

CAIR Executive Summary

Overview

Creating a seamless user experience transitioning mobile devices with vehicle synchronization, CAIR, is a stand-alone AI device that accessible for all vehicles, by providing a safe mobile connection.

Problem Statement

The number one cause for car accidents is distracted drivers. In 2018 alone, using a cell phone while driving caused nearly 1.5 million car accidents in the U.S. and in a world where technology is advancing, distraction levels will only increase.

HMW

How might we create an AI car device that helps to prevent car accidents caused by distracted drivers?

Solution

Increasing satisfaction as a result of utilizing time in the car, providing necessary communication for practical purposes, and by redirecting boredom and loneliness through mental entertainment.

Target Users

Age: 17-64 Years

Type: Distracted drivers or someone who wants to enhance their driving experience.



Smart Camera Lens

Intelligently adjustable camera and distracted warning system.



Voice-controlled virtual assistant

Cory listens and responds accurately to commands.



Screen Car Display

Split screen interface and adjustable screen rigging.



Third Party Apps

All third party apps and smart phones are supported.



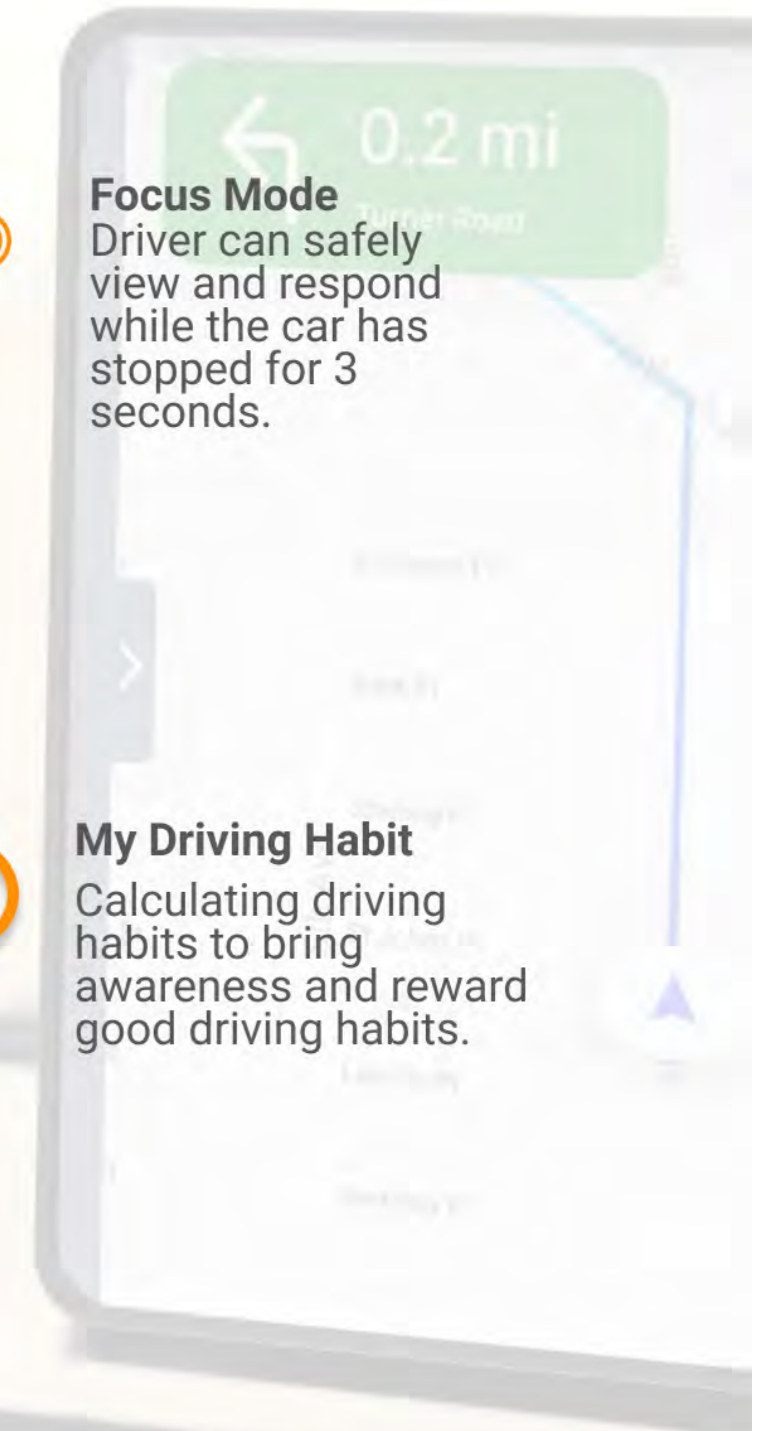
Focus Mode

Driver can safely view and respond while the car has stopped for 3 seconds.



My Driving Habit

Calculating driving habits to bring awareness and reward good driving habits.



ccair

MEET OUR GREAT TEAM



SEUNGPIL LEE

Project Leader



ESTHER HOLLIDAY

UX Designer



ABBY TURNER

UX Designer



MADELINE WALZ

UX Designer

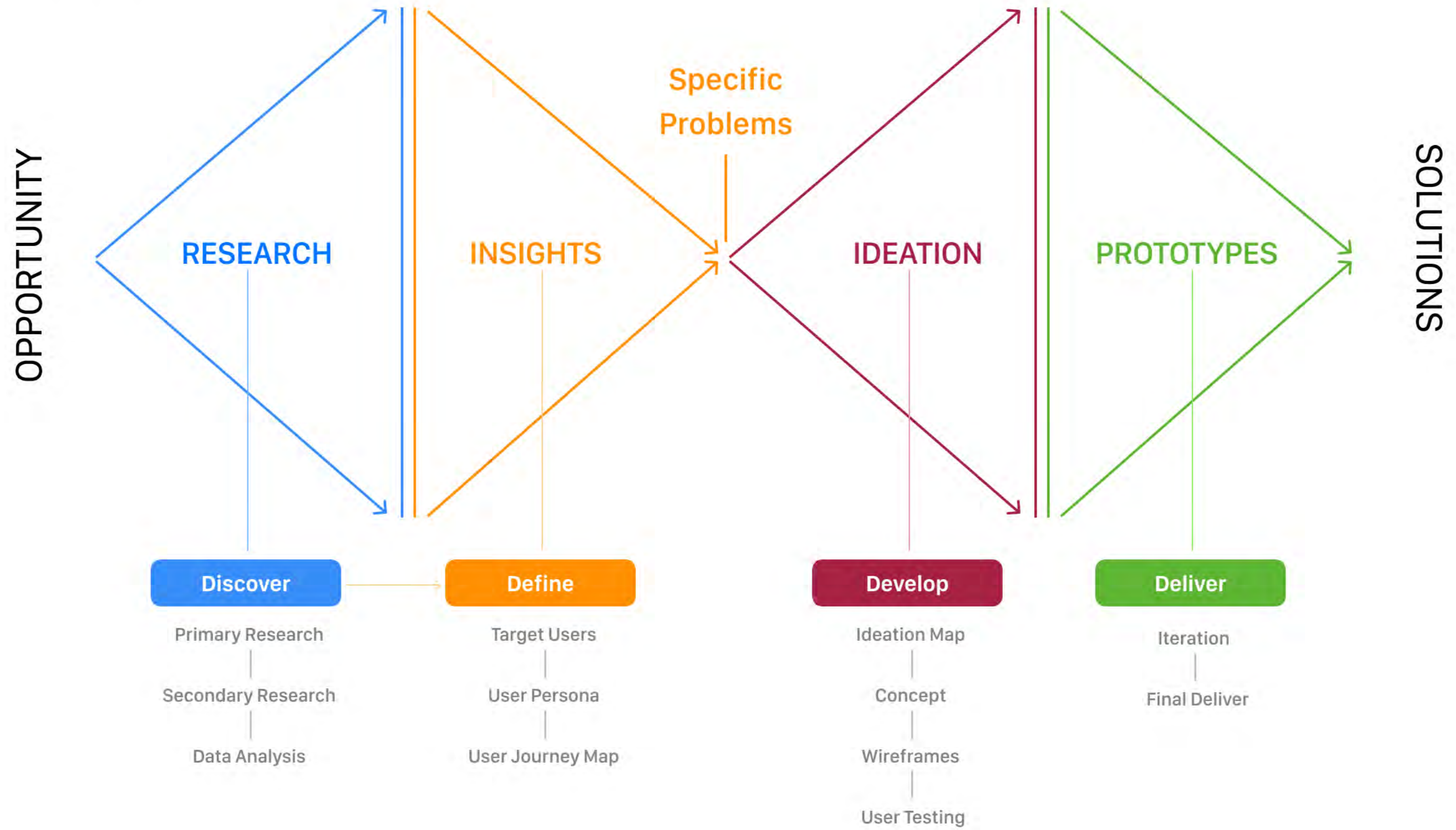
THE PROBLEM

The number one cause of car accidents are not drunk drivers. Distracted drivers are the number one cause of car accidents in the U.S. today.

Using cell phones while driving causes an alarming number of deaths and injuries on U.S. roads. **In 2018 alone, 3,166 people were killed** in motor vehicle crashes **that involved distracted drivers.**

Each day in the United States, approximately **9 people are killed** and **more than 1,000 injured** in crashes that are reported to **involve a distracted driver.**

PROJECT AGENDA



DISCOVER

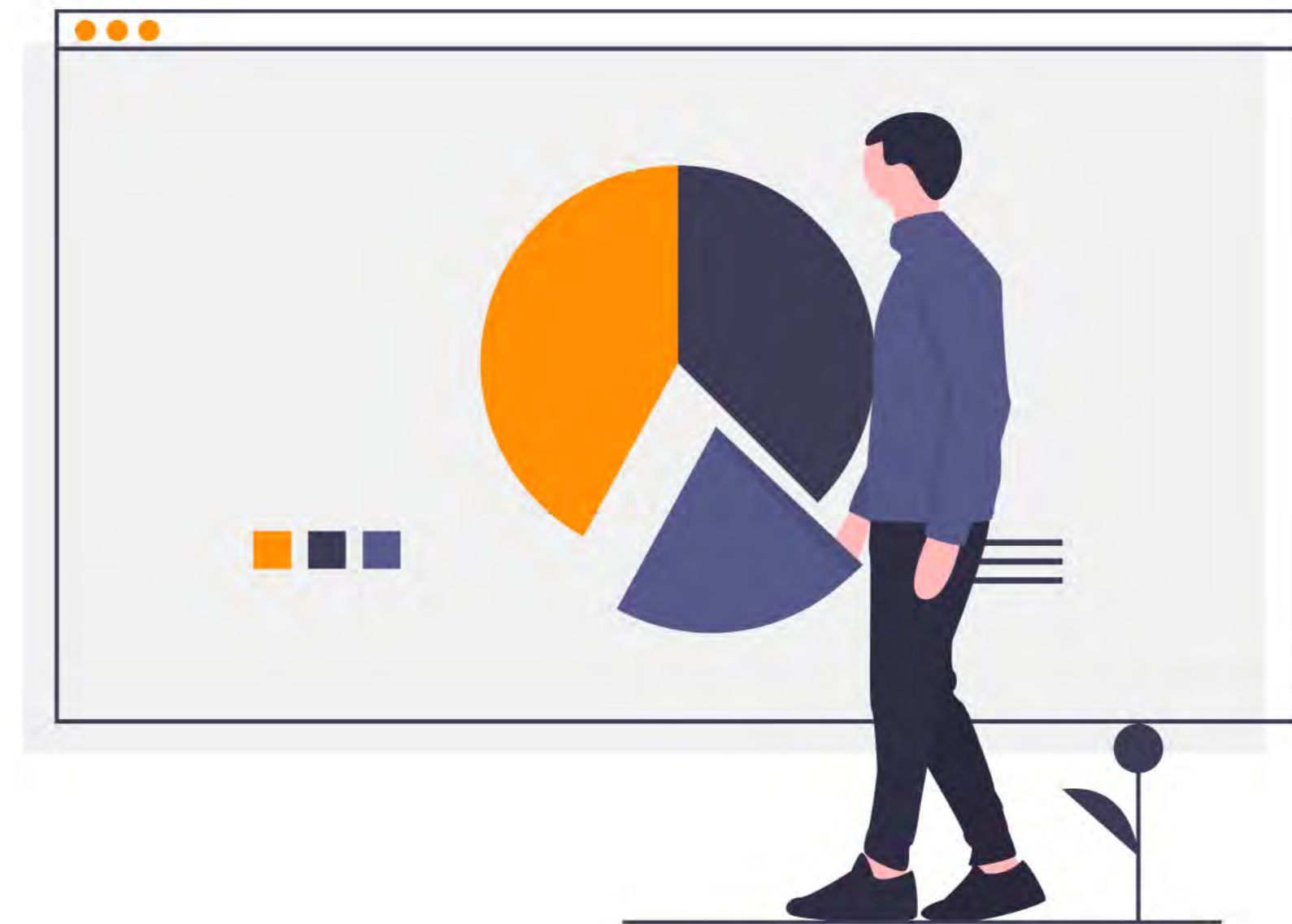


PRIMARY RESEARCH

Online Surveys

User Interviews

User Observations



ONLINE SURVEYS



105

Participants

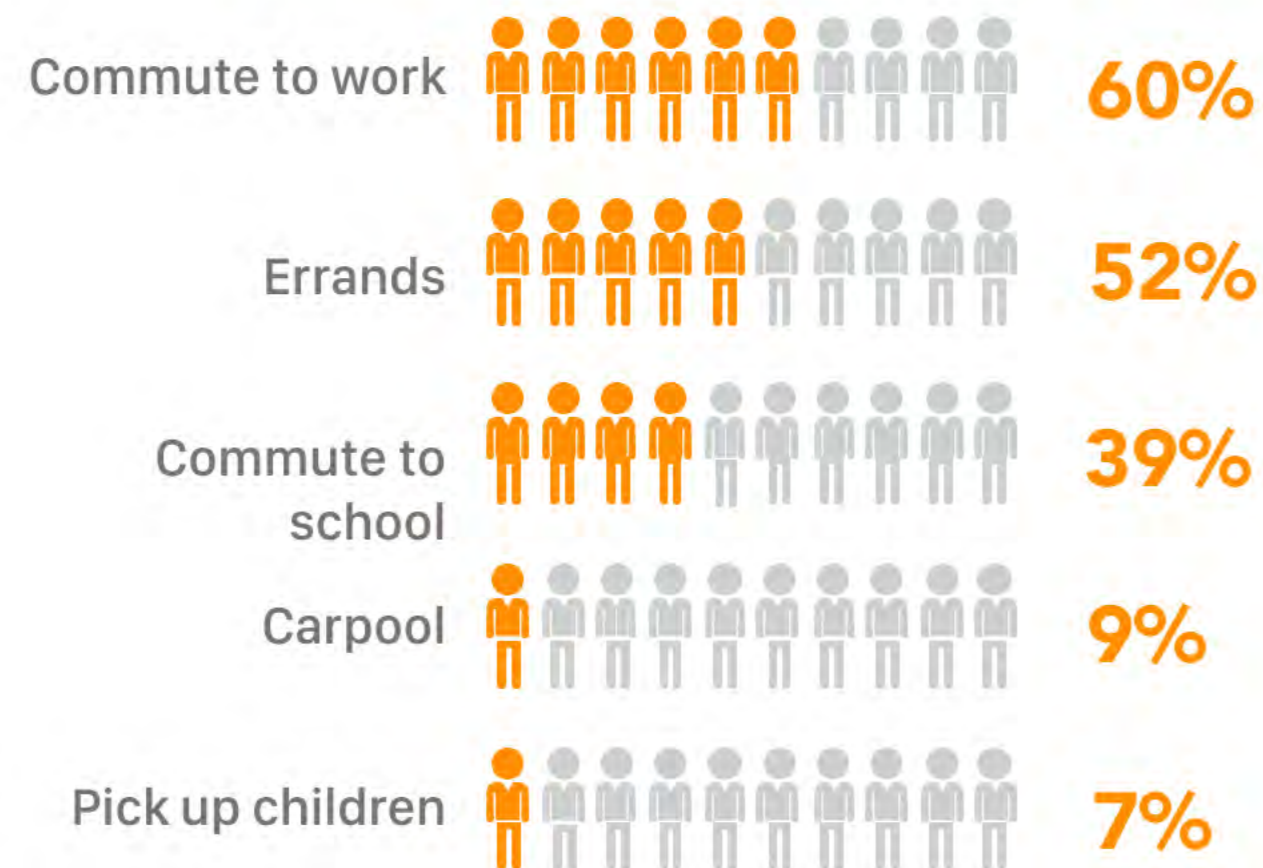
17-74

Age of Participants

Purpose of the questions: To gain insight on driving behavior

The takeaway from the survey: People spend almost a quarter of waking hours in the car.

What is the main purpose(s) of your daily transportation? (Multiple Choices)



How many hours per week do you typically spend in your car?



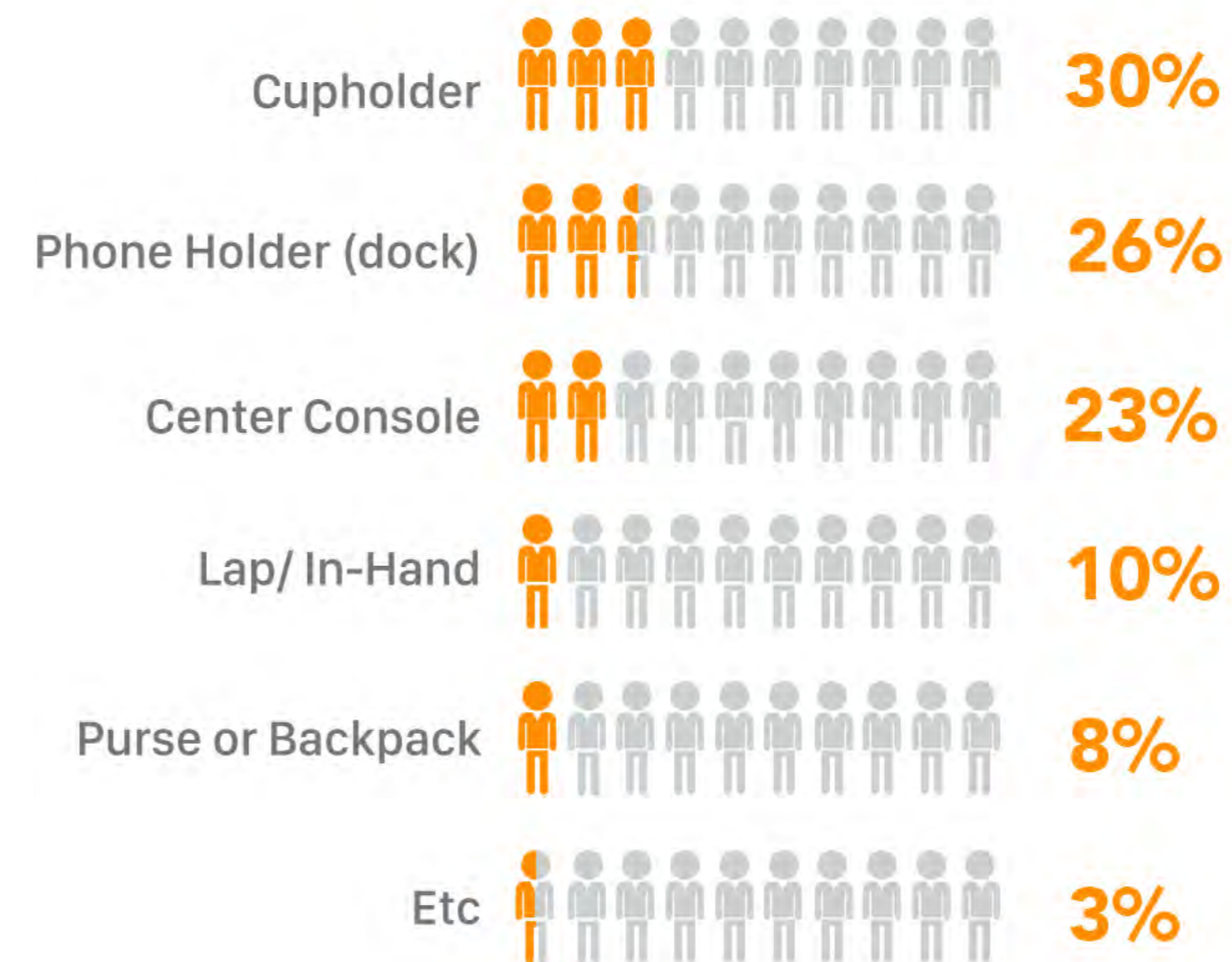
Purpose of the questions: To gain insight on phone behavior

The takeaway from the survey: Most people use AI in the car and store the phone in an accessible place while driving.

