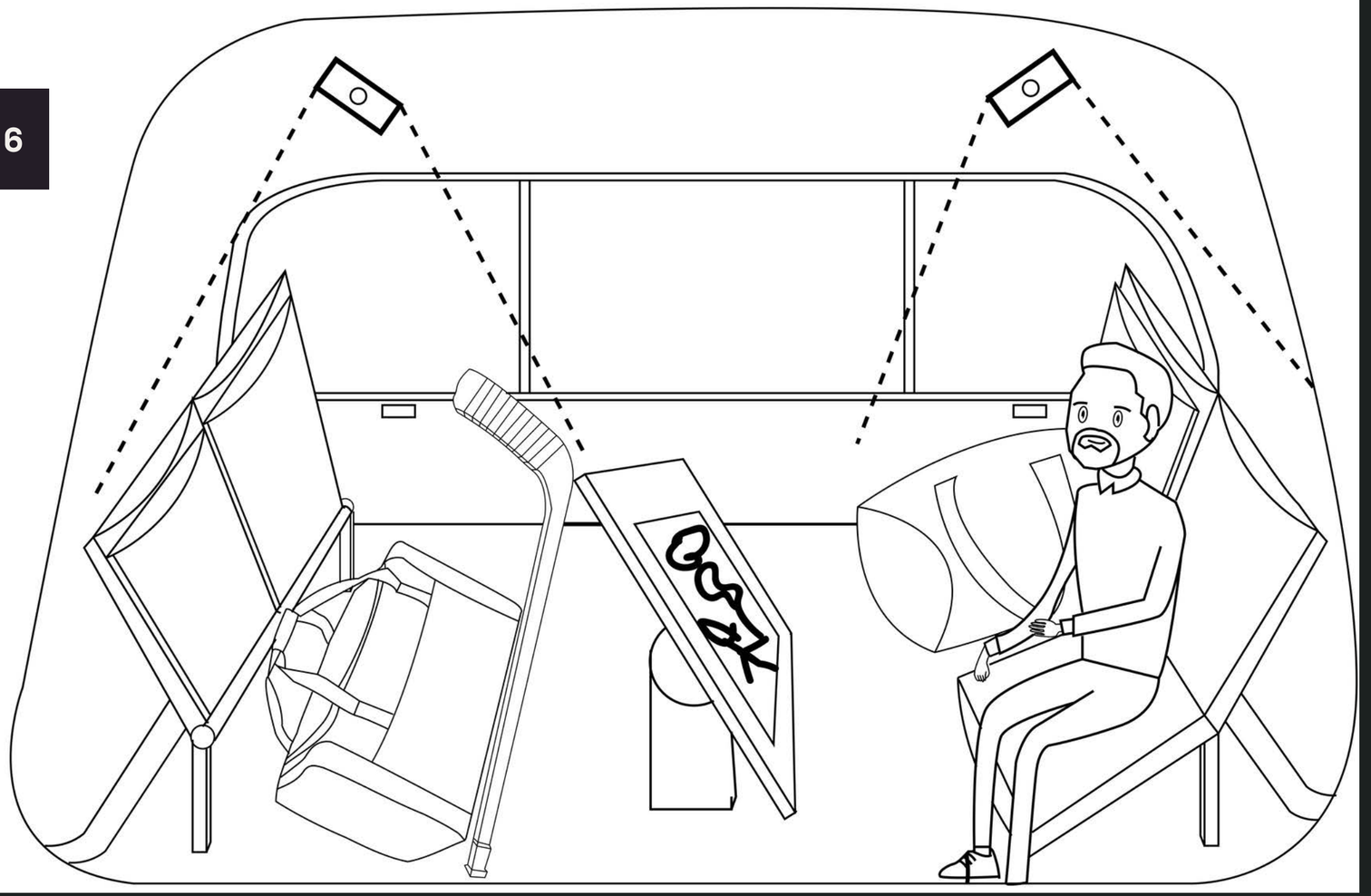

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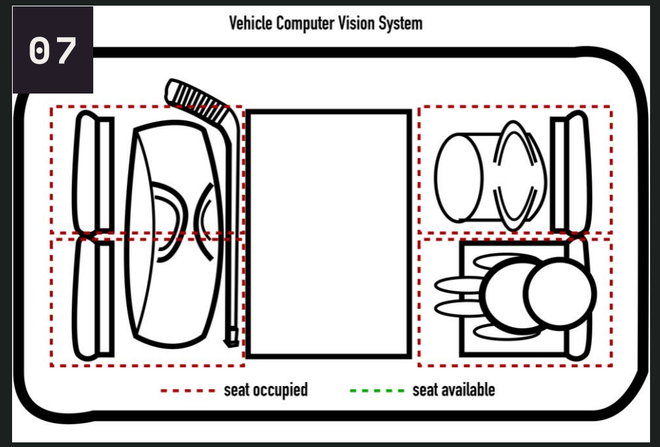

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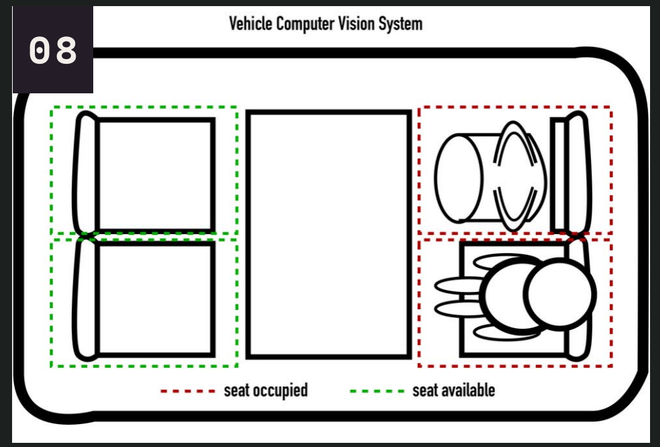
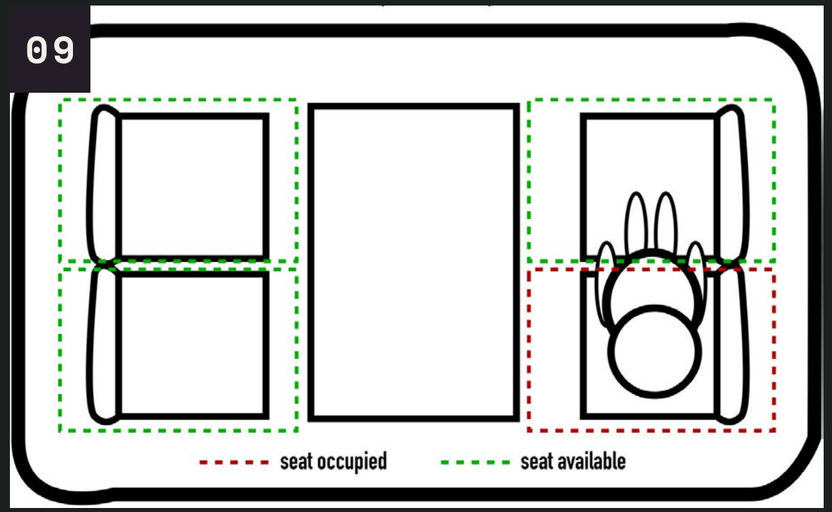


The closed-system computer vision cameras accurately detect when the vehicle's seats are occupied, and when they are not