Do you use hands-free phone communication in your car?



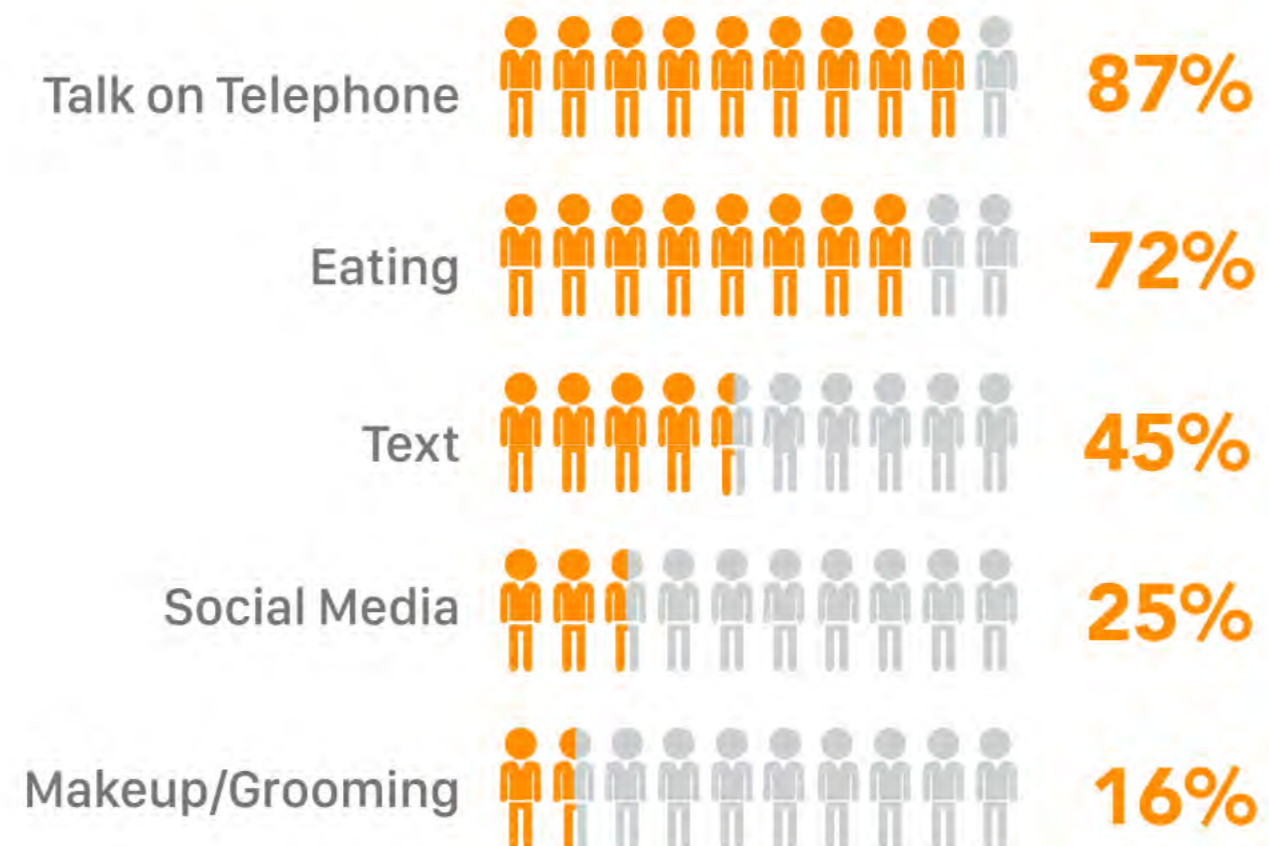
When driving, where do you place your phone? (Multiple Choices)



Purpose of the questions: To gain insight on other behavior in the car

The takeaway from the survey: Phone use is not the only main contributor to distractions while driving--eating is the second highest distracted related behavior.

What non-driving related tasks do you complete in your car? (Multiple Choices)



Do you use your phone while driving for purposes other than navigation?



USER INTERVIEWS

To further develop the insights we gained through online surveys, we conducted **six interviews** from each age group.

Teenage Drivers

Young Adult Drivers

Adult Drivers



USER INTERVIEWS



Teenage Driver

Gender: Male

Age: 18

Occupation: High school senior

Driving Habit: While he is in his car he likes to FaceTime, text, and go on Instagram to stay connected with his friends and to not be bored while driving.



Young Adult Driver

Gender: Female

Age: 26

Occupation: Consultant

Driving Habit: She finds driving a waste of time so to feel productive, she is always on the phone or listening to podcasts. She is not a risk taker, but is not a passive driver.



Young Adult Driver

Gender: Male

Age: 24

Occupation: Project Manager

Driving Habit: He is not a risk taker and only drives 10 miles over the speed limit. He does get bored in the car, but after getting into a distracted-related car accident, he is a lot more careful.



Adult Driver

Gender: Male / Female

Age: 35 / 36

Occupation: System Administrator / Senior Application Engineer

Driving Habit: They don't find it necessary to use their phone while driving even when in self-driving mode. They used to find driving stressful but after owning a Tesla, they find driving very relaxing.



Adult Driver

Gender: Female

Age: 40

Occupation: Housewife / Soccer coach

Driving Habit: While she is safety conscious, because she has a tight and busy driving schedule, she prioritizes scheduling and coordinating pickups and drop-offs for her kids, so she drives quickly while communicating via text.

INTERVIEW INSIGHTS



- **Why do you feel the need to do other activities while driving?**

"I don't use my phone very often when I drive short distances. But, when I drive a **long distance**, I often use my phone because driving is boring."

- **What do you feel like when you use your phone while driving?**

"I feel **safe** because I know what I'm doing and I know **I'm confident about my driving skills**. However, when I have my passengers, I will not be on the phone because I wouldn't want to be responsible."



- **Why do you use your phone while driving?**

"I want to feel productive while driving."



- **Have you ever gotten into a phone related car accident?**

"I was driving in stop and go traffic while holding my phone. When the traffic ahead stopped, I would look down at my phone's text preview. At one point when I looked up, traffic had stopped earlier than I expected, so I slammed on my brakes but ended up ramming the car in front of me."



- **What is lacking in the Tesla's screen?**

"Difficulty in finding and hitting the buttons on the screen while the car is moving. Would prefer using the steering wheel buttons."

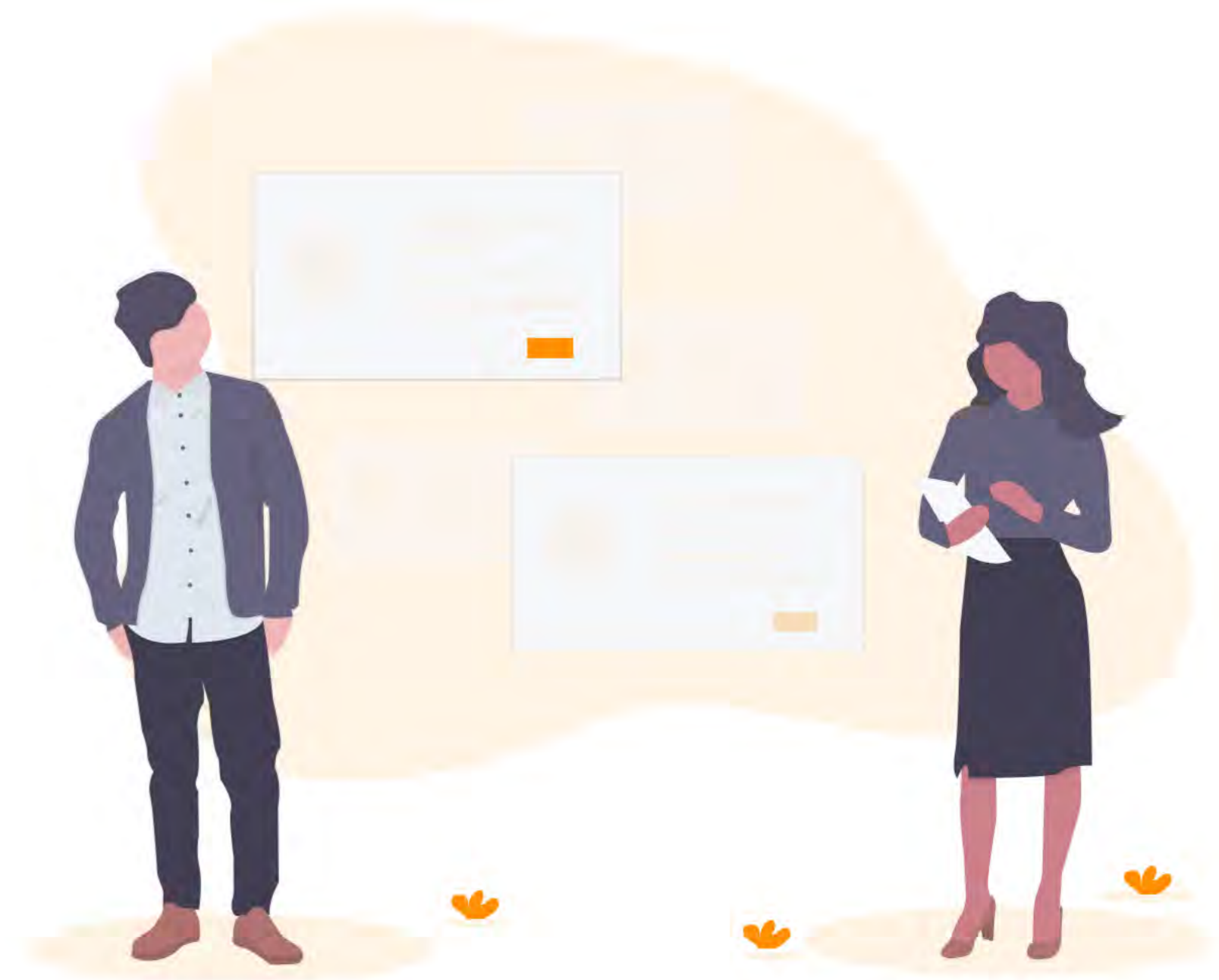


- **What is your typical reason for texting and driving?**

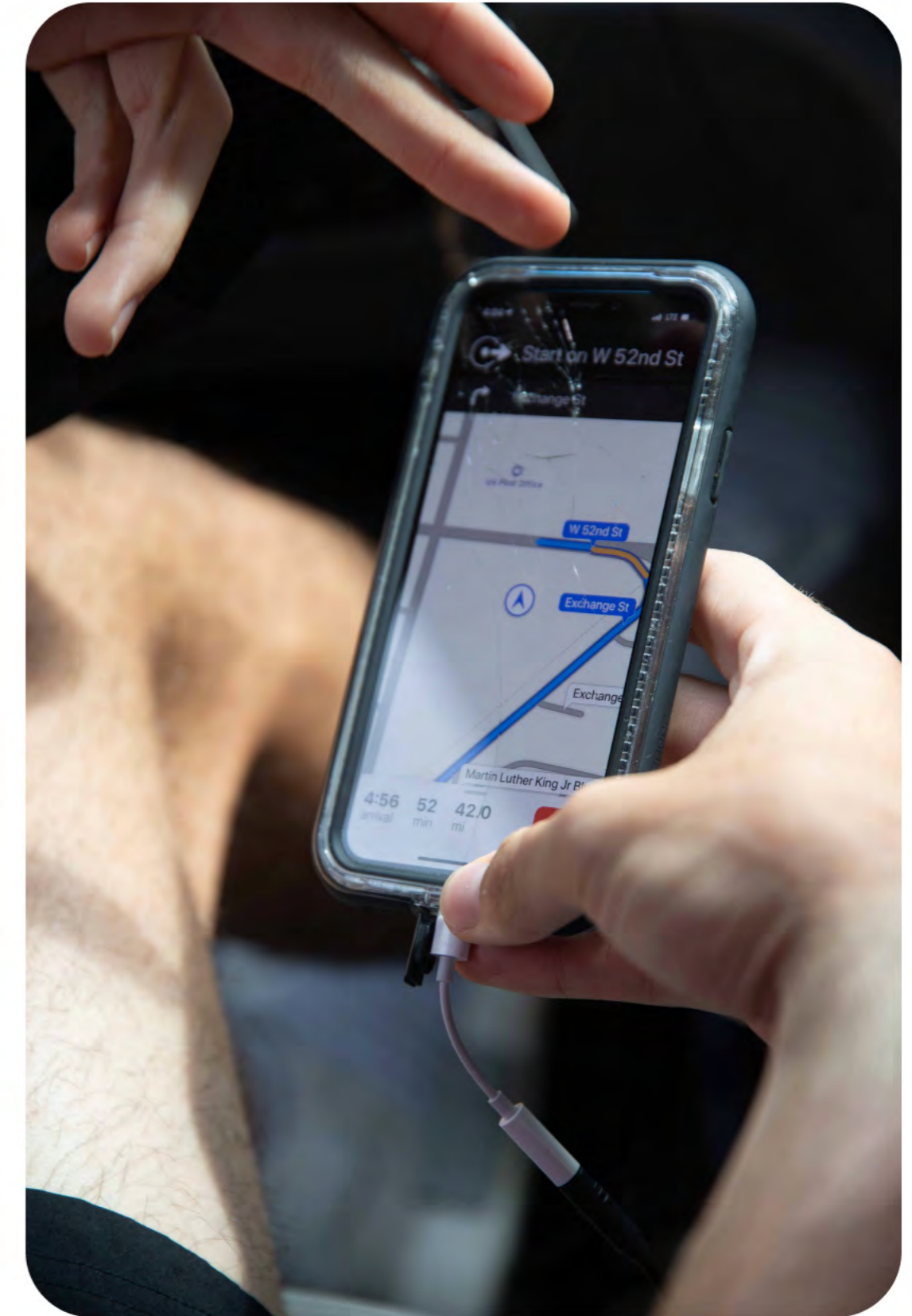
"I am very busy and have a tight driving schedule since my kids have a lot of activities aside from school. Because I have to schedule and coordinate pickups and drop-offs for my kids, I have to text and drive."

USER OBSERVATIONS

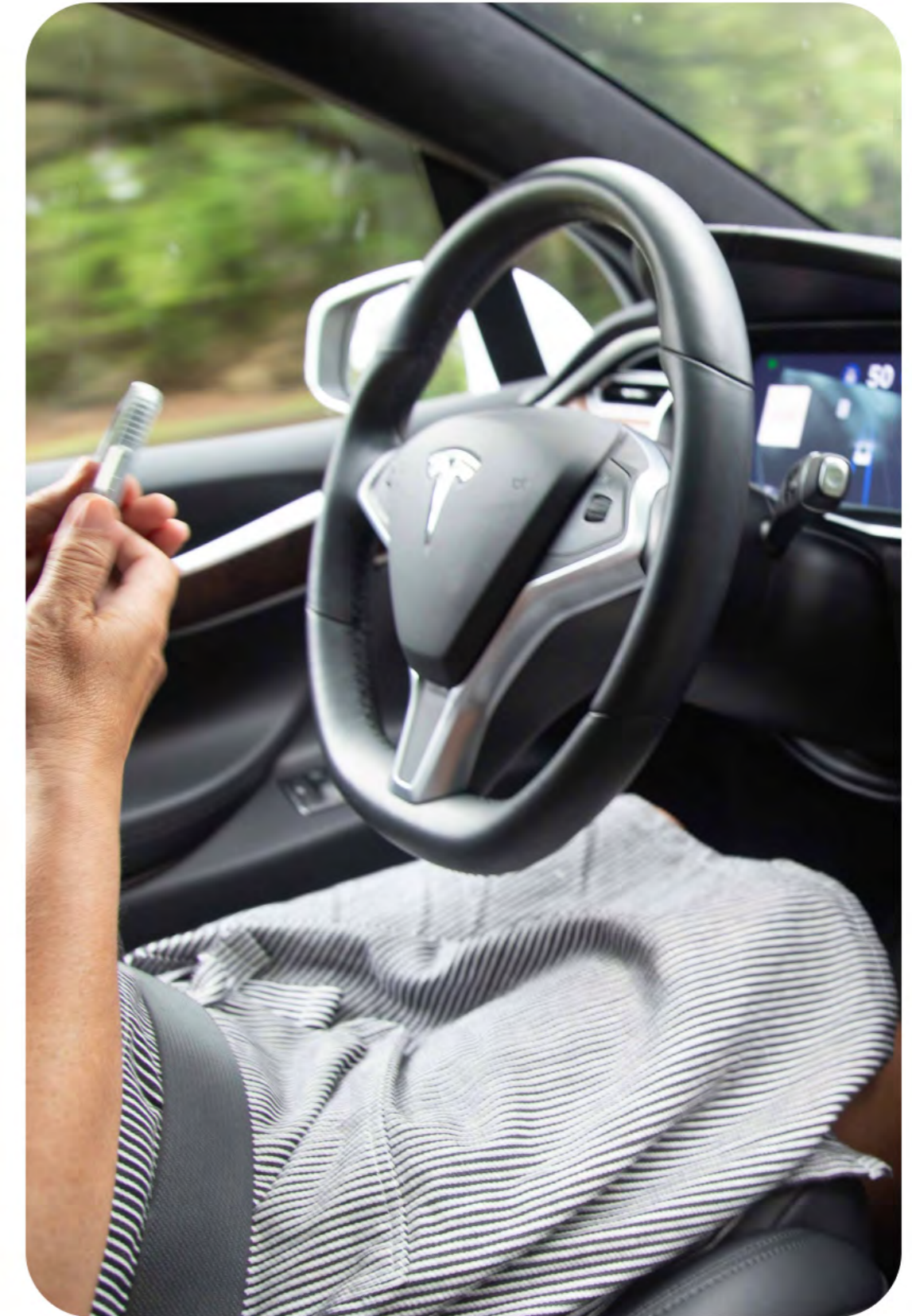
In order to gain a little more insight, we observed users' normal mobile phone usage habits while driving using naturalistic observation methods.



USER OBSERVATIONS



USER OBSERVATIONS



OBSERVATIONS INSIGHTS



Goals/Needs/Wants

Wants to be less bored in the car.

Pains

Needing to hold the phone down.
Wants to use his phone legally.
Is bored in the car.
Wants to view his texts more easily.