STORYBOARD 1 - PRIVATE SCENARIO

09



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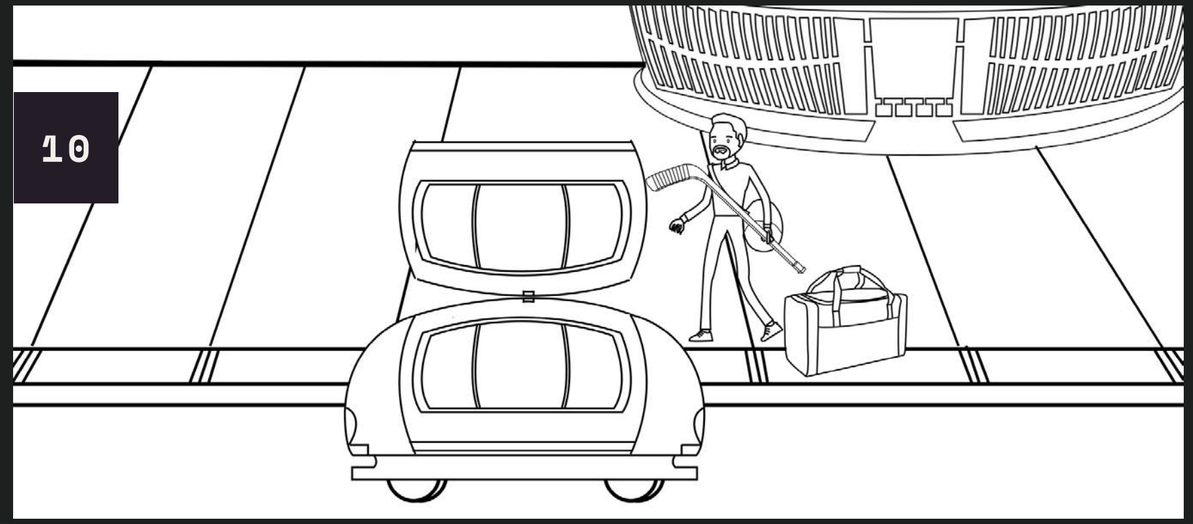

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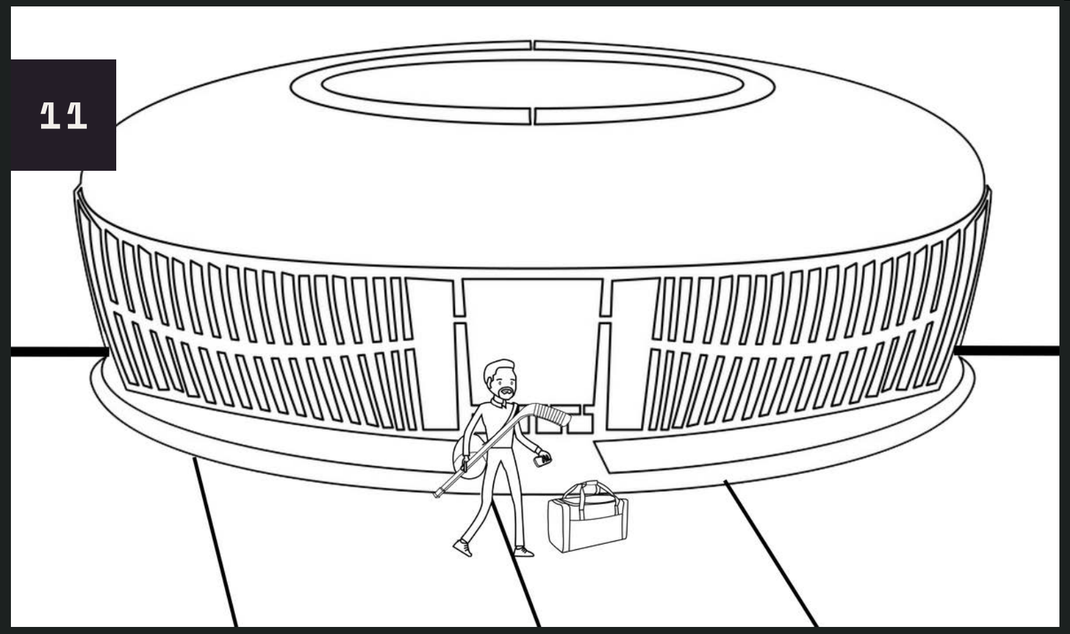

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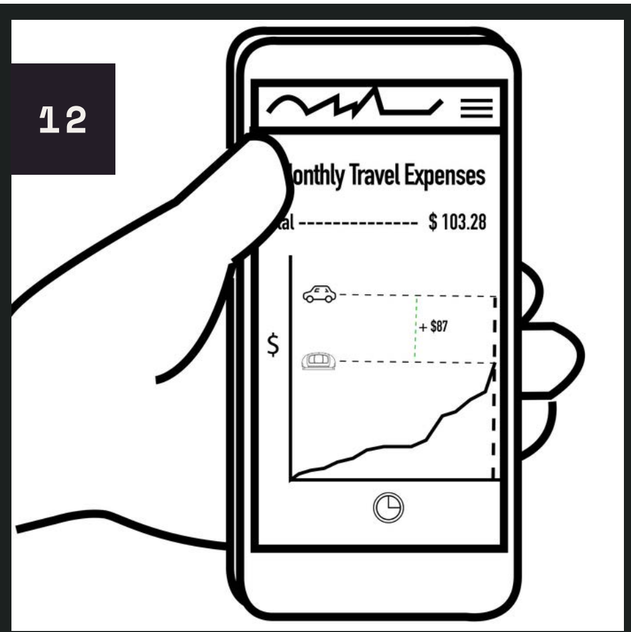
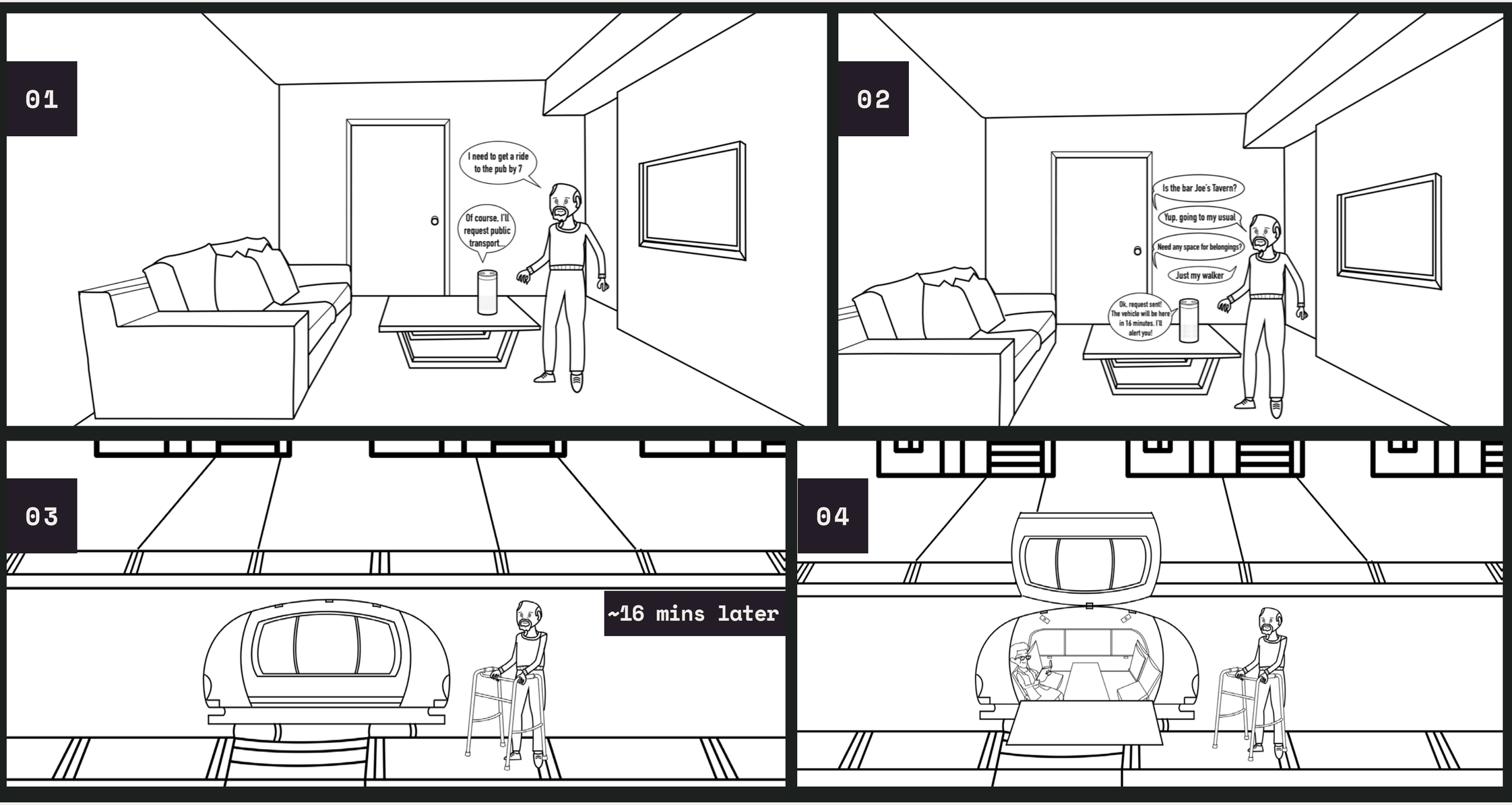


After reaching his destination, he checks his monthly expenses for transportation on his smartphone: it shows how personal vehicle ownership would compare in cost

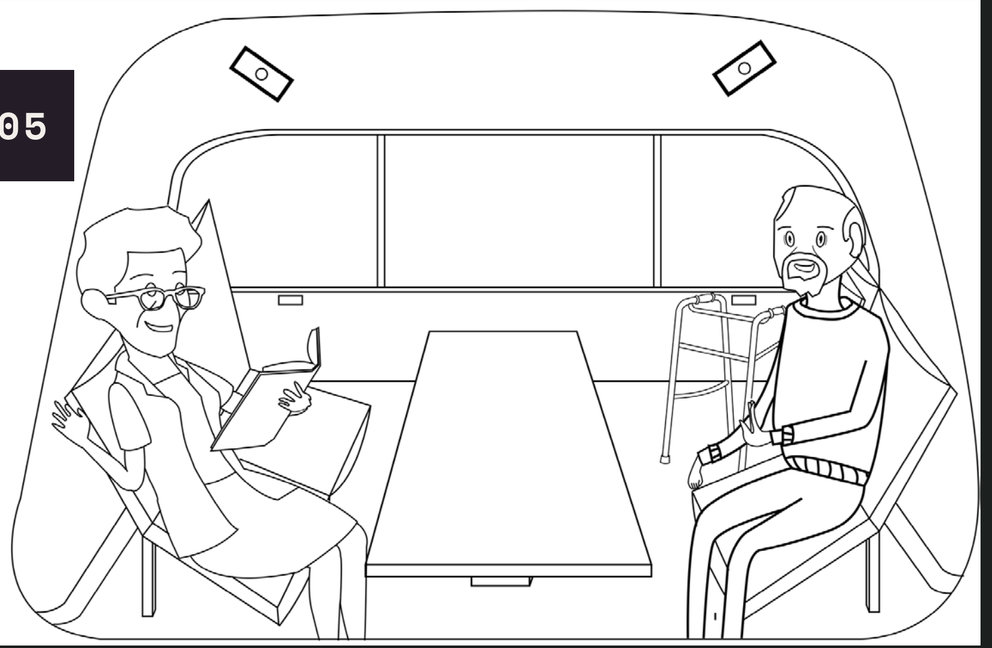
STORYBOARD 2 - SOCIAL SCENARIO



This senior user arranges his trip through voice interaction with his smart home UI. The transport system knows his preferences, such as for mobility, so the vehicle arrives customized to his needs

STORYBOARD 2 - SOCIAL SCENARIO

05



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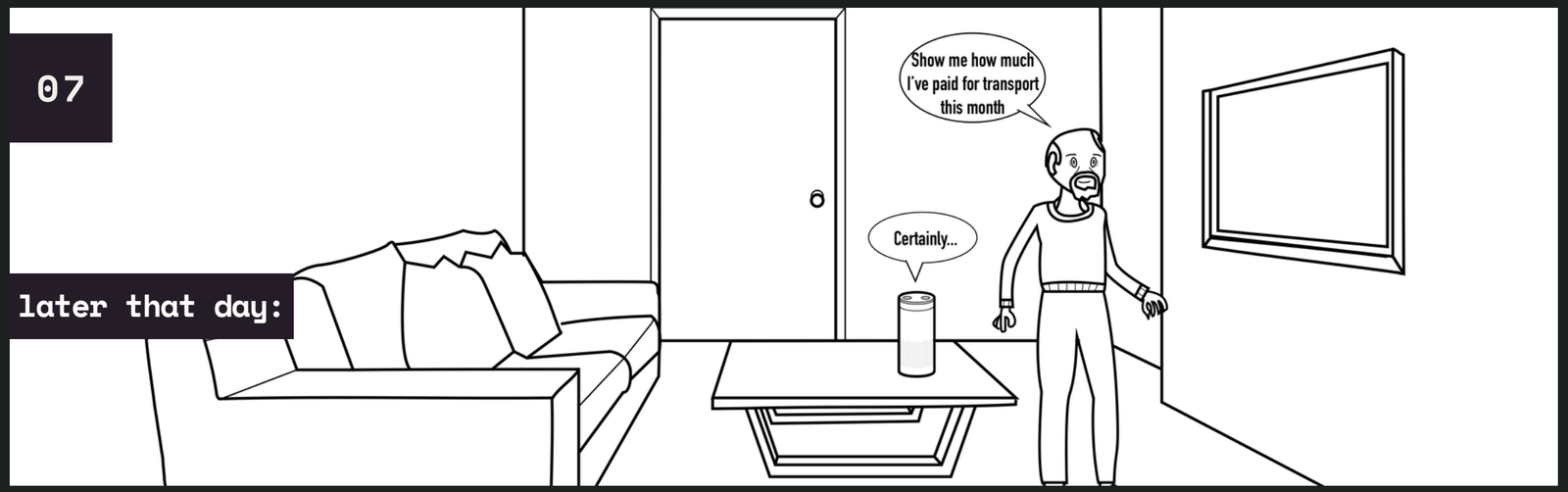
later that day:



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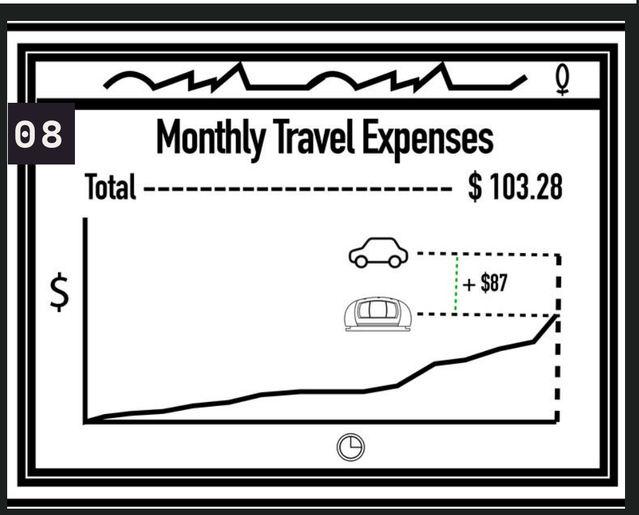
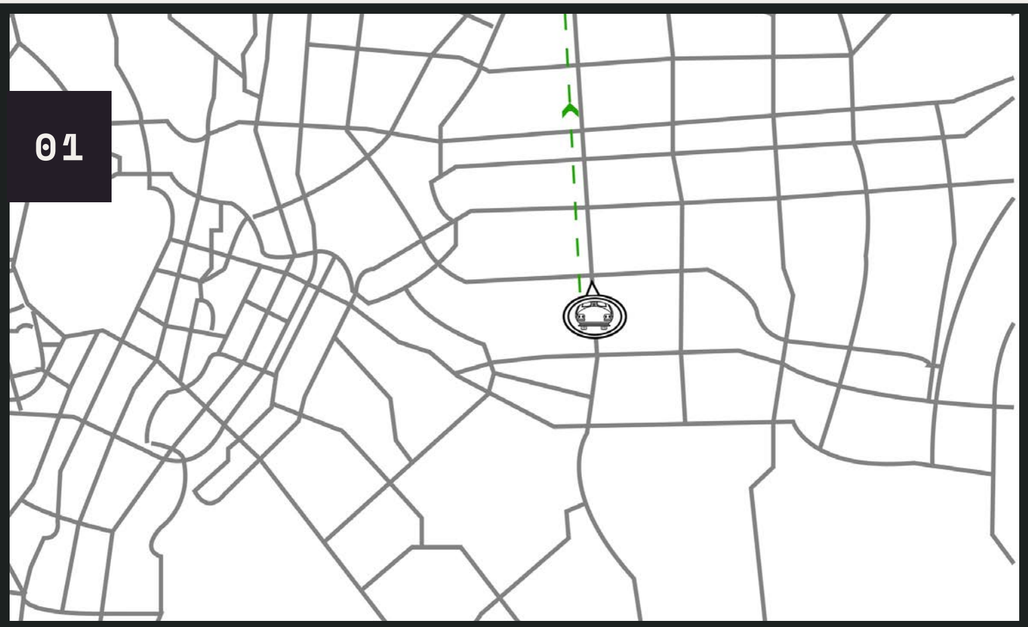