Activities

holding phone
texting
facetimeing
texting
scrolling SNS
facetimeing friends

Environment

older model car
usually by himself

Interactions

boredom
social connection
driving

Objects

phone
steering wheel
heading to destination

Users

teenage driver

OBSERVATIONS INSIGHTS

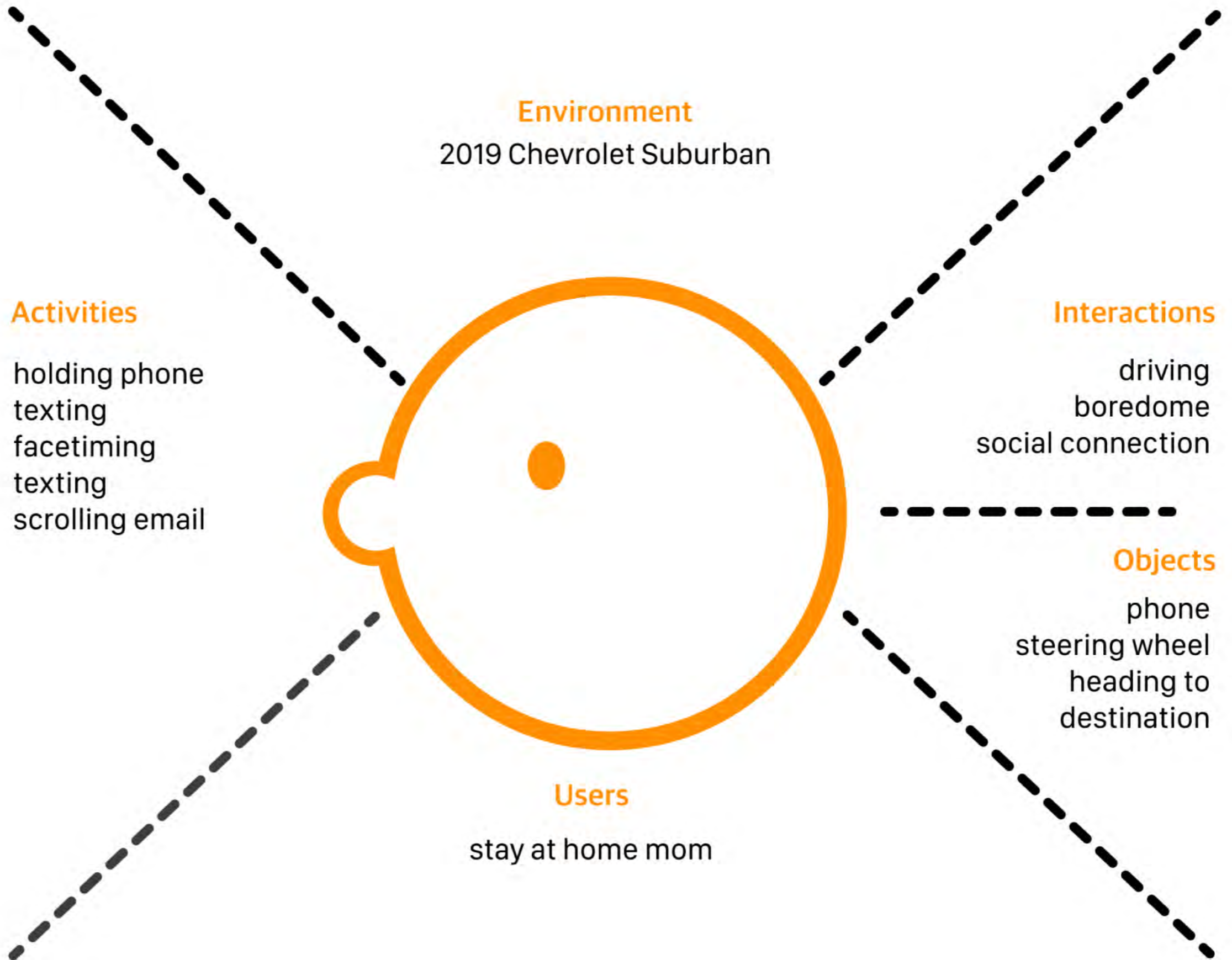


Goals/Needs/Wants

Wants to be a safer driver but still stay connected with texts. Wants an alert system while distracted in the car.

Pains

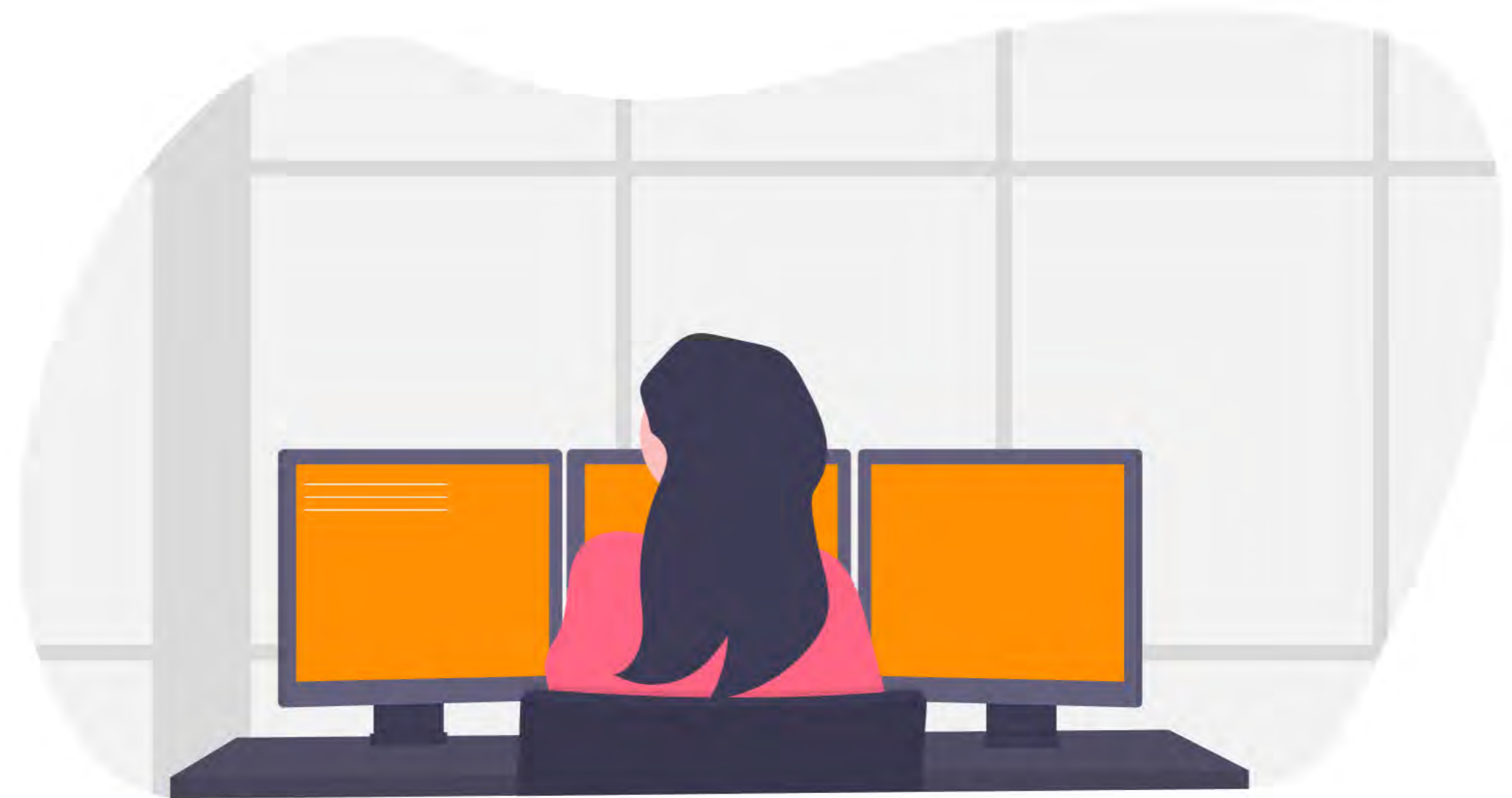
She stresses about scheduling and coordinating her children's transportation. Being distracted from the road while communicating about pick ups and drop offs for her children.



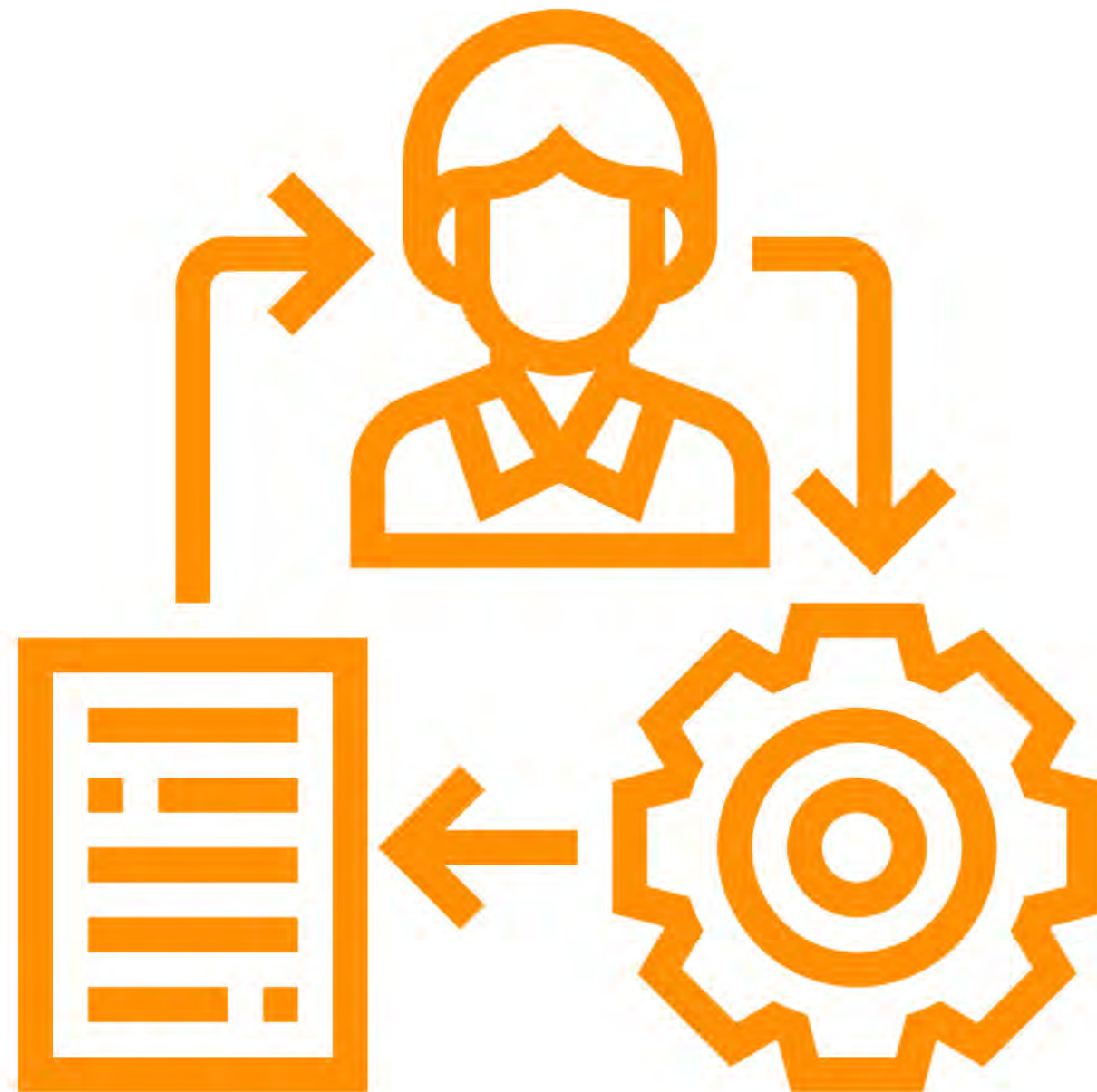
SECONDARY RESEARCH

Literature Review

Competitive Analysis



WHY DO SO MANY PEOPLE TEXT AND DRIVE, KNOWING IT IS DANGEROUS?



Of those who drive to or for work, **43% will answer or make work-related communications while driving**, including texting, emailing and calling.

The reasons those drivers gave for doing so were **38% felt they needed to always be available, 37% feared missing out on something important at work and 17% did not want to upset the boss.** By age groups, 18-34 and 35-44 year olds were tied at 54% for the largest percentage of drivers engaged in work-related communications while driving.

WHY ARE DRIVERS ENGAGED IN RISKY BEHAVIORS ?



TEXT MESSAGING



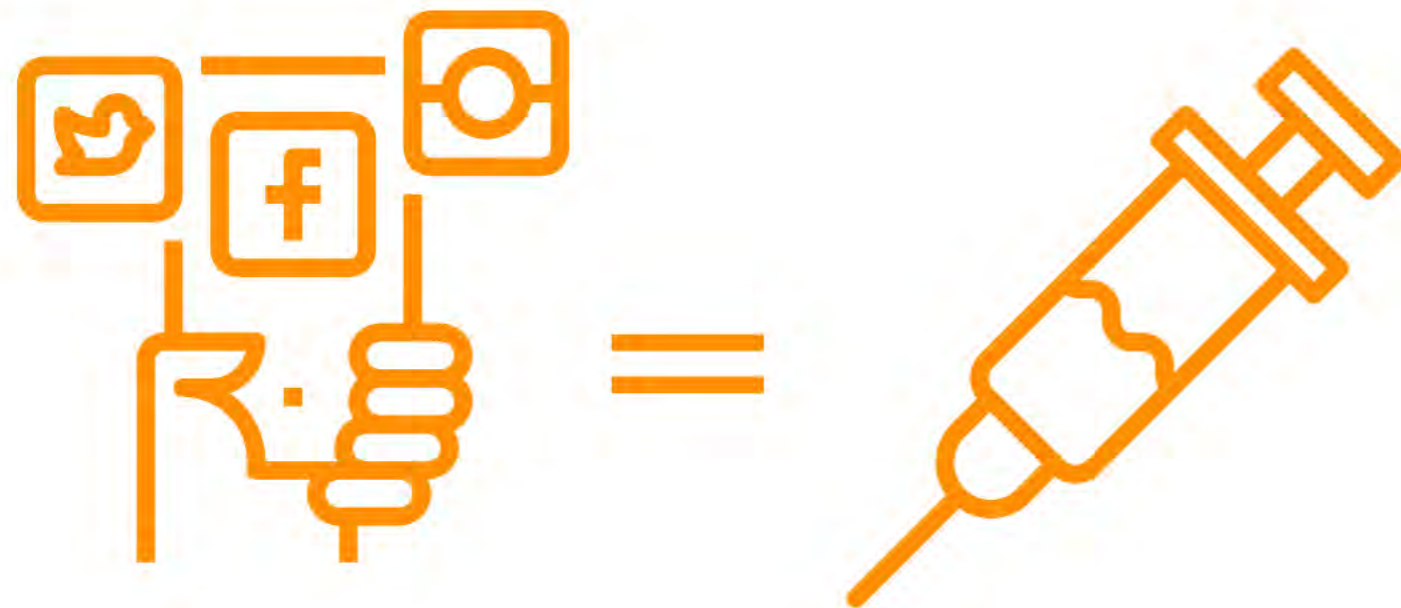
ACCESSING THE INTERNET



UPDATING SOCIAL MEDIA

Habit, Staying in touch, Efficiency

WHY WE TEXT AND DRIVE



- Our brains react to our **smartphone** the same way they **react to a drug**.
- When our phones beep or buzz with a **notification**, it's letting **the brain know** that something "potentially pleasurable" is waiting.
- People are playing with basic neurobiology, and that **reward circuitry in the brain is just very powerful**. It does override your judgement.

Attributes Included in "Driver Distracted by" Element and Indication of Inclusion in Distraction-Affected Definitions

- **By a moving object in vehicle** : Distracted by moving object in driver's vehicle; includes dropped object, moving pet, insect, cargo
- **While talking or listening to cellular phone**: Talking or listening on cellular phone; includes talking or listening on a "hands-free" or Bluetooth-enabled phone
- **While manipulating cellular phone** : Dialing or text messaging on cell phone or any wireless email device; any manual button/control actuation on phone qualifies
- **While using other component/controls integral to vehicle** : Manipulating a control in the vehicle including adjusting headlamps, interior lights, controlling windows, door locks, mirrors, seats, steering wheels, on-board navigational devices, etc.
- **Distracted by outside person, object, or event** : Animals on roadside or previous crash, non-traffic related signs. Do not use when driver has recognized object/event and driver has taken evasive action
- **Eating or drinking** : Eating or drinking or actively related to these actions

STATE DISTRACTED DRIVING LAWS



Hand-held Cell Phone Use

18 states prohibit all drivers from using hand-held cell phones while driving. All are primary enforcement laws—**an officer may cite a driver for using a hand-held cell phone without any other traffic offense taking place.**



All Cell Phone Use

39 states ban all cell phone use by novice drivers, and **20 states** and D.C. prohibit it for school bus drivers.



Text Messaging







Currently, **48 states**, ban text messaging for all drivers. In the case of secondary enforcement, a police officer may only stop or cite a driver for a cell phone use violation if the driver has committed another primary violation (such as speeding, failure to stop, etc.) at the same time.

STATE DISTRACTED DRIVING LAWS

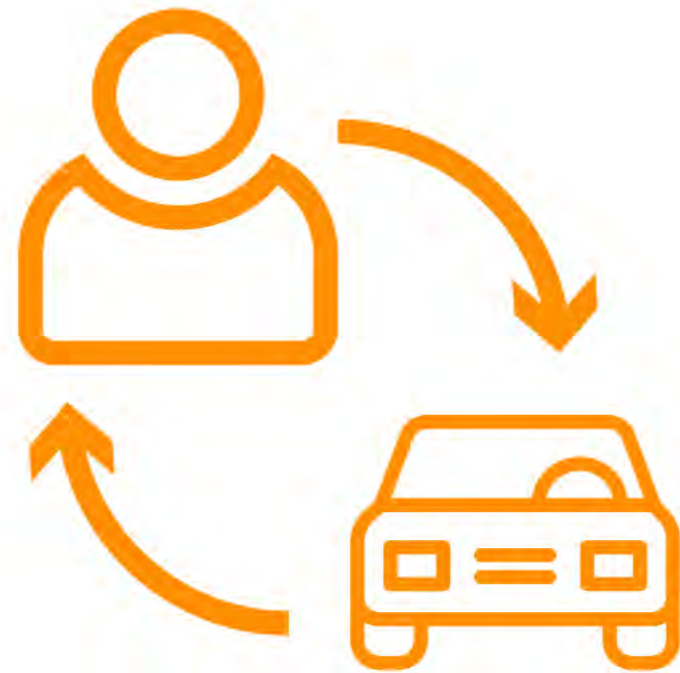


- Among the many factors which affect car insurance rates is an individual's driving record. A ticket for distracted driving (texting or using your cell phone while driving) would have raised a driver's car insurance rates by 0.2% in 2011, costing them less than \$3 per year. **Now, the same violation will raise rates 16%, or about \$226 – a penalty increase of about 7,900%.**
- Across the country, penalties for distracted driving range from just **\$2.51 (New York) to \$681 (Michigan). In some cities the penalty nears \$2,000.**

Competitive Analysis

	 CAIR	 Smart Phone	 Apple Carplay	 Chris	 GPS Device	 AI Speaker
Works In Every Car	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Speaks With User	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Application Customization	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Location Sharing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Complies With Mobile Phone Ban	<input checked="" type="checkbox"/>					
Compatible With All Smartphone	<input checked="" type="checkbox"/>		Only iOS System	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

OPPORTUNITIES



While separately, each company provides various features, **research shows that users desire a consolidation of features into a seamless experience.**

Our most important pain point is the price.

Currently, the only car AI available comes preinstalled, therefore the user has to purchase the car in order to experience artificial intelligence in a car.