He has little need for storage, so his ride is shared with another passenger, providing an opportunity for socializing. After his trip, he asks his smart home to display his travel expenses on a large screen on his wall

STORYBOARD 3 - MAINTENANCE SCENARIO

01



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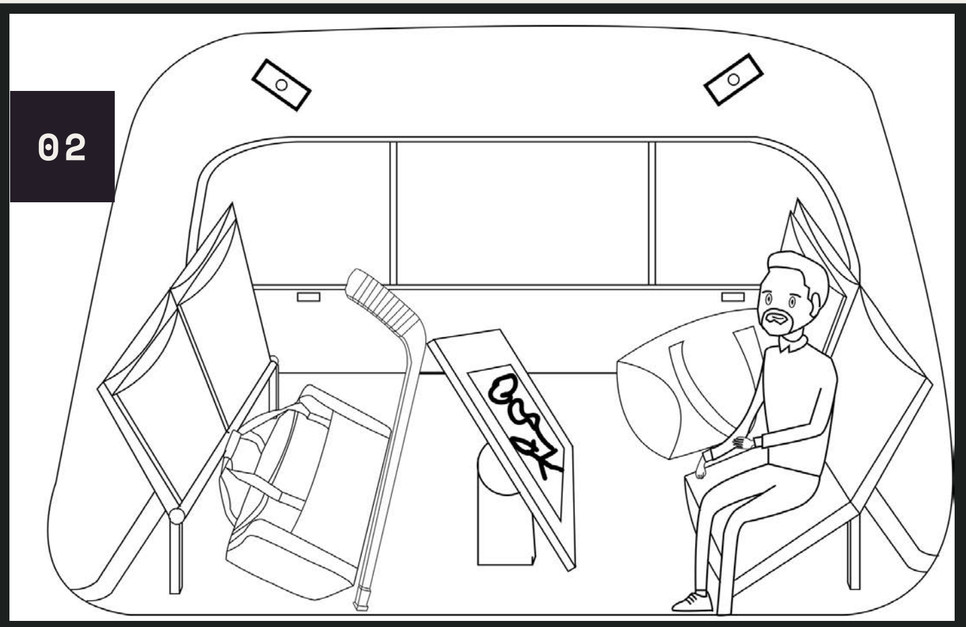

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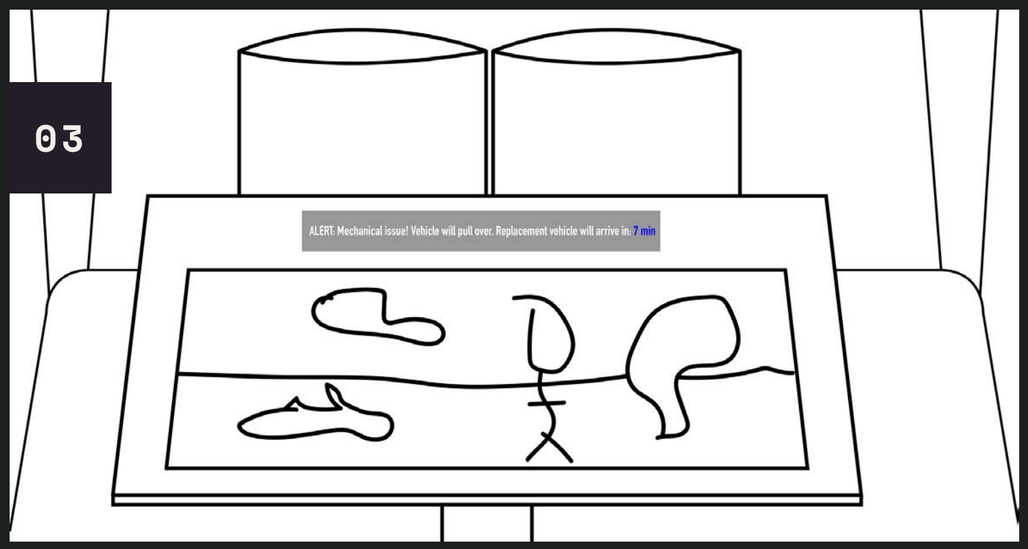