None of the competitors provide application customization. Based on our research each driver has different needs therefore the user needs **application customization.**



DATA ANALYSIS

Affinity Diagram

5 Whys

How Might We



Affinity Diagram

Insights

Users experience **the same reaction with phones as with drugs, where the brain knows a “potentially pleasurable” reward** is awaiting when phone notifications go off

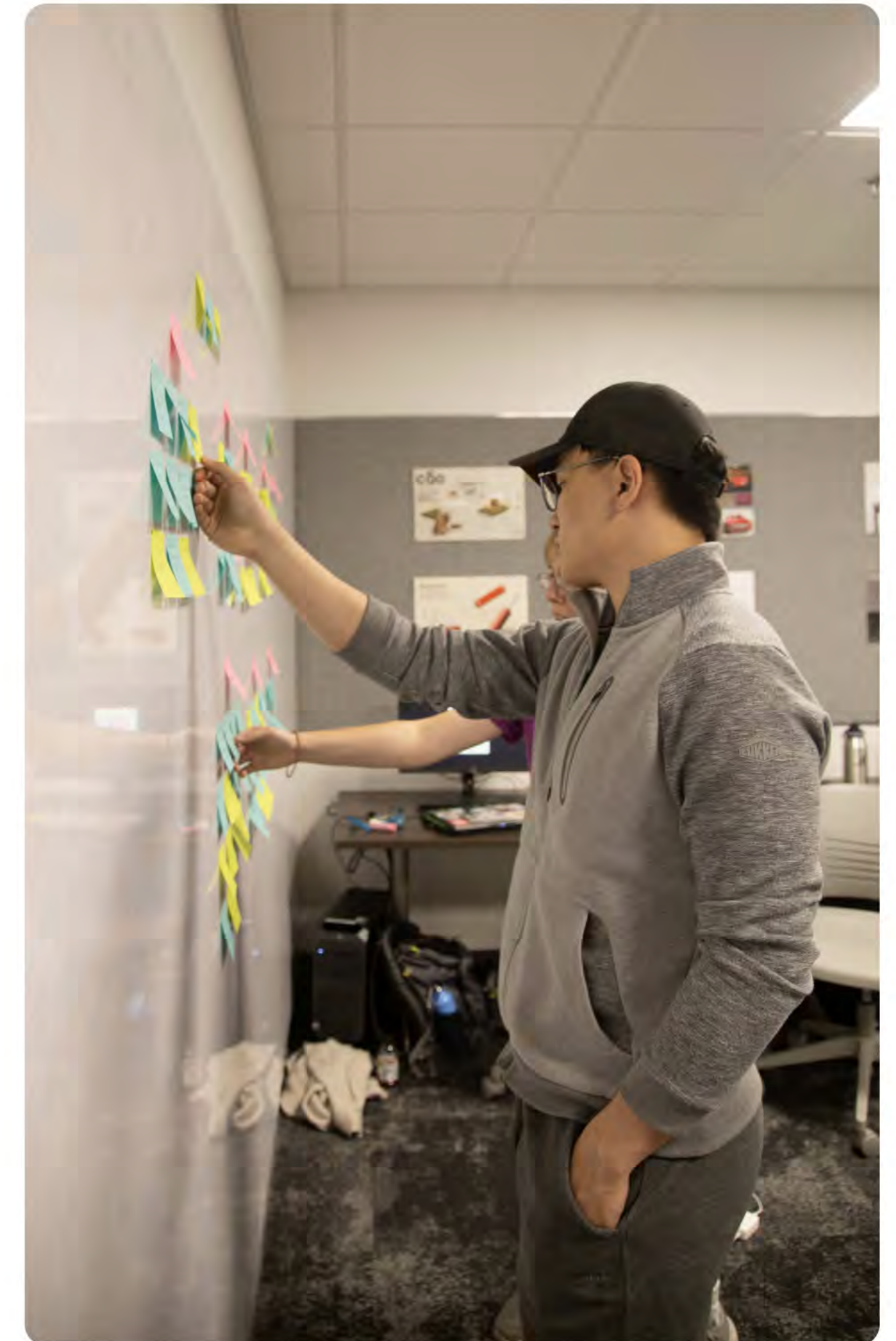
Users experience a powerful neurological connection to rewards, such as text notification, which override judgement while driving.

Distraction levels increase as users experience loneliness and a lack of social connection while commuting.

Users use their phone while driving because **they feel driving is a waste of time and want to feel productive in the car.**

Although users are aware of the dangers of texting while driving, because **users want to feel connected in the car or they need to communicate for practical reasons**, users do not prioritize safety above phone usage.

Users lose awareness of their driving habits but are safety conscious when there are passengers in the car due to heightened sense of self-awareness.



Affinity Diagram

Insights

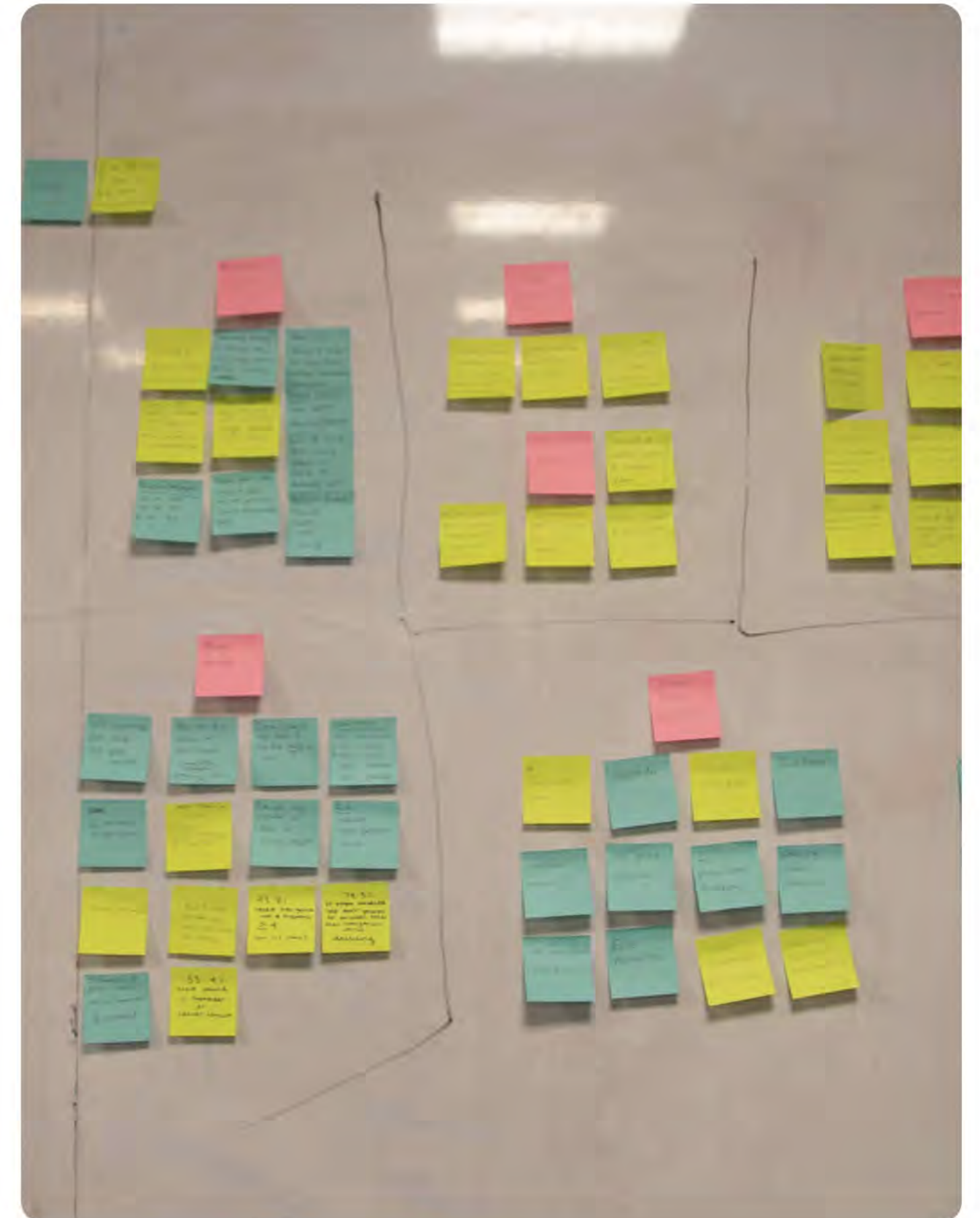
While driving, users experience high levels of mindwandering which dramatically attenuates awareness of time duration, self-awareness, and external sources increasing chances of an accident.

While users like to receive feedback of their driving, they only use it if it is accurate and consistent and has some form of award system such as sharing, or winning points.

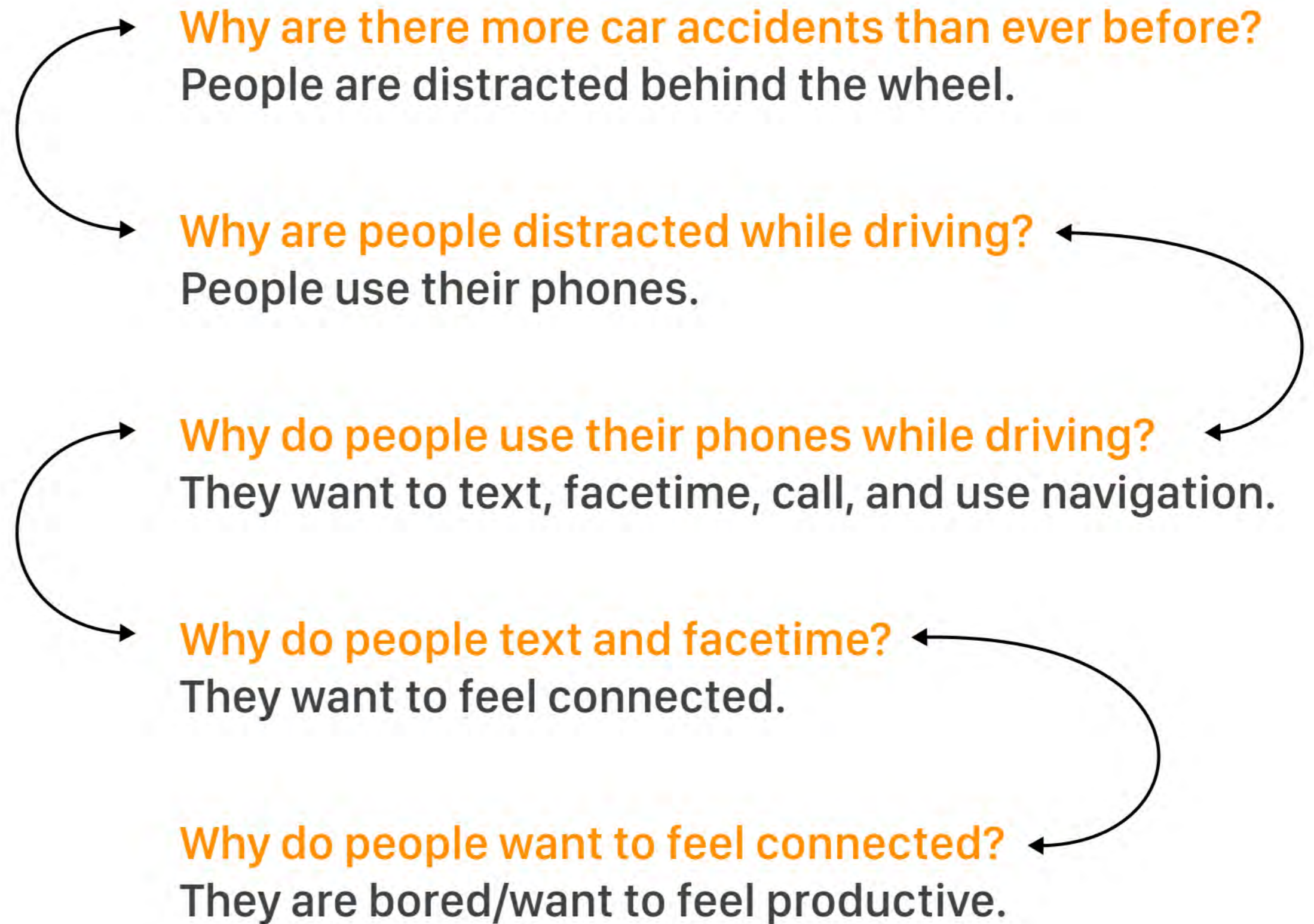
Users Facetime while driving because it eliminates the unnecessary need to narrate frequent pauses that occur while driving.

While users don't necessarily text and drive they want to preview the message.

Due to the illegal status of holding a phone while driving, drivers often feel compelled to position the phone at a lower angle.



The 5 Why's



**"How Might We create an
AI car device that helps to
prevent car accidents
caused by distracted
drivers?"**

HOW MIGHT WE

make it easier to text and drive?

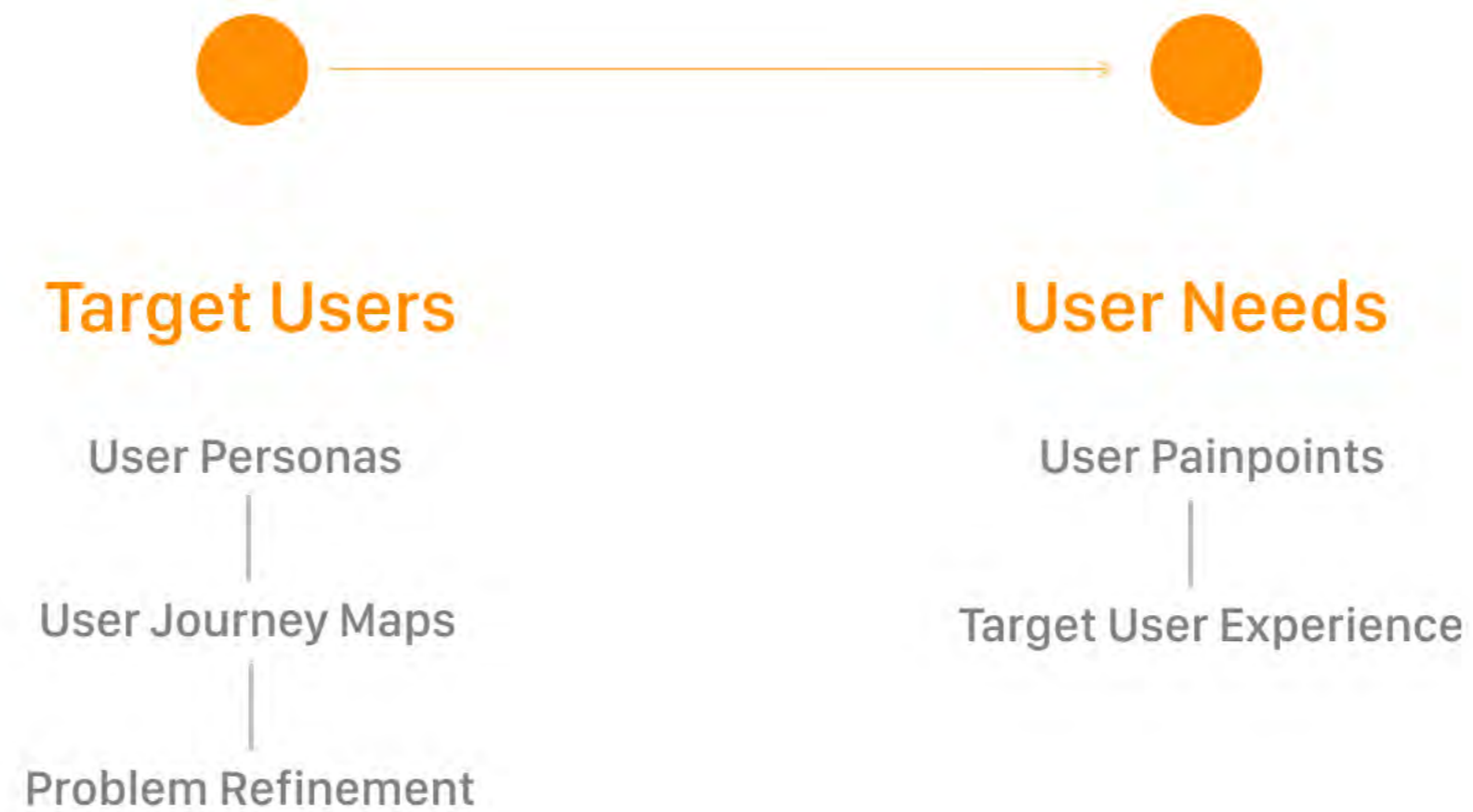
make it less boring while in the car?

make voice to text more effective?

make the user's driving habits in a good way?

make drivers feel less lonely/more connected?

DEFINE



TARGET USERS

Age : 17 - 64 Years

Type : Distracted Drivers or someone who
wants to enhance the driving experience

Typical Itneraries

Daily Home <-> School or Work

Weekly Home <-> Errands

Home <-> Friends

Home <-> Downtown

Monthly Home <-> Out of town visit

Yearly Home <-> Holiday Trips



PERSONAS



Adam

Teenager Driver

"Active Extrovert"



Alice

Adult Driver

"Passive Extrovert"



Karen

Parent Drive




"Active Extrovert"



Adam

Teenager Driver

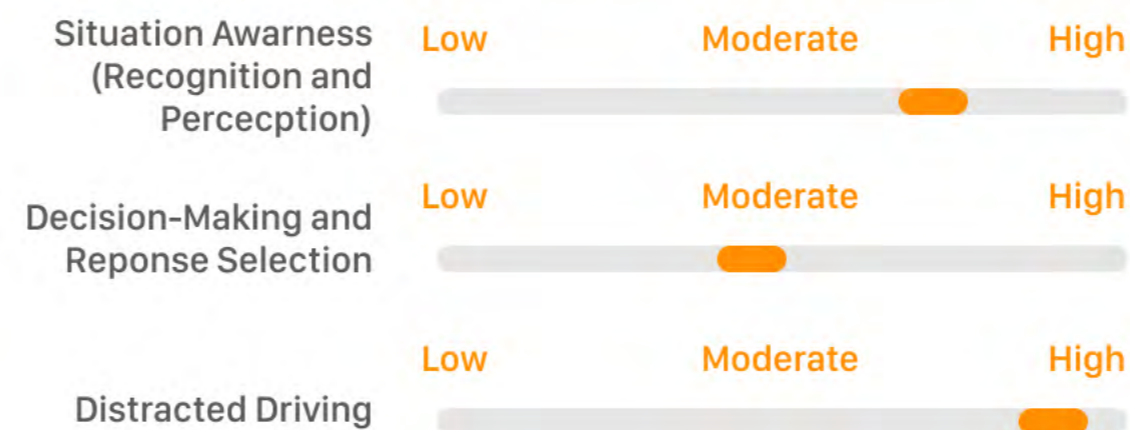
ABOUT

-  Age | 18
-  Occupation | High school senior
-  Location | Savannah, GA
-  Social Relationship | High

BIO

He is extremely extroverted and very social. He loves to hang out and play tennis with his friends after work and school. While he is in his car he likes to FaceTime, text, and go on Instagram to stay connected with his friends and to not be bored while driving.

Driving Characteristics



MOTIVATIONS

He has owned an Alexa dot for two years and is interested in an AI car device to make it easier to text and FaceTime while in the car on his 45-minute commute to school and tennis matches.

PAIN POINTS

- Commutes a lot to school, work, and tennis tournaments so is bored in the car
- Doesn't use voice to text because texting manually is more accurate
- He doesn't like how it is illegal to text. Wishes there was a legal way to text and drive

CORE NEEDS

- Want to stay connected with his friends
- Not be bored while driving to school
- Better accuracy in voice to text



Adam's Driving Journey Map

MAIN GOAL OF ADAM'S PARTICULAR JOURNEY: School day: 8:00am / Tennis match/hangout with friend: 4:00pm

Distraction levels increase because he is bored.