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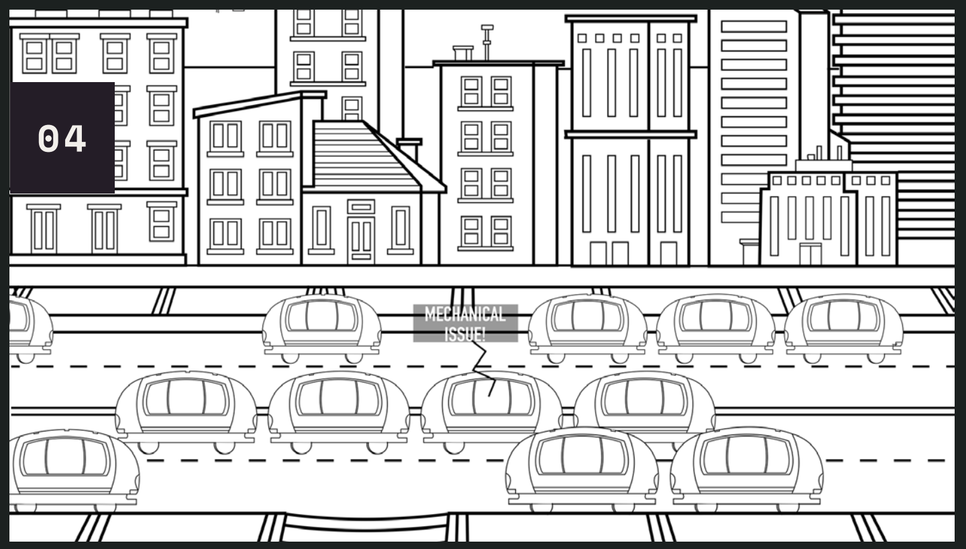
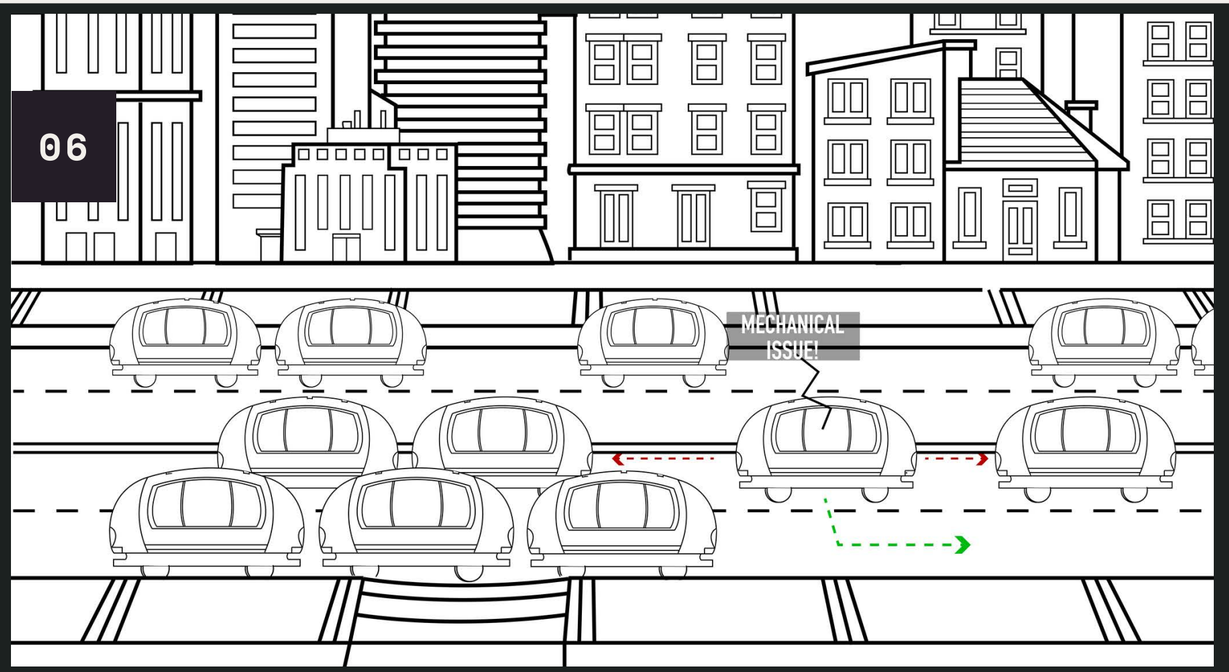
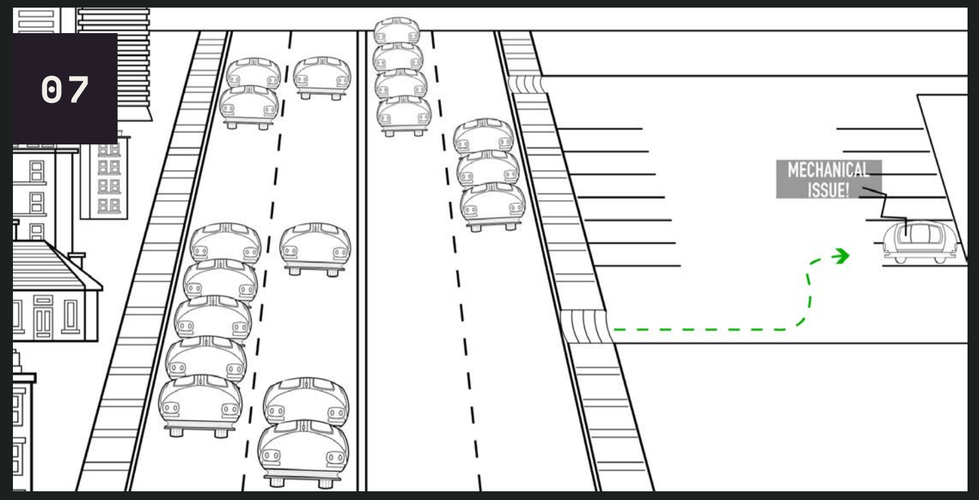
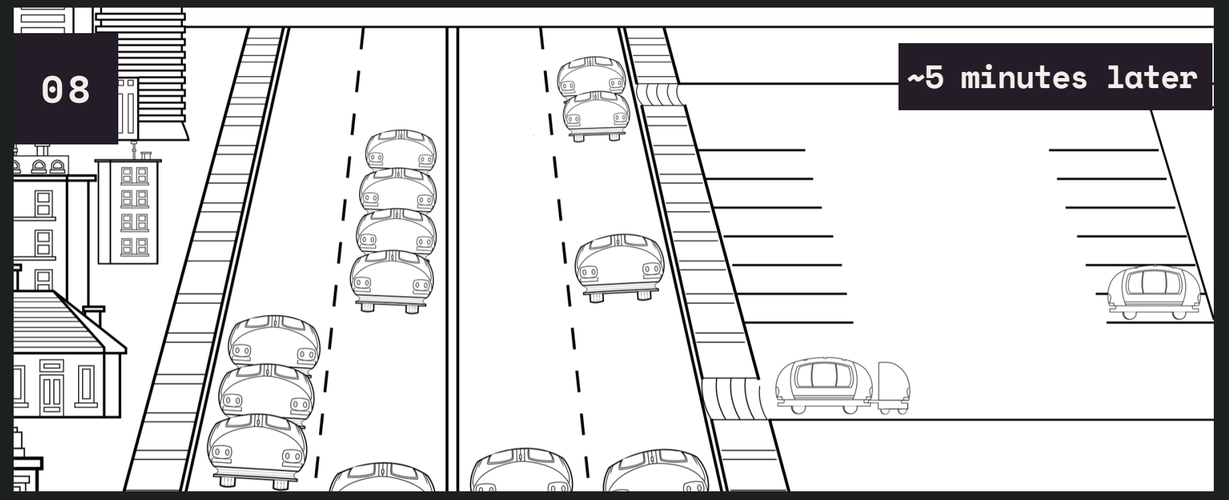


While on route to his destination, our user sees a message on his screen that a mechanical issue with the vehicle has occurred, and that it needs to be replaced

STORYBOARD 3 - MAINTENANCE SCENARIO

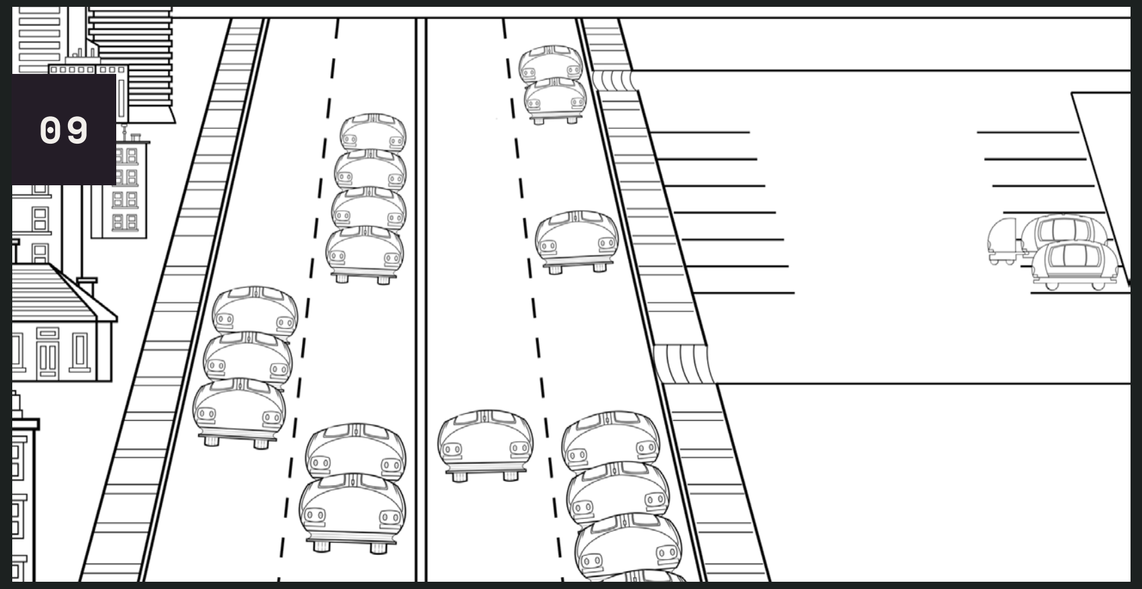


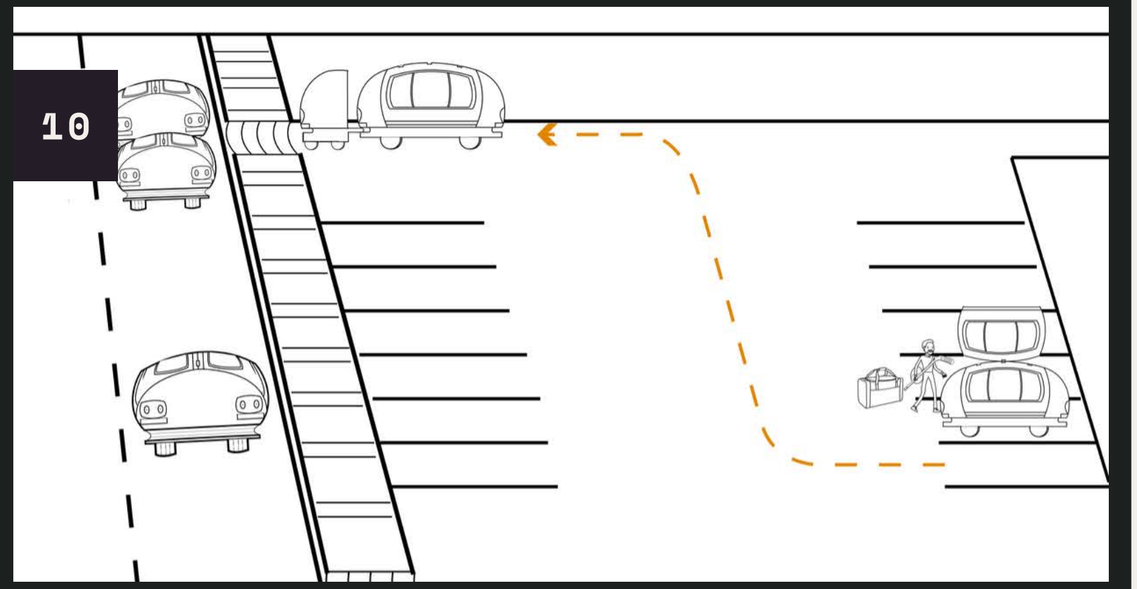


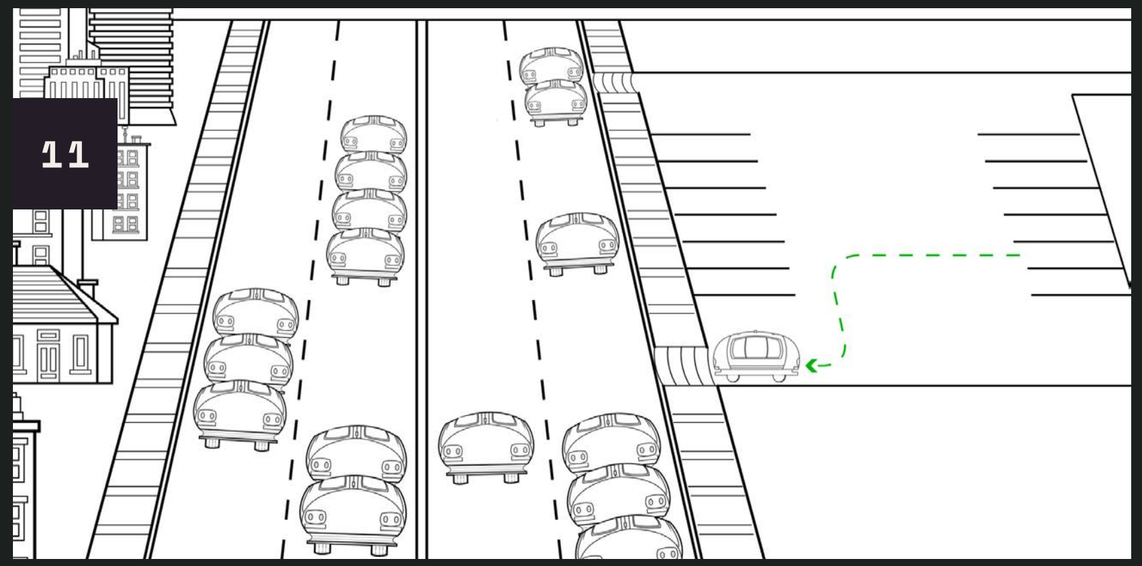


The automated system decides on a safe nearby location to park the vehicle at while it waits for a replacement vehicle to arrive

STORYBOARD 3 - MAINTENANCE SCENARIO

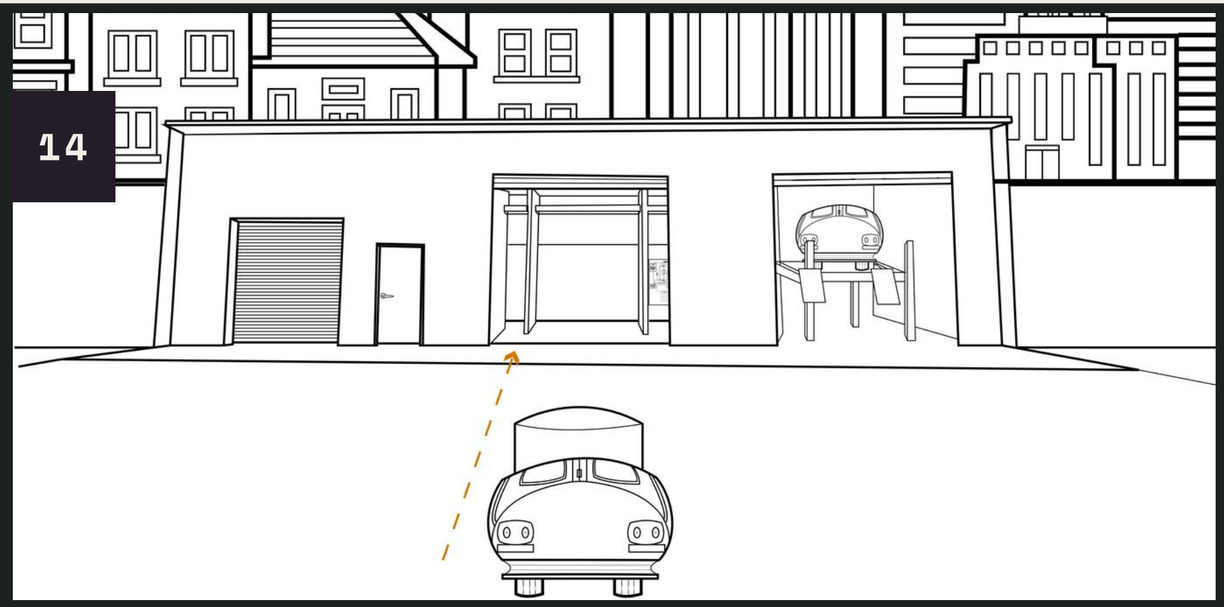


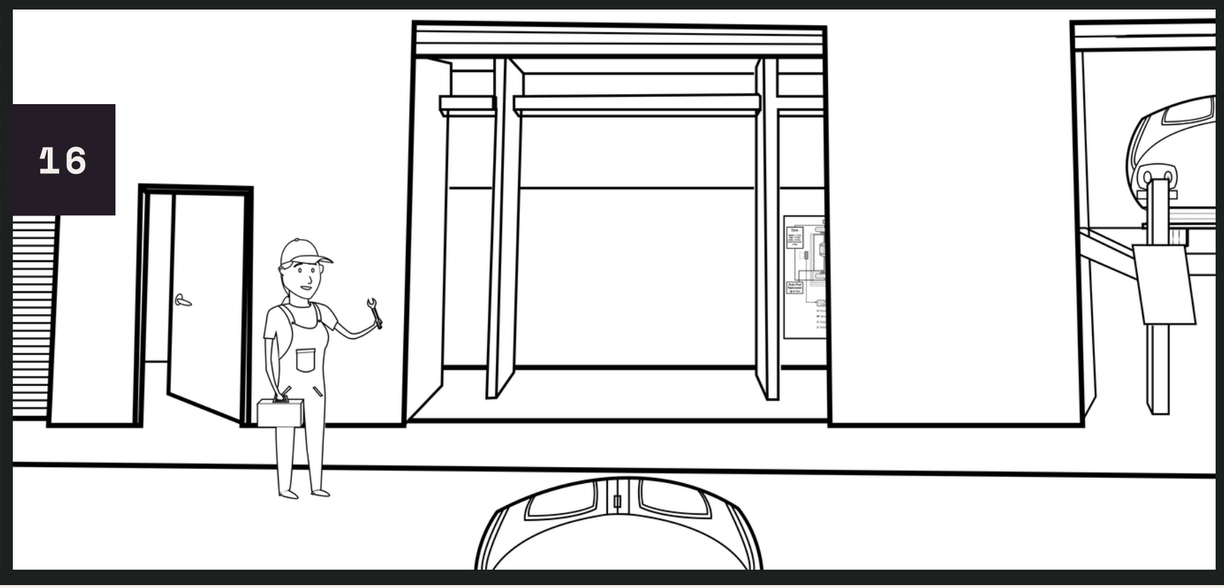




The user switches to the new vehicle, and the towing vehicle determines, through its AI system, which repair shop would be most ideal to take the damaged vehicle to (proximity + availability of mechanics)