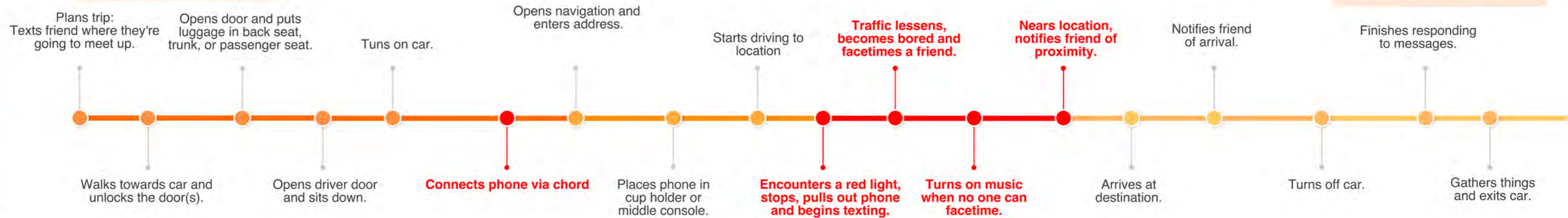
STAGES



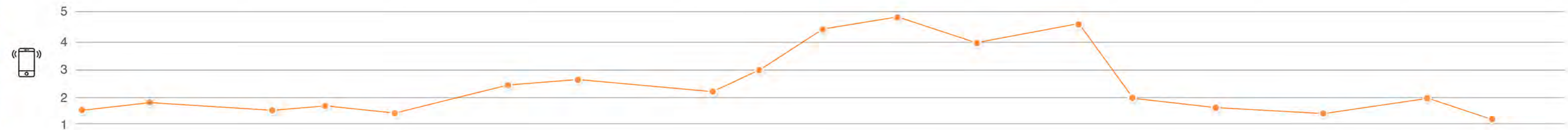
Departure time:
School commute: 8:00am
Hangout commute:
4:00pm-7:00pm

Arrival time:
School commute: 8:45am
Hangout commute:
5:14-7:45pm

INTERACTION TOUCHPOINTS



DISTRACTION LEVEL



FEELING



Going into the journey, he feels neutral because it requires minimal effort to enter his car, and is something that comes easily as he is not preoccupied by anything else.	Because he has an older car, connecting his phone to the car system makes him feel more annoyed because of the inconvenience.	Adam finds that entering the navigation into his phone time consuming, and often ends up having to enter an address while driving, which distracts and frustrates him further.	As an extraverted person, Adam feels happy to FaceTime and be in conversation with friends, or to listen to his favorite music.	Adam feels neutral upon stopping his vehicle, but would much rather leave the car than finish up tasks inside.	Upon arrival to destination, Adam feels relieved to be out of the car and finally be able to hang out with his friends.
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OPPORTUNITIES



<p>Connects phone via chord</p> <ul style="list-style-type: none"> Enhanced Bluetooth Technology Faster Connection Increased hands-free mode experience. 	<p>Encounters a red light, stops, pulls out phone and begins texting.</p> <ul style="list-style-type: none"> Easy to text with voice command. Ability to send text messages legally. 	<p>Traffic lessens, becomes bored and facetimes a friend.</p> <ul style="list-style-type: none"> Enhance Driving Experience Split creen to enable face-time and navigation while driving. 	<p>Turns on music when no one can facetime.</p> <ul style="list-style-type: none"> The music is automatically selected according to the driver's mood. 	<p>Nears location, notifies friend of proximity.</p> <ul style="list-style-type: none"> Sharing location
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Alice

Young Adult Driver

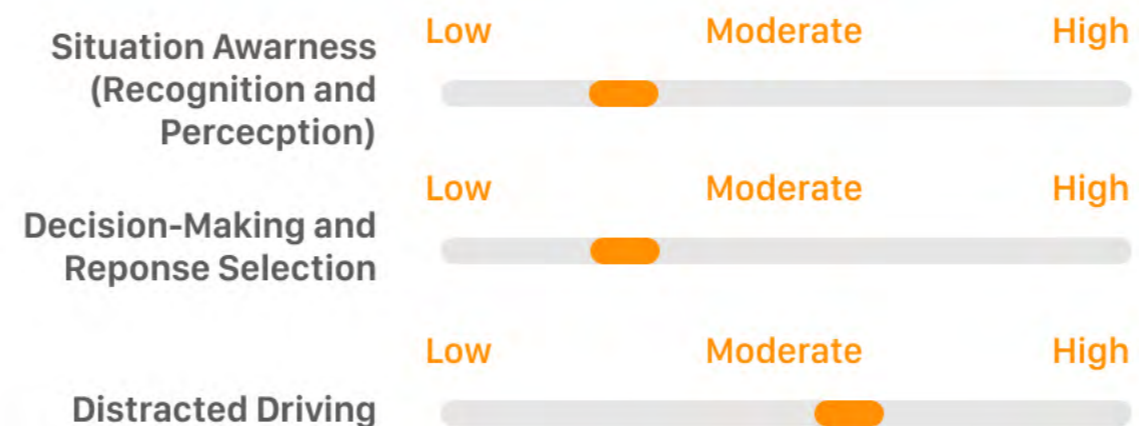
ABOUT

-  **Age** | 24
-  **Occupation** | Graphic Designer
-  **Location** | San Francisco, CA
-  **Social Relationship** | Middle

BIO

Alice is graphic designer at a small design agency. She is an introvert but loves to hang out with friends on the weekend and is an exercise enthusiast.

DRIVING CHARACTERISTICS



MOTIVATIONS

Wants a device that is easier and at a more accessible location while driving, to improve productivity during long commutes.

PAIN POINTS

- Driving feels like a waste of time
- Wants a better location for viewing information on phone like messages and navigation
- Frustrated with unexpected traffic
- Connecting phone to car system is too laborious
- Wishes there was a better way to multi-task with phone functions

CORE NEEDS

- Feel productive during long commutes
- Stay up to date with work related needs
- To communicate and stay updated with others on arrival and location of hang-outs



Alice's Driving Journey Map

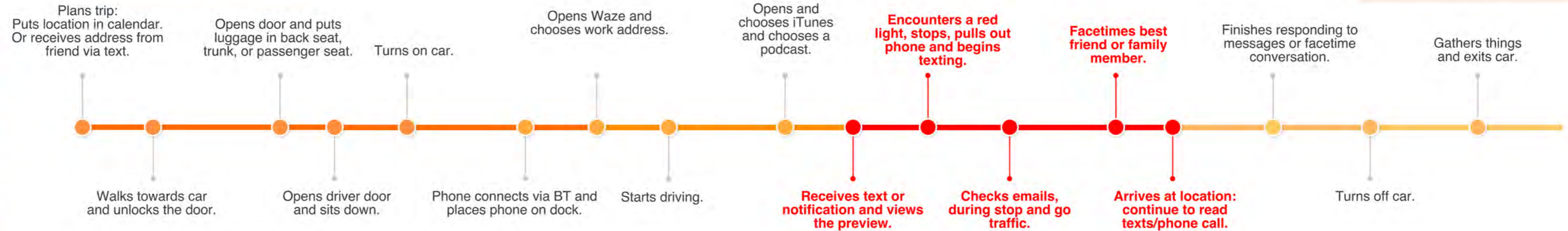
MAIN GOAL OF ALICE'S PARTICULAR JOURNEY: Going to work: 8:30am / Way back home: 6:00pm

Distraction level increases because Alice wants to feel productive in the car.

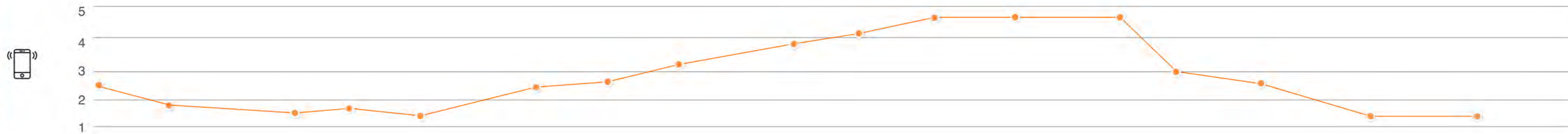
STAGES



INTERACTION TOUCHPOINTS



DISTRACTION LEVEL



FEELING



Upon entry into the car, Alice feels neutral, but slightly preoccupied with things she has to do.	Alice feels neutral once again, but dislikes all the steps she has to go through to connect her phone to her car.	Though Alice's distraction increases, her satisfaction increases as well because she turns on her favorite podcast. Frustration in having to shuffle multiple windows when using navigation, facetime, podcasts, and text.	Frustrating in facetimeing friends but also needing to look at the navigation. Frustration in having multiple steps for navigation: open calendar or text messages, copy address to navigation, and then start navigation.	Frustration subsides as she arrives at her location, completes messages so she can feel more relaxed and productive.	Alice feels neutral, and ready to go complete the tasks ahead.
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OPPORTUNITIES



<p>Receives text or notification and views the preview.</p> <ul style="list-style-type: none"> Receive a message or notification through voice assistant. 	<p>Encounters a red light, stops, pulls out phone and begins texting.</p> <ul style="list-style-type: none"> Easy to text with voice command. Ability to send text messages legally. 	<p>Checks emails, during stop and go traffic.</p> <ul style="list-style-type: none"> Easy to text with voice command. Reducing the touch points with phone to reduce distraction away from the road through a steering wheel buttons. 	<p>Facetimes best friend or family member.</p> <ul style="list-style-type: none"> Making a video call without disturbing while they are driving. Adding Camera Syncing up the navigation and calendar so that the driver can enter car and the navigation opens up. 	<p>Arrives at location: continue to read texts/phone call.</p> <ul style="list-style-type: none"> Provide an experience to the user to do simple tasks in the car.
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Karen

Parent Driver

ABOUT

 **Age** | 40

 **Occupation** | Stay-at-home mom/ Soccer coach

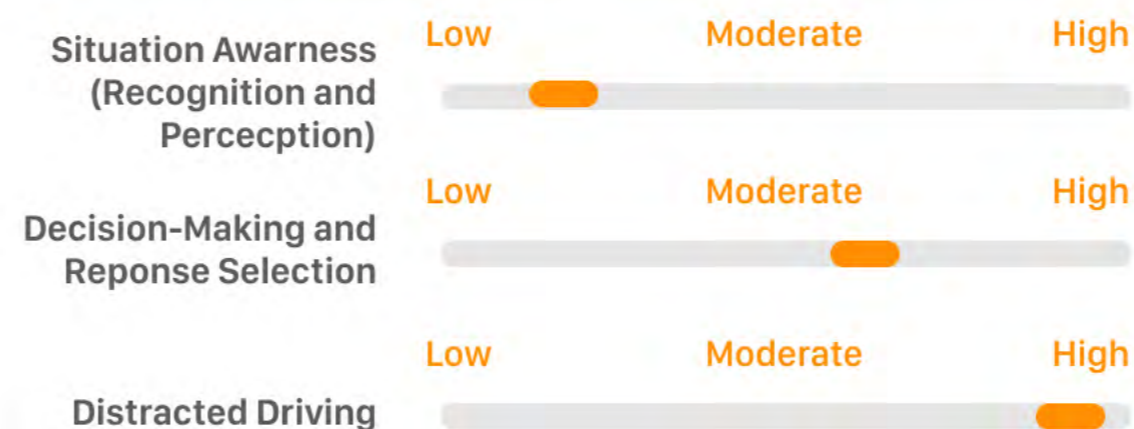
 **Location** | Hartford, CT

 **Social Relationship** | High

BIO

Karen lives in an upper class community and is a stay at home mom as well as a soccer coach. She carools her kids to and from private school every day, and drives them to soccer practice, ballet classes, and music lessons. Though considers herself to be safety conscious driver, she finds herself frequently confirming and coordinating pickups and dropoffs via text message.

DRIVING CHARACTERISTICS



MOTIVATIONS

She wants to find an easier way to confirm and coordinate pickups while driving.

She doesn't use voice command to text because its low accuracy and speed.

Finds it difficult to keep the kids occupied to and from school.

Because she gets lost in communicating with her phone she wants an alert system that brings her attention back to the road.

PAIN POINTS

- She stresses about scheduling and coordinating her children's transportation.
- Feels impatient due to 45-60 minute waits when picking up her kids from school.
- Wishes there was a safer and more efficient form of communication to coordinate her family's various schedules.

CORE NEEDS

- Needs to confirm and coordinate pickups and dropoffs.
- Alert system while distracted in the car.
- Needs to view her schedule on her calendar



Karen's Driving Journey Map

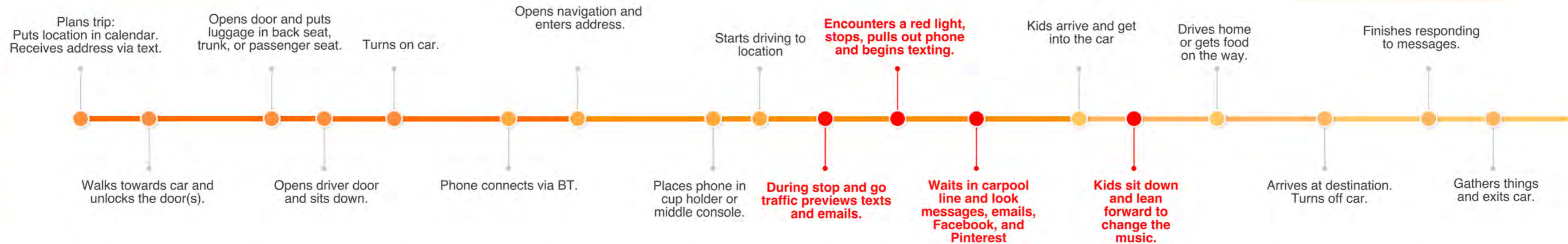
MAIN GOAL OF KAREN'S PARTICULAR JOURNEY: School Commute: 7:00am/4:00pm / Activities Commute: 5:00 - 7:00 PM

Distraction levels increase because she needs to coordinate pickups through texting.

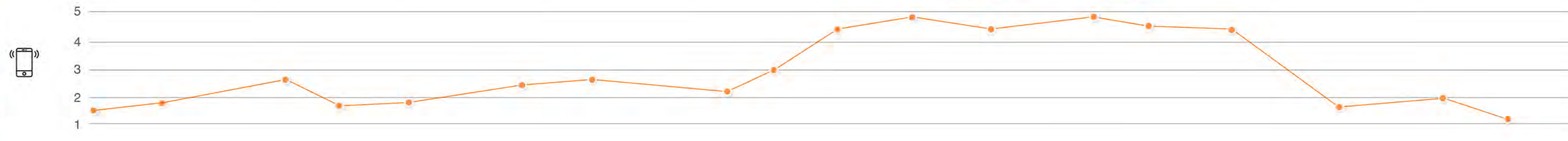
STAGES



INTERACTION TOUCHPOINTS



DISTRACTION LEVEL



FEELING

Karen feels relatively neutral at the start of her journey, though her mind is preoccupied with tasks of the day.

Karen's stress slightly increases as she connects her phone to the car, and thinks about juggling her kids' schedules for the day.

Karen's stress slightly increases as she connects her phone to the car, as she thinks about juggling her kids' schedules for the day.

Karen annoyance increases as she has to view her messages, emails, Facebook, and Pinterest while she has to wait in line for 40-60 minutes.

Karen's level of distraction annoyance remain the same, as her attention switches back and forth between the road, her messages, her tasks for the week, and her children behind her.

As she arrives and exits her car at her final destination, Karen's stress subsides, but she scrambles to grab all of her items out of her car, as well as gather her children.

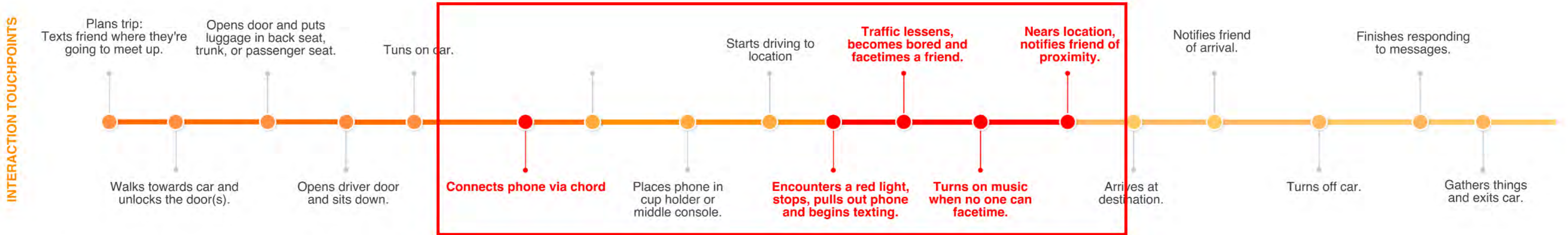
OPPORTUNITIES

- During stop and go traffic previews texts and emails.**
 - Splitting the screen to view her messages and calendar while she drives can relieve her stress knowing she can view her notifications safely.
- Encounters a red light, stops, pulls out phone and begins texting.**
 - Creating a seamless experience through a split screen and control from steering wheel buttons.
 - Sound/visual alert to inform her that traffic has begun again.
- Waits in carpool line and look messages, emails, Facebook, and Pinterest**
 - Creating a bigger screen to view her messages, emails, Facebook, calendar, and Pinterest.
- Kids sit down and lean forward to change the music.**
 - Creating a personalized playlist that enables the kids to be entertained.