STORYBOARD 3 - MAINTENANCE SCENARIO





Once the towing vehicle decides on which repair shop to go to, the computer at said repair shop can show it and any other vehicle needing repairs on their computers and provide a schedule for the work

STORYBOARD 3 - MAINTENANCE SCENARIO

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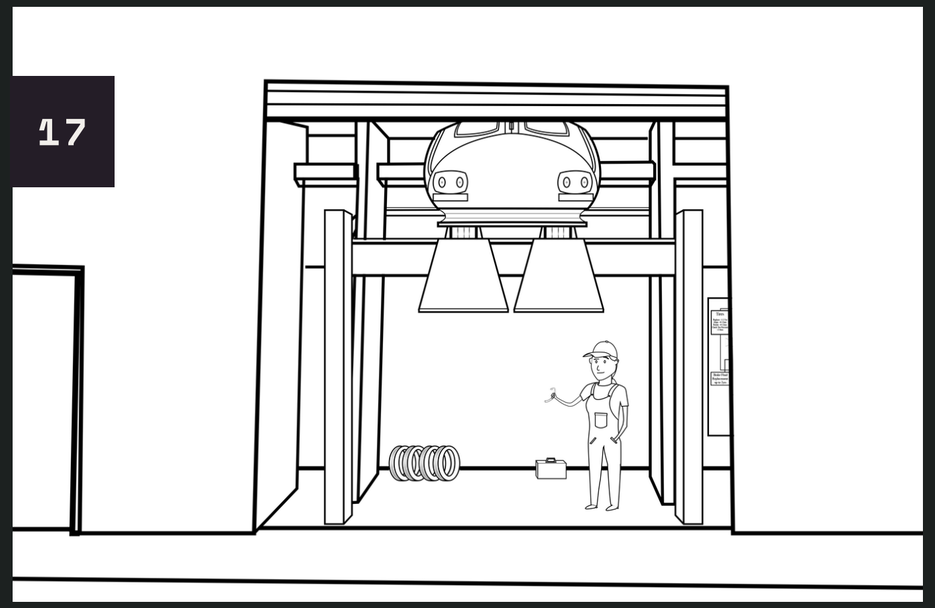

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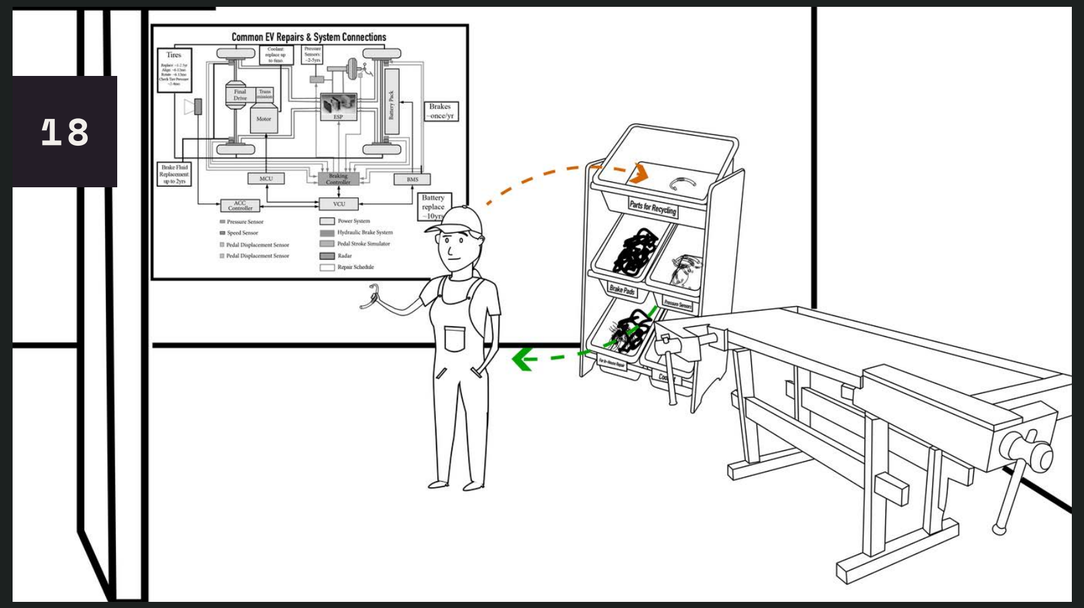

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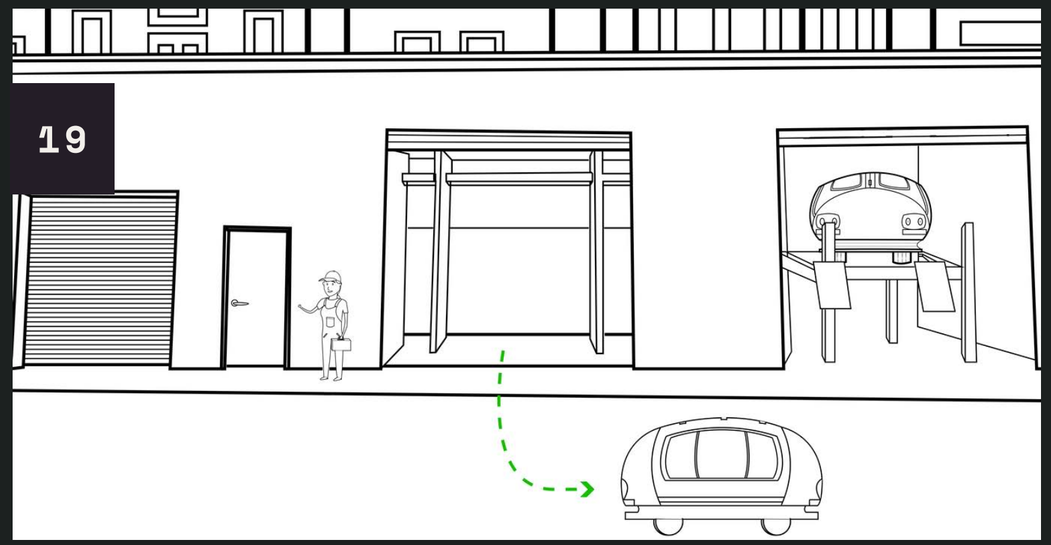

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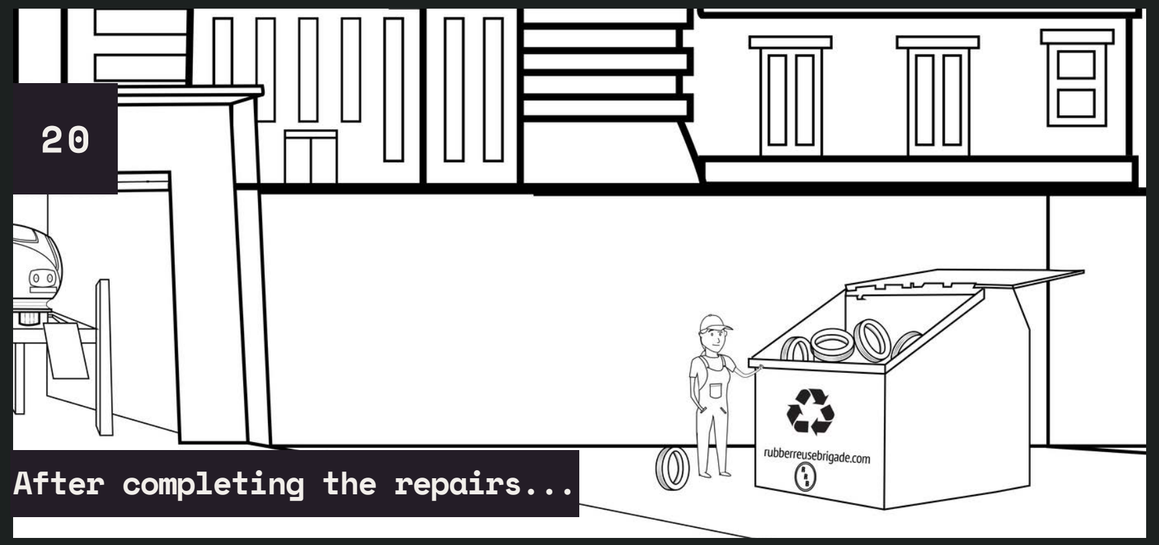

After completing the repairs...