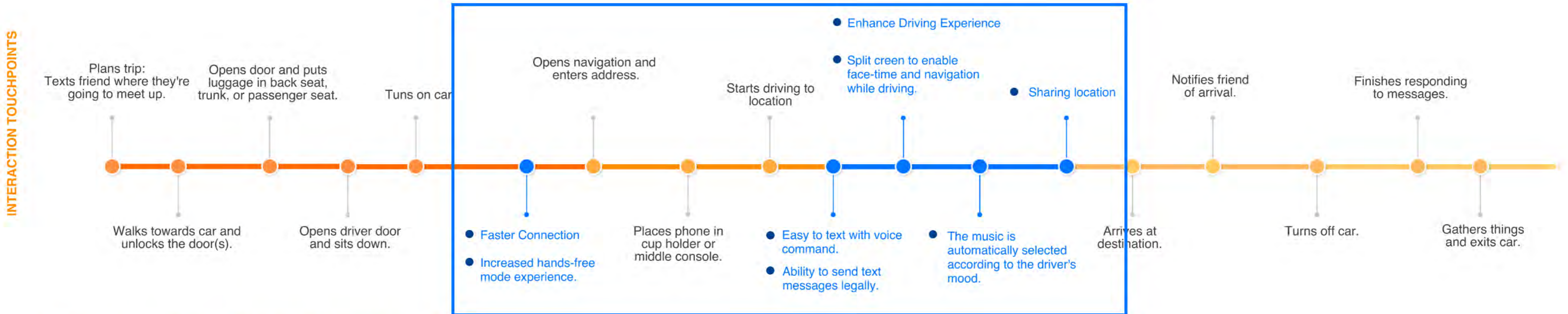
Problem Refinement



Original Problem Scope



Refined Problem Scope

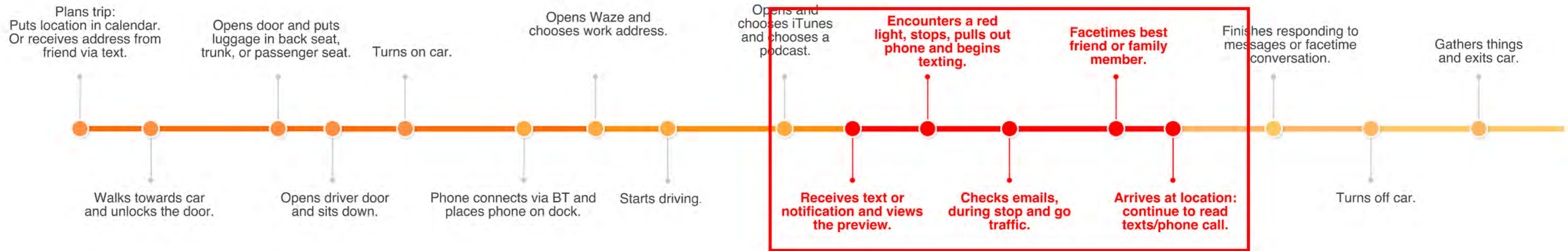


Problem Refinement



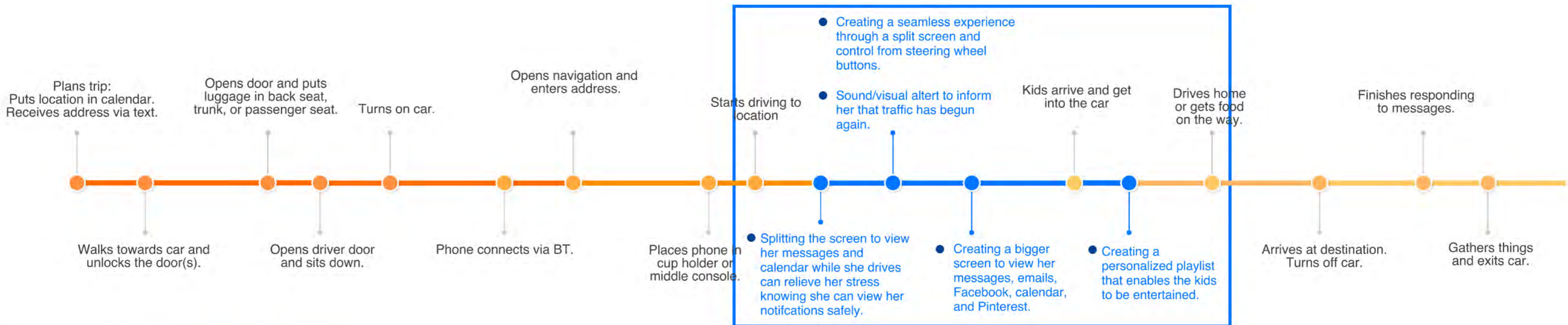
Original Problem Scope

INTERACTION TOUCHPOINTS



Refined Problem Scope

INTERACTION TOUCHPOINTS

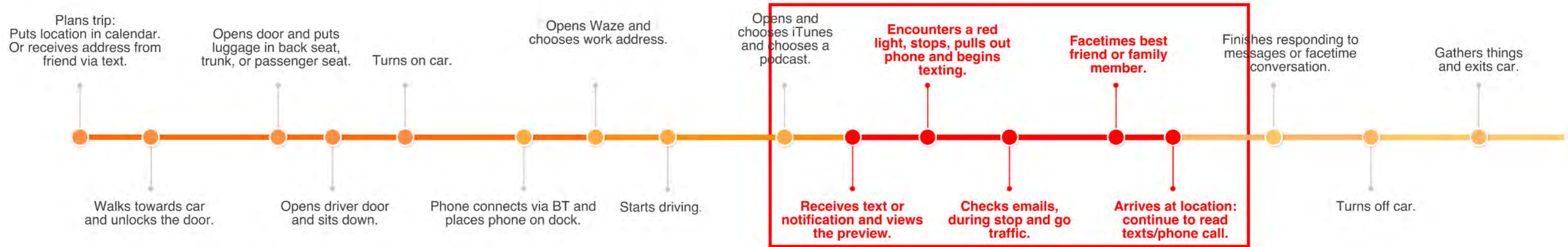


Problem Refinement



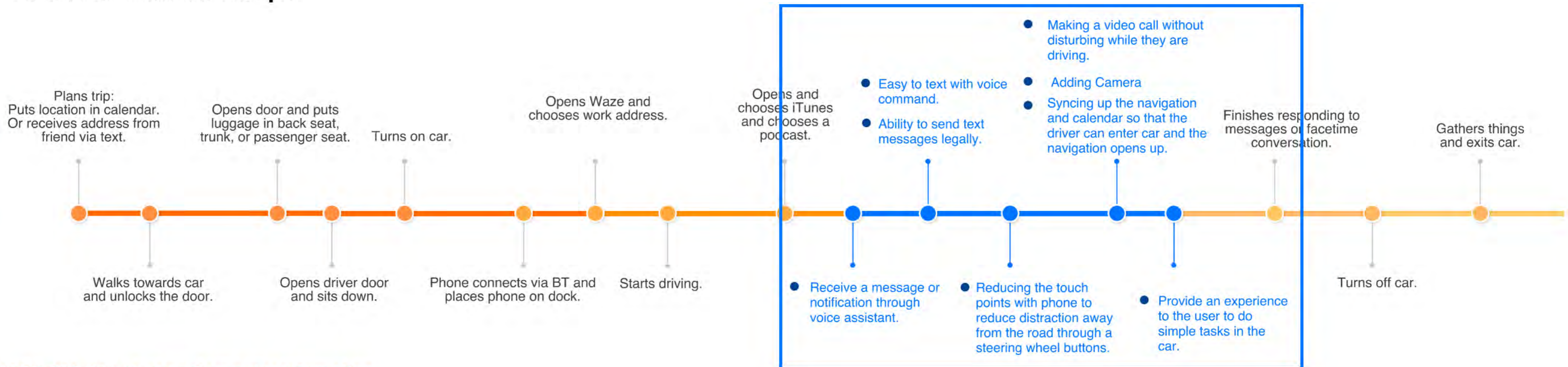
Original Problem Scope

INTERACTION TOUCHPOINTS



Refined Problem Scope

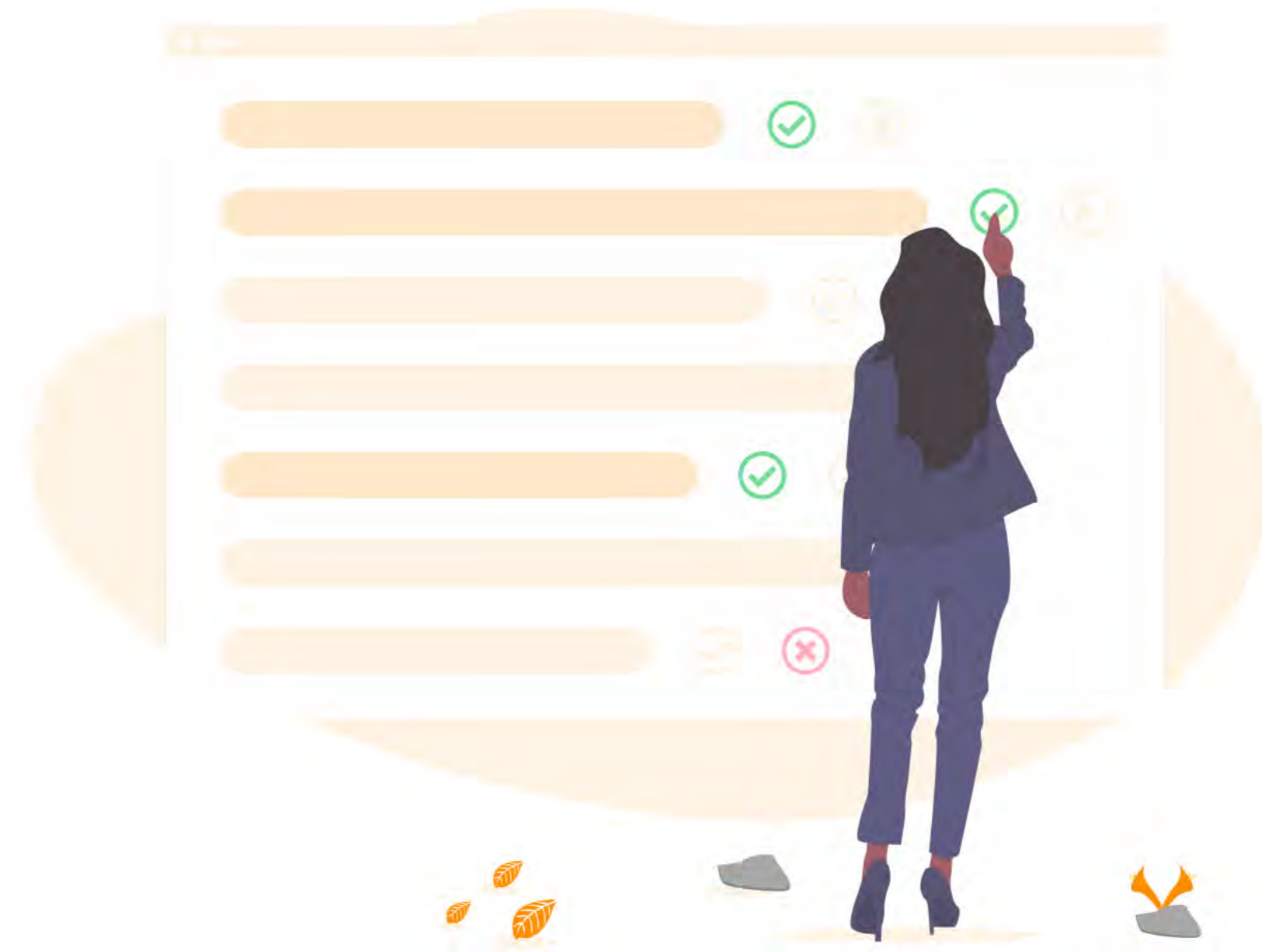
INTERACTION TOUCHPOINTS



User Needs

Needs & Painpoints

Target User Experience



User Needs



Boredom

Redirecting boredom and loneliness through mental entertainment.



Productivity

Increasing satisfaction as a result of utilizing time in the car.



Utility

Necessary communication for practical purposes.

Target User Experience



Provide a safe mobile connection in a world where distraction levels increase with the advancement of technology.

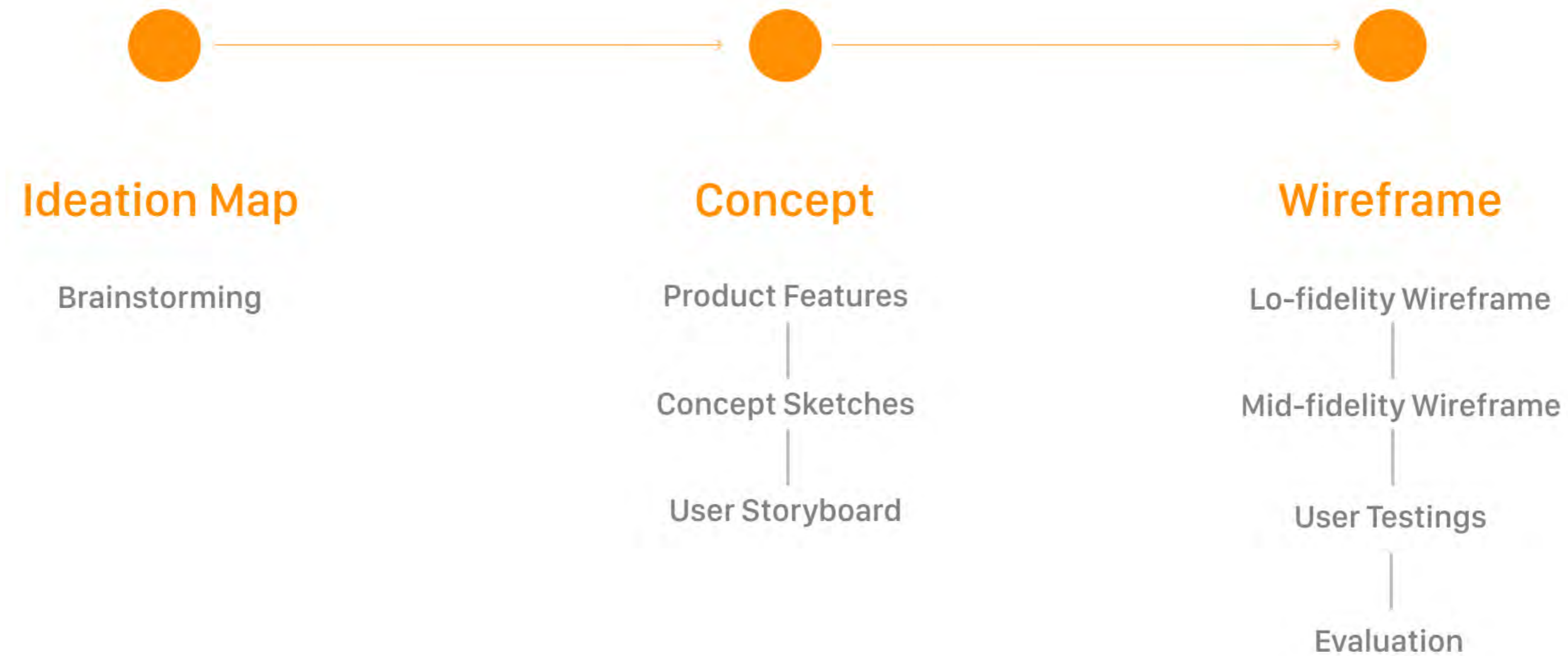


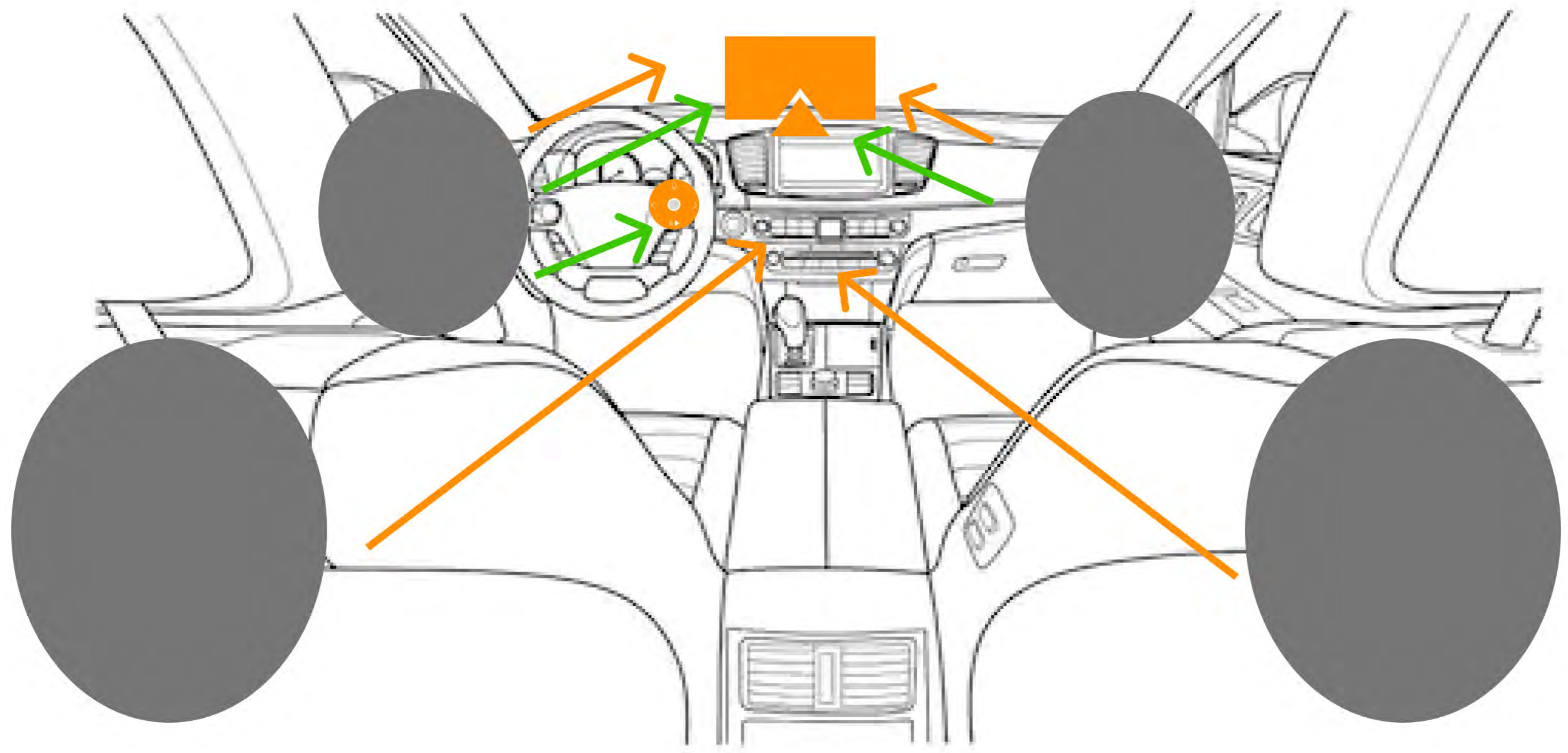
Create a stand-alone AI device accessible for all vehicles.



Create a seamless user experience transitioning mobile devices with vehicle synchronization.

DEVELOP



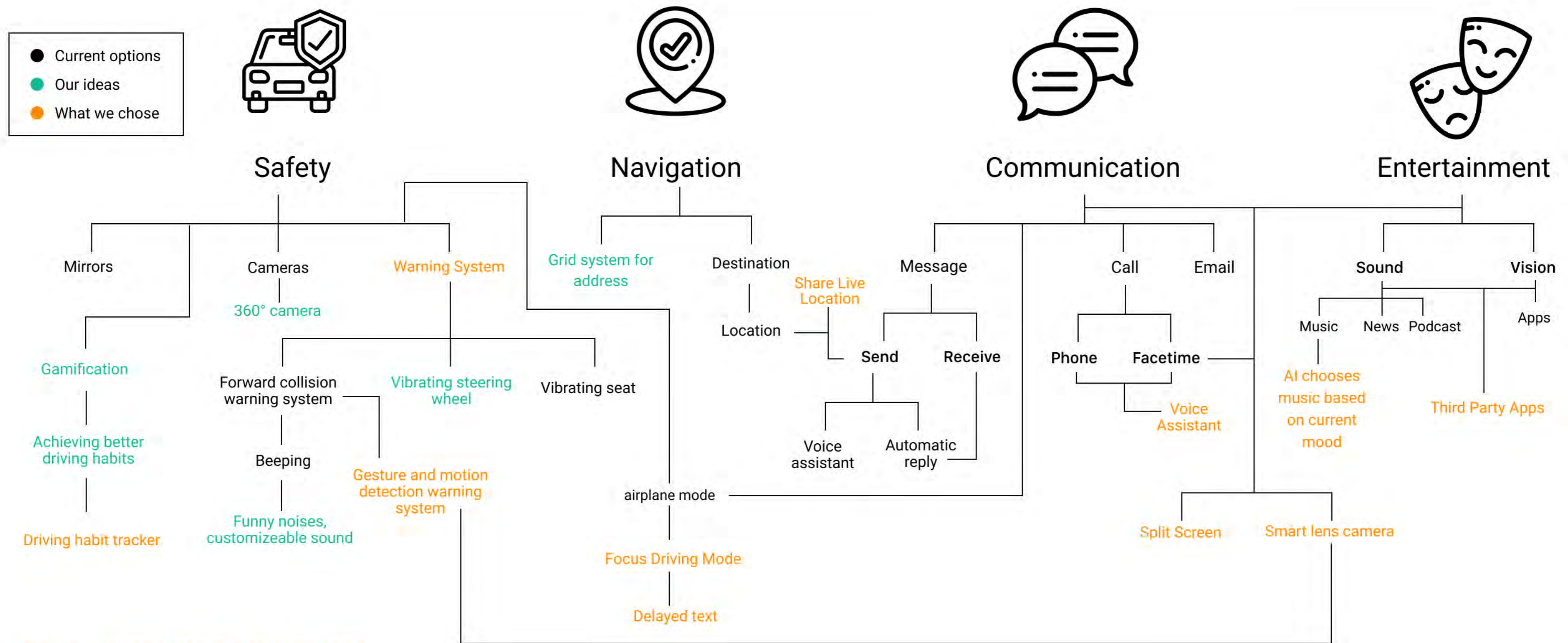


— Touch

— Voice Command

Ideation Map

Current Needs In The Car

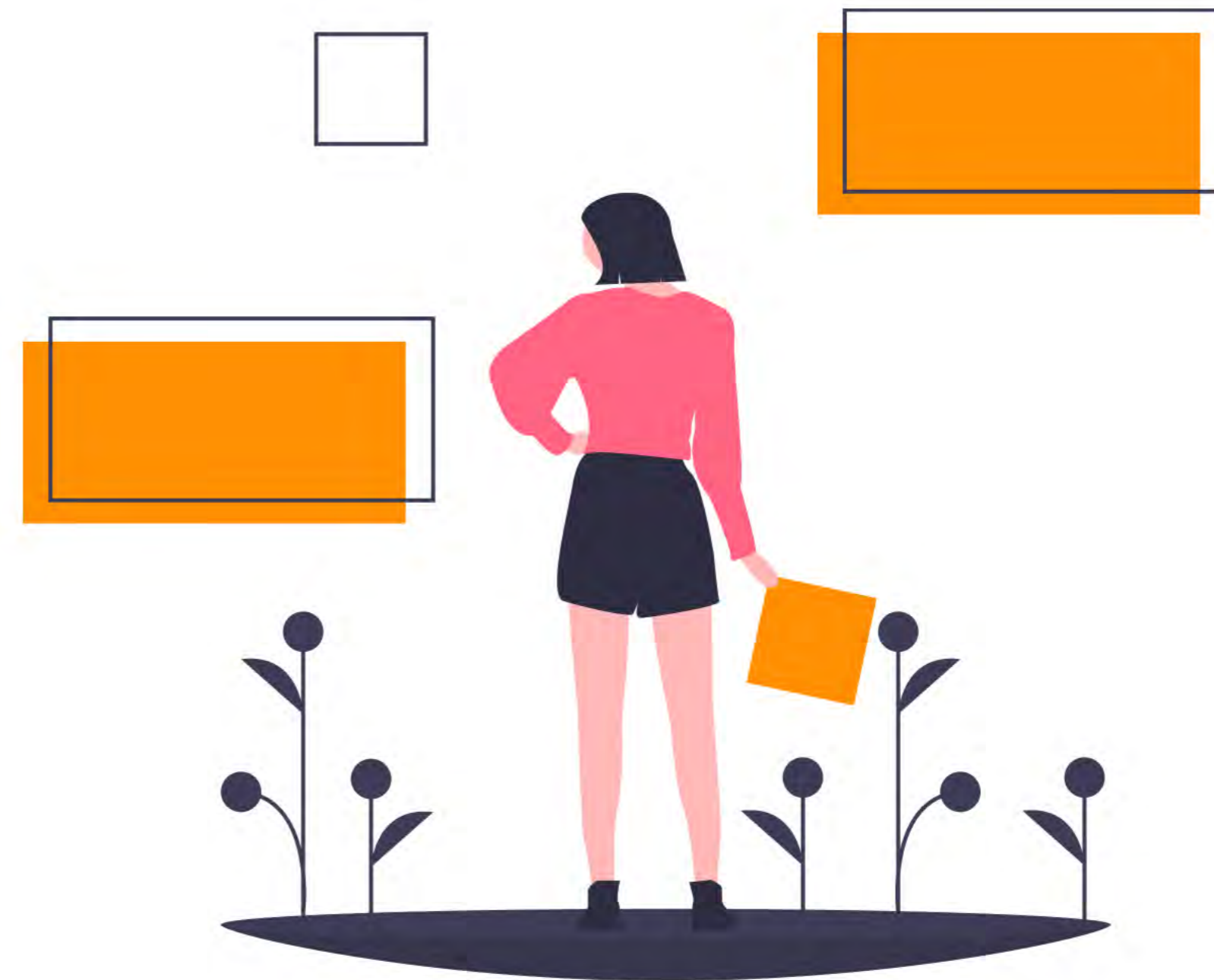


DESIGN CONCEPT

Product Features

Concept Sketches

User Storyboard



Product Features



Focus mode



Voice assistant



Driving Habit



Smart lens camera



3rd party apps

Features 1



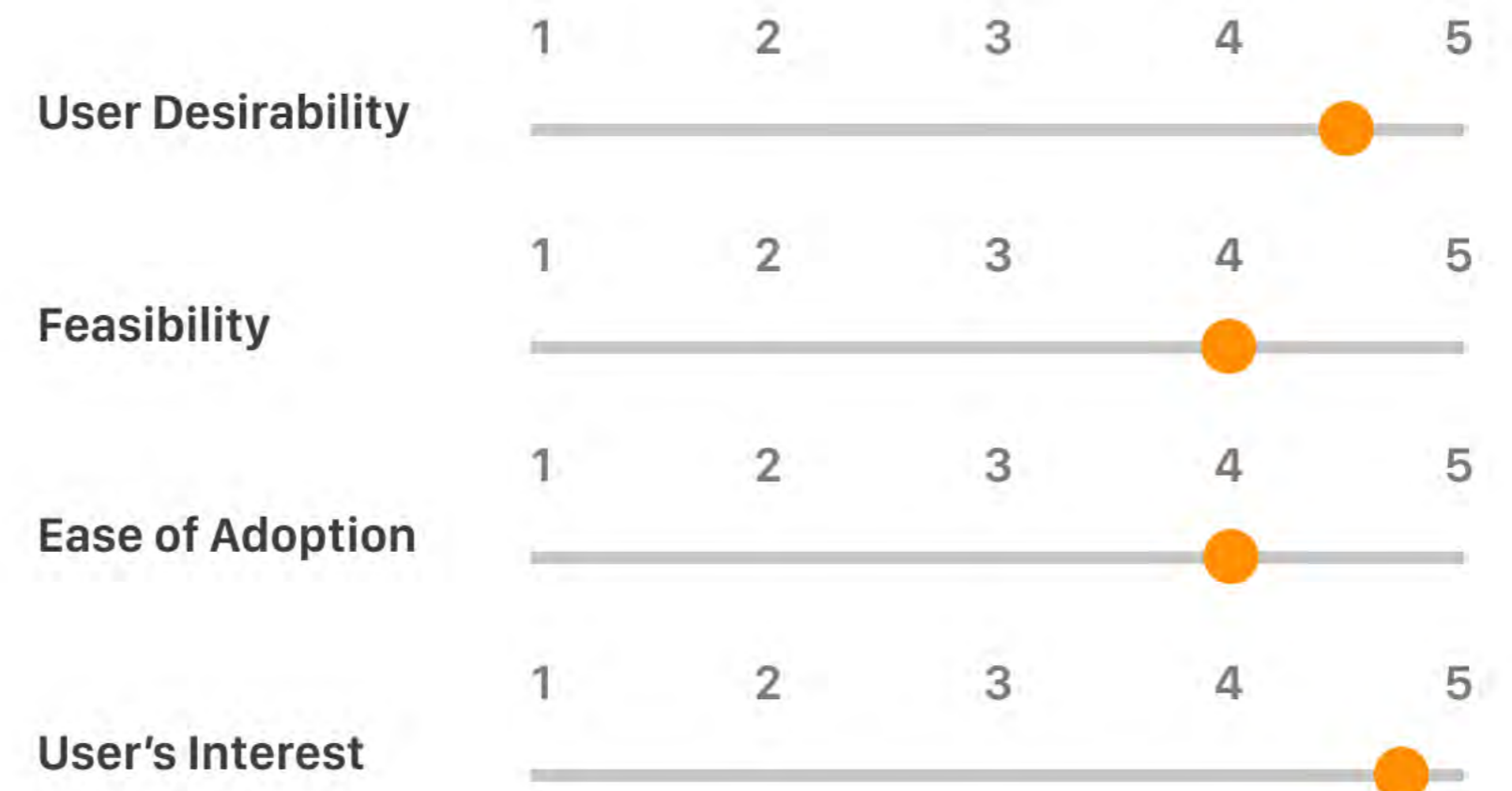
Focus Mode



Delayed text notification

- In this mode the text is delayed til the car has stopped.
- The user can still receive texts while in the car, but not while in motion.
- This eliminates distraction by a notification while in the action of driving.
- Driver can safely view and respond while the car has stopped.

Interested User



Features 2



Voice-controlled virtual assistant



Ability to send or check text messages / Social Communication legally.

- Even though texting while driving is illegal, instant communication is necessary and constant.
- An accurate AI voice assistant sends texts and accurately and conveniently.



Easy to use media.

- Each app is easy to find and uses few taps to access.
- Most used functions have individual buttons on the side bar to decrease taps.
- Enhanced bluetooth technology increases a hands-free experience.
- Automatic bluetooth pairing provides a seamless experience when entering the car.

Interested User





Cory

Voice Assistant

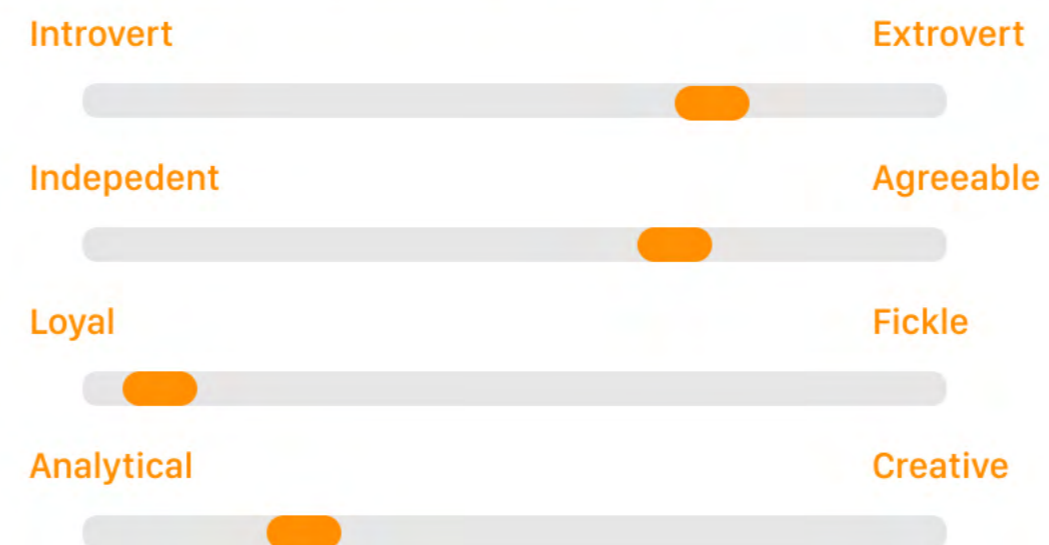
ABOUT

 Age | 35
 Gender | Female

Brand Identity

Safety	Efficiency
Comfort	Trusworthy
Utility	Warm

Assistant Characteristics



Bio

Cory is a mature and knowledgable 35 years old. She is a competent but personal assistant. She provides clear and safe communication.

Personality

- Calm but assertive.
- Trustworthy and ready to provide assistance.
- Caring but not over eager.
- Has a slight sense of humor.
- Competent yet friendly.

Voice Tone

- Mature, but humble.
- Lower
- Calm but assertive

ASSISTANT BRAND IDENTITY



Features 3



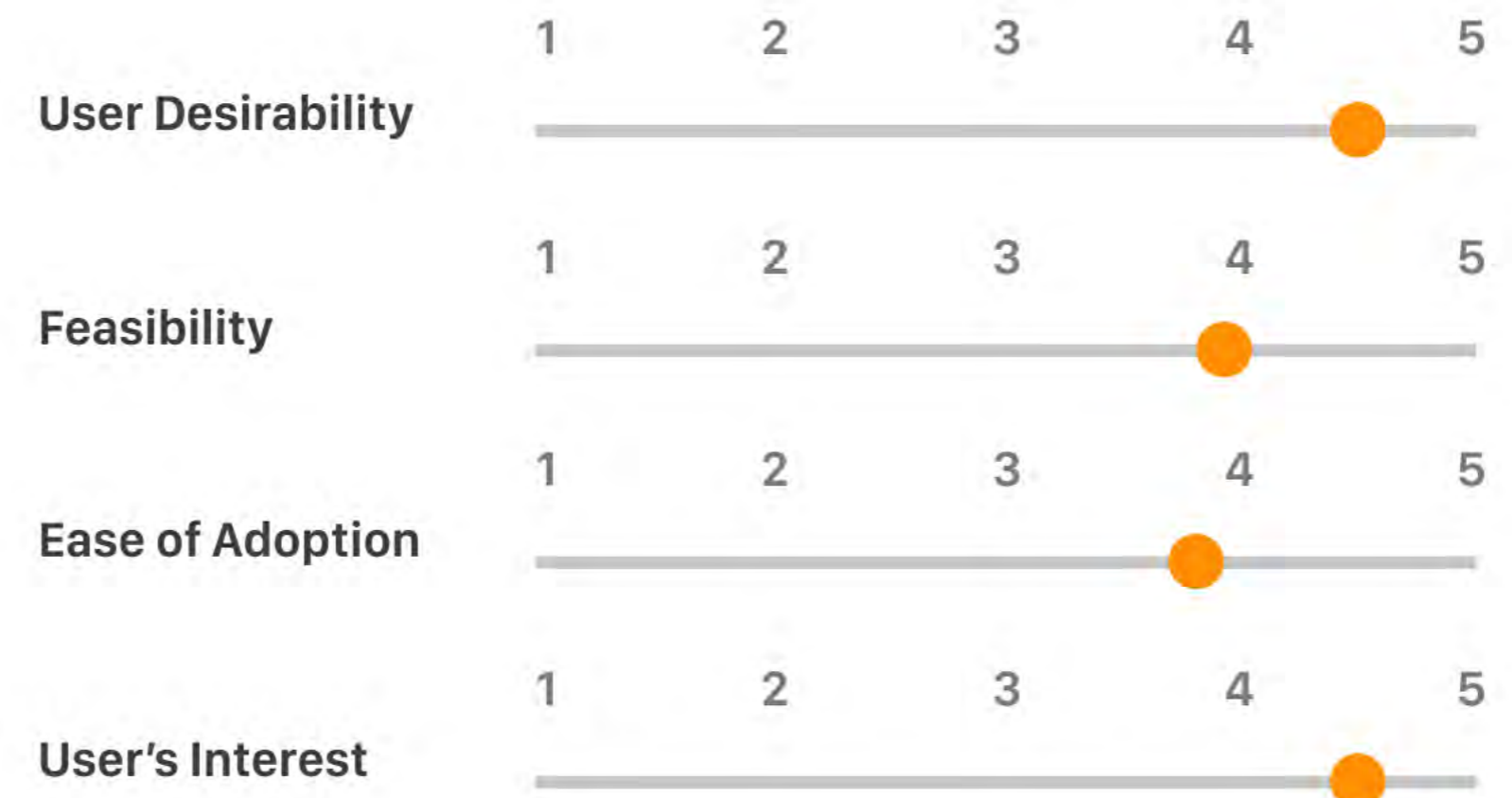
My Driving Habit



Score

- Driving score is calculated through the users acceleration, braking, corning, speed, and phone use.
- This feature is located at the top of the screen for easy access.
- Gamification through sharing/competing with friend and family.
- Points can be earned and rewards won through high driving scores. Points can also be donated to a nonprofit organization. For easy and safe donations, CAIR will exchange the points to digital currency and manage the transaction.
- Monthly comprehensive driving reports will give descriptions and helpful suggestions to improve driving habits.

Interested User



Features 4



Smart Camera Lens



Follows the user

- Users stay in frame through voice detection.
- Intelligently adjustable camera allows the driver to be hands free while on facetime.



Distraction warning system

- A warning sound alerts the driver after detecting phone use (after three seconds) or drowsiness.
- Determined through facial, gesture, and eye gaze recognition.

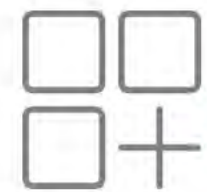
Interested User



Features 5



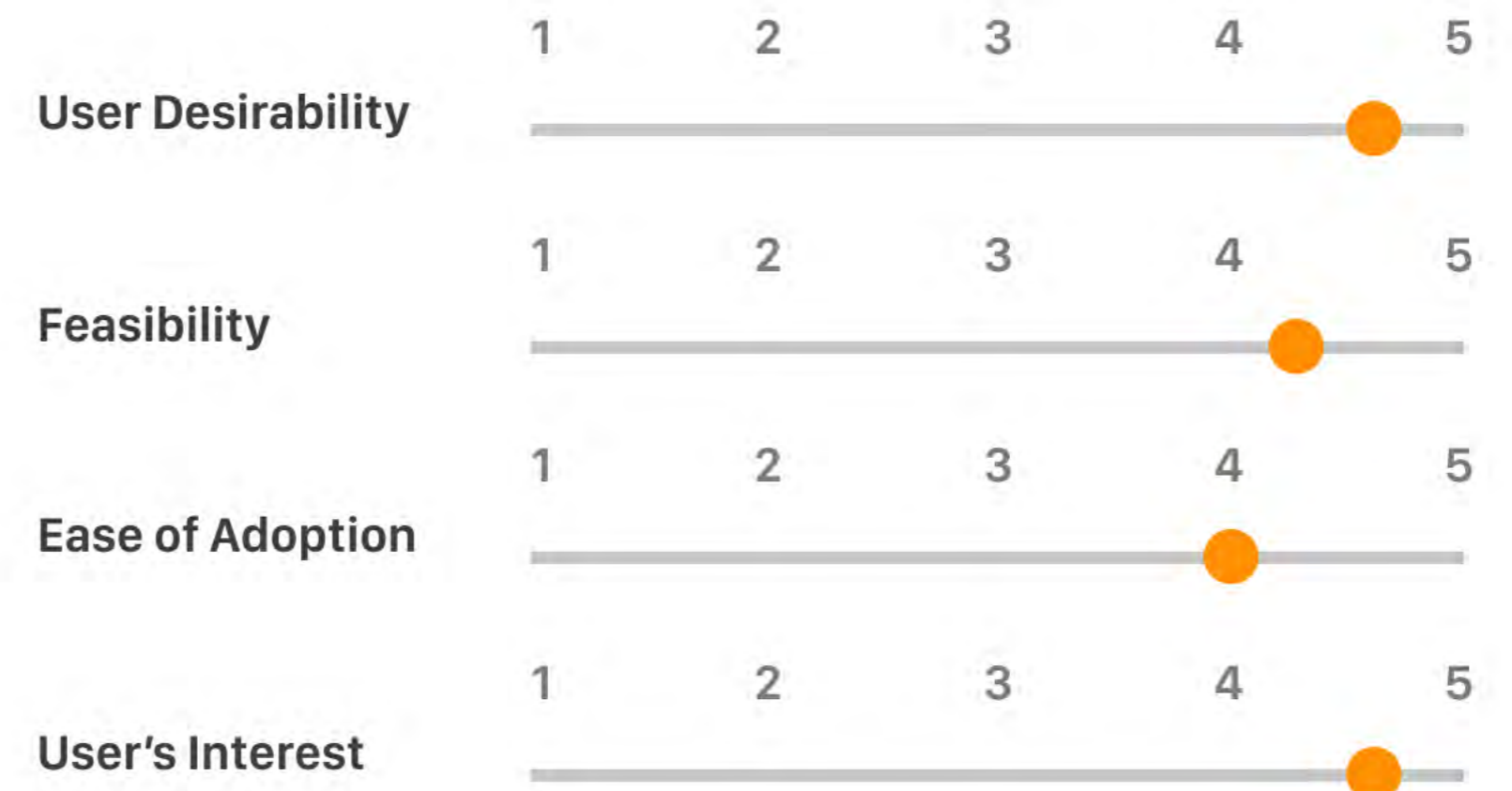
Third Party Apps



Customization

- Choosing your app is as simple as plugging in your phone device.
- The device syncs with your phone via bluetooth which automatically places the apps in the appropriate sections.
- Apps can be rearranged by opening the apps in the sidebar; long pressing and dragging and dropping in desired location.

Interested User



Screen Features



Screen Car Display



Split Screen

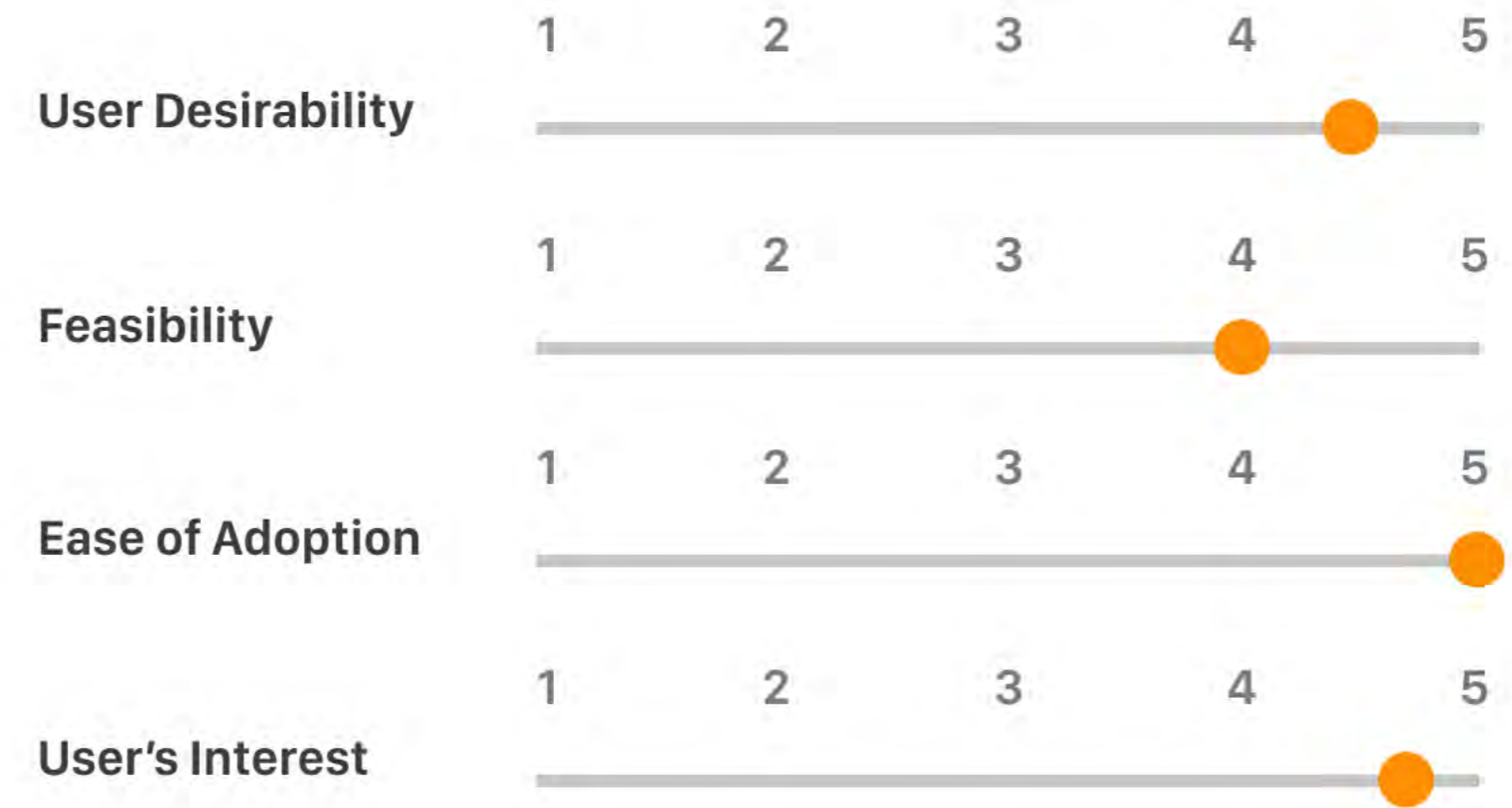
- Elongated display for multiple window viewing while driving.
- Incoming call or facetime does not interfere with navigation.



Product installation and angle customization

- The placement of the screen is customizable as well as customizable rigging after installation.
- The user has full control of choosing the optimal angle for safe screen interaction while driving.

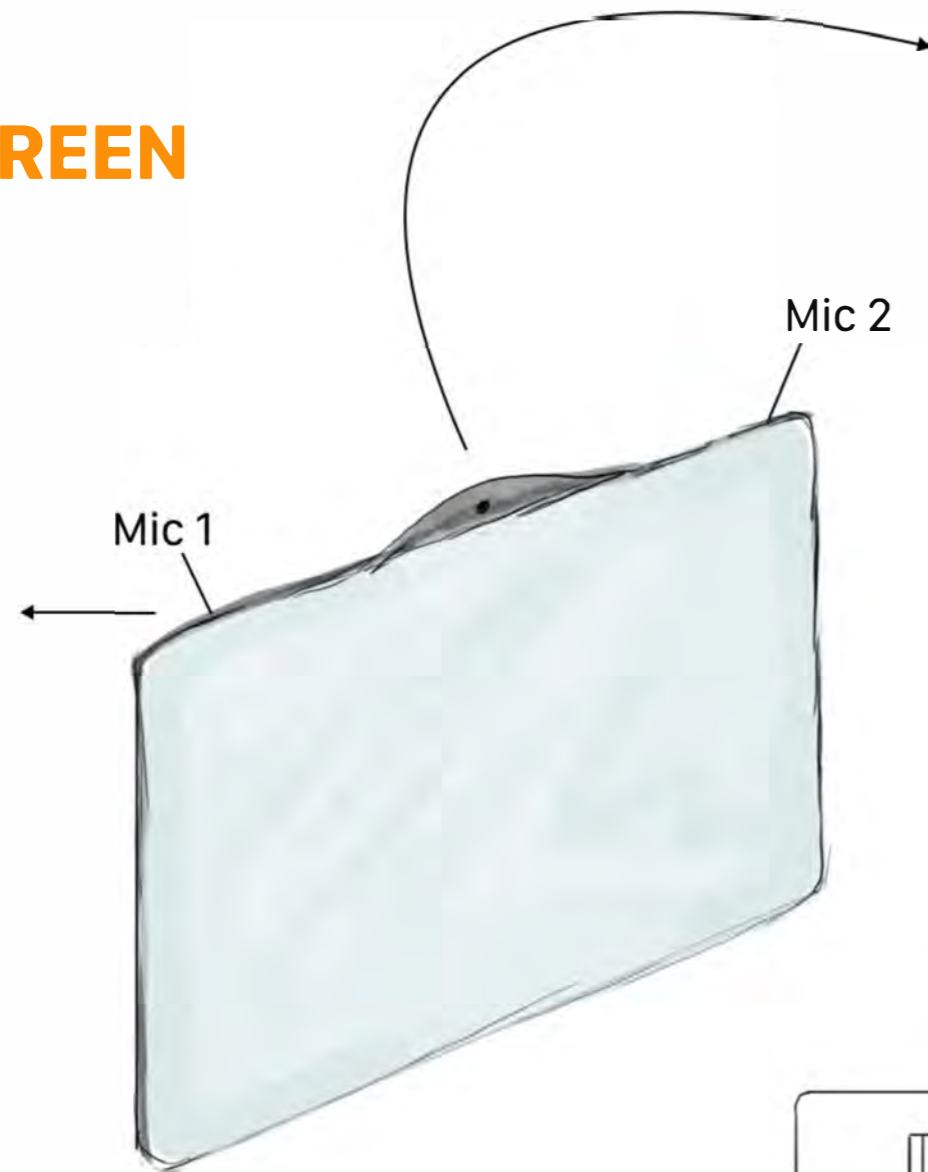
Interested User



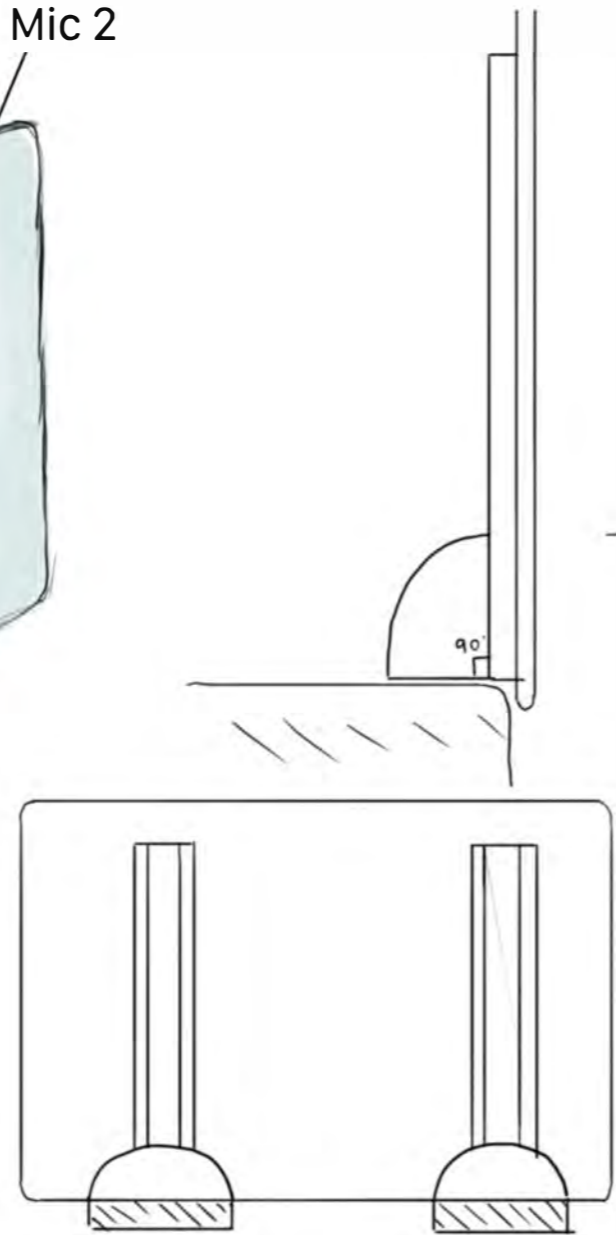
CONCEPT SKETCHES

SCREEN

Dual microphones on the top of device ensure higher accuracy in voice recognition.

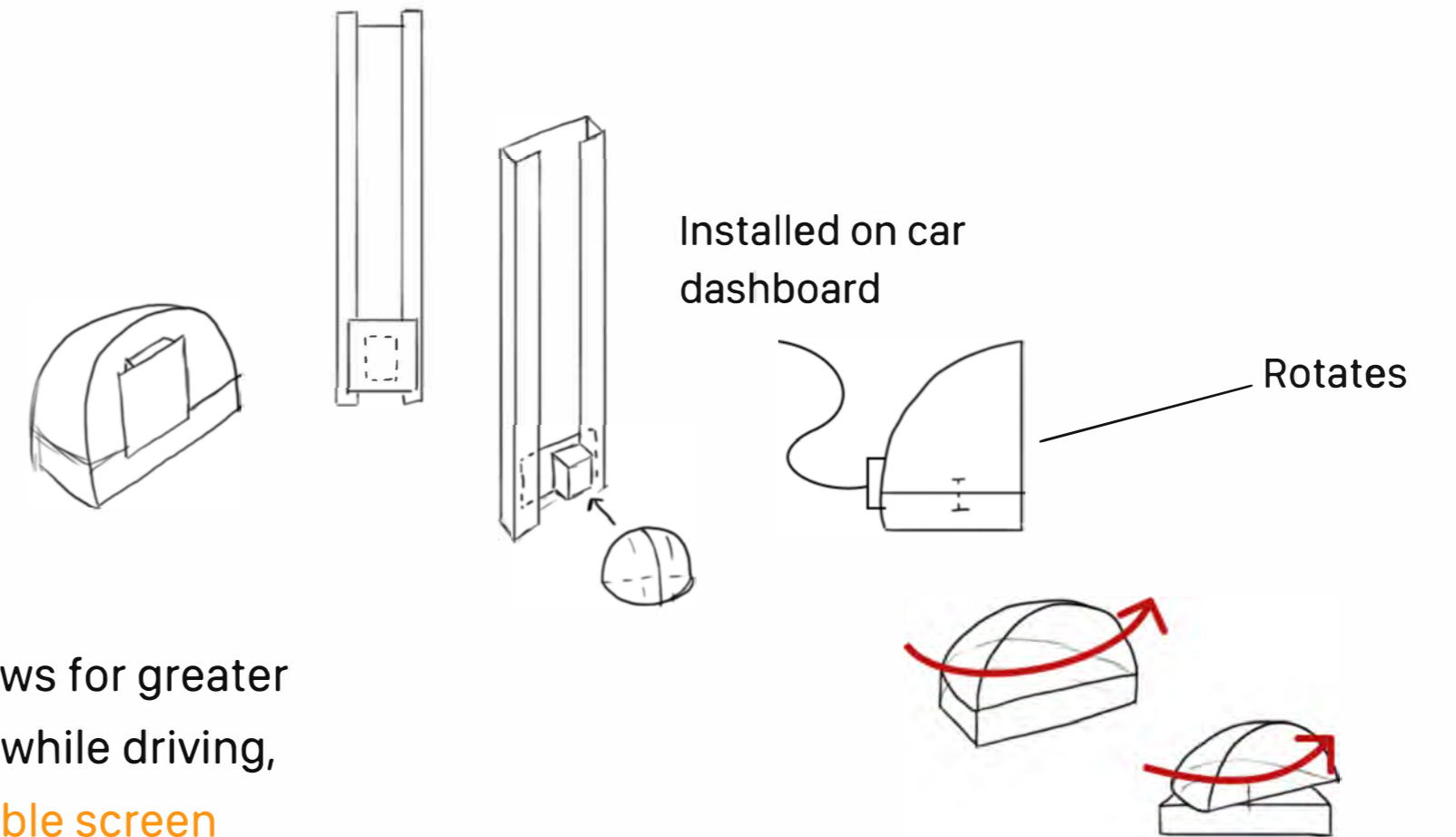


Front-facing camera has facial recognition technology to track visual distraction. Additionally equipped to move and use facial tracking to ensure the driver is always in frame of the camera, no matter the position of installation.



Dual track system allows for greater stability of the device while driving, and allows for adjustable screen height.

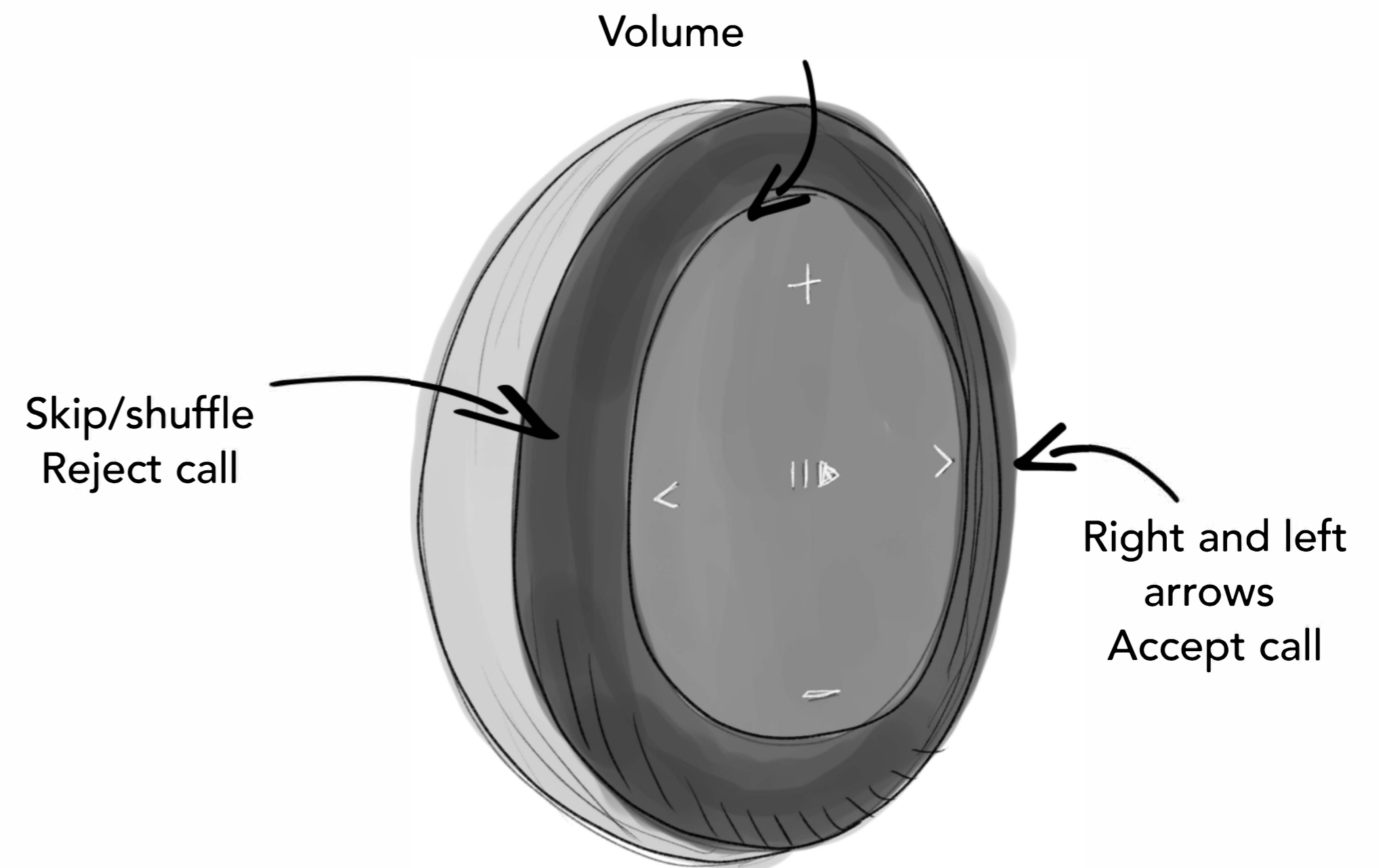
With a base installed on the car dashboard, the round, pivotable attachment allows the user to adjust the angle of their device to their liking



CONCEPT SKETCHES

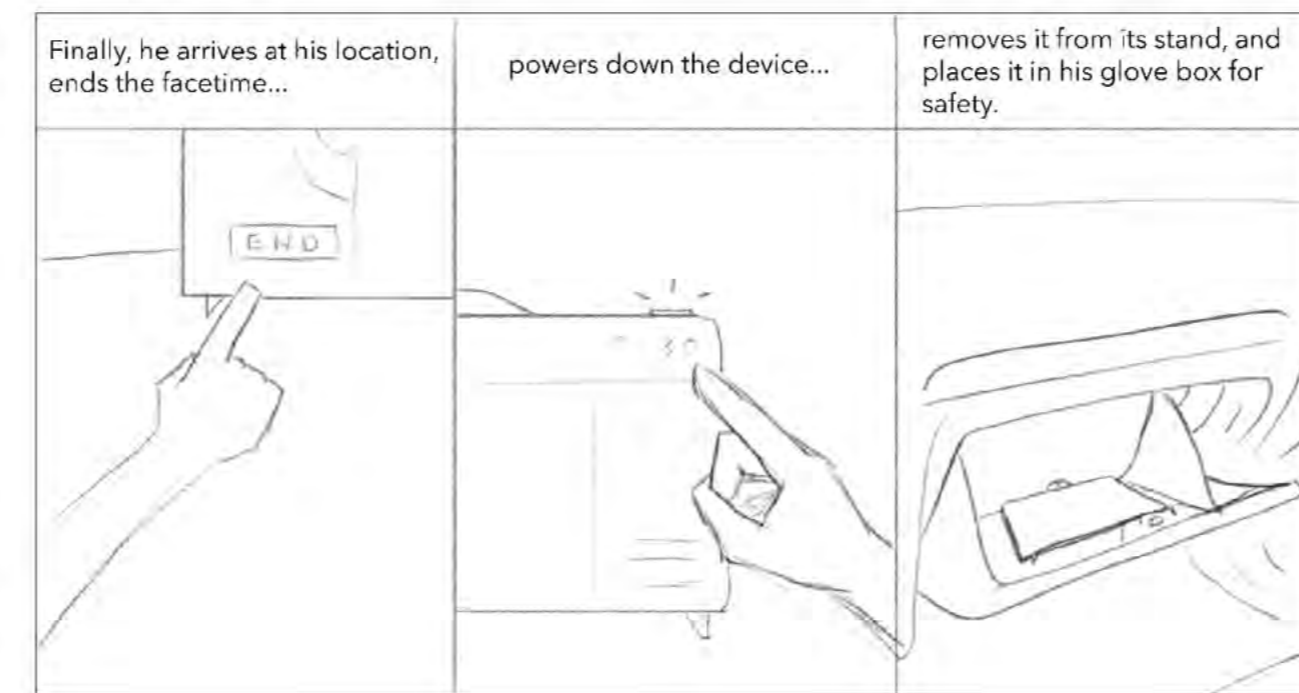