The repair is a simple replacement of a faulty pressure sensor, as well as routine tire replacement. The workshop is equipped to handle common electric vehicle repairs and recycle parts

STORYBOARD 3 - MAINTENANCE SCENARIO

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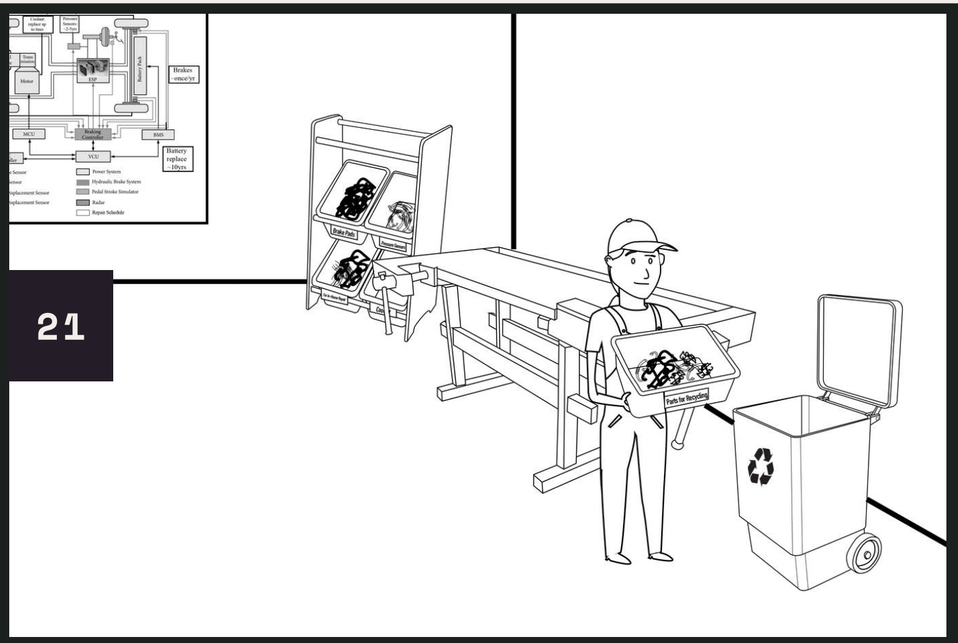

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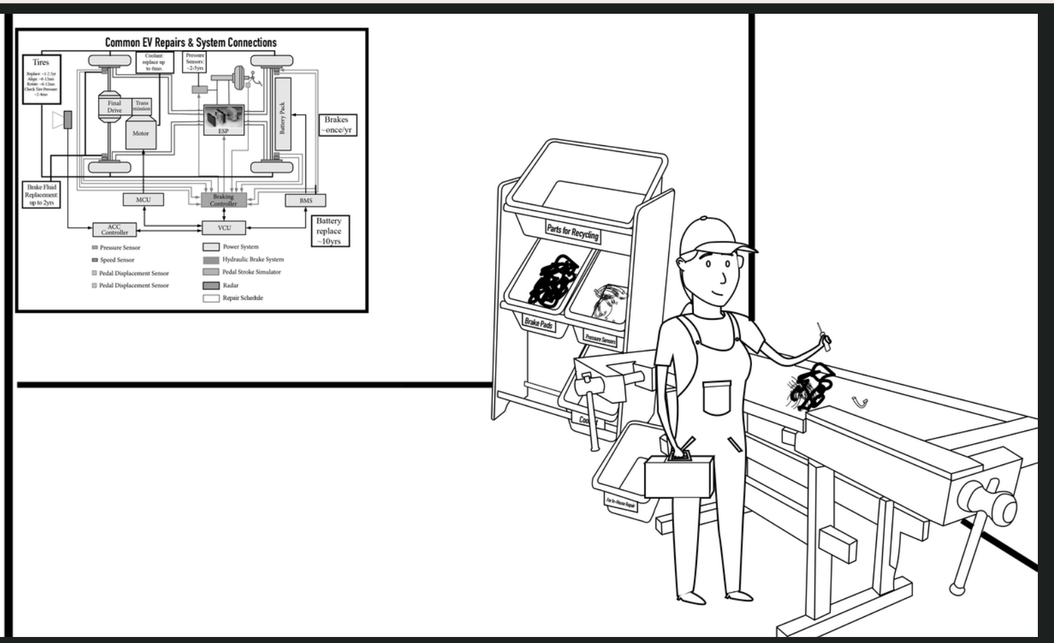

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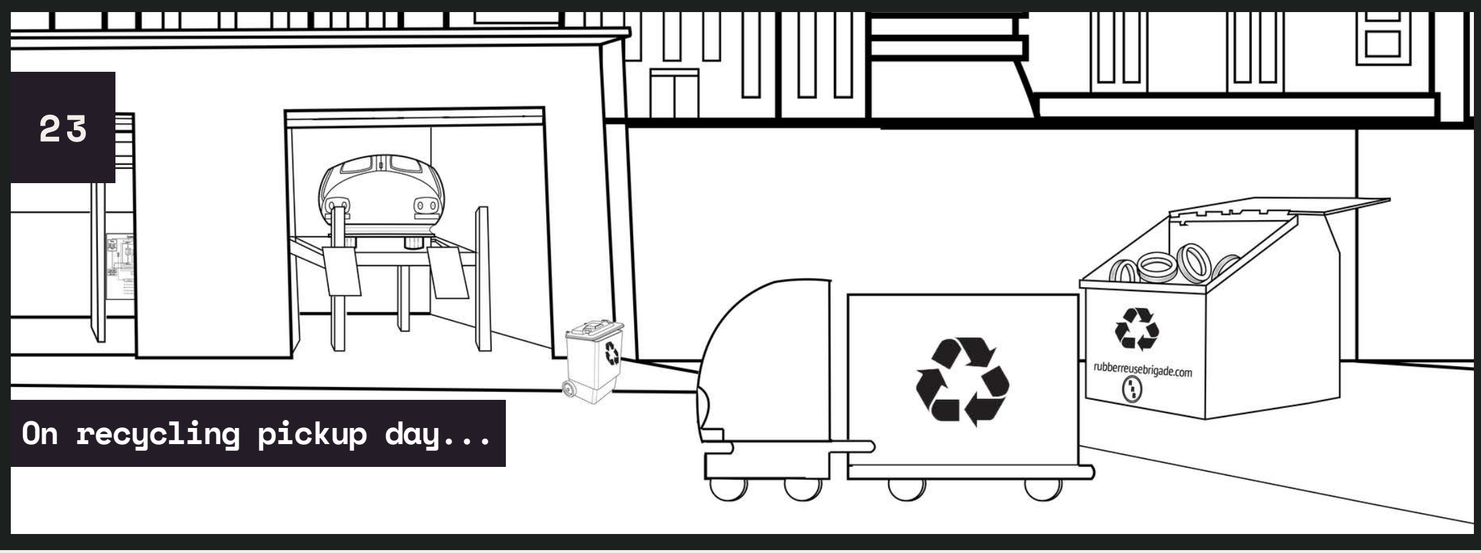

On recycling pickup day...

The mechanic is equipped with common EV repair know-how, access to replacement parts, and in-house repair and re-use capabilities. Parts unable to be repaired here are salvaged to support the circular economy

THANK YOU!

DAVID BARTER

MaRS

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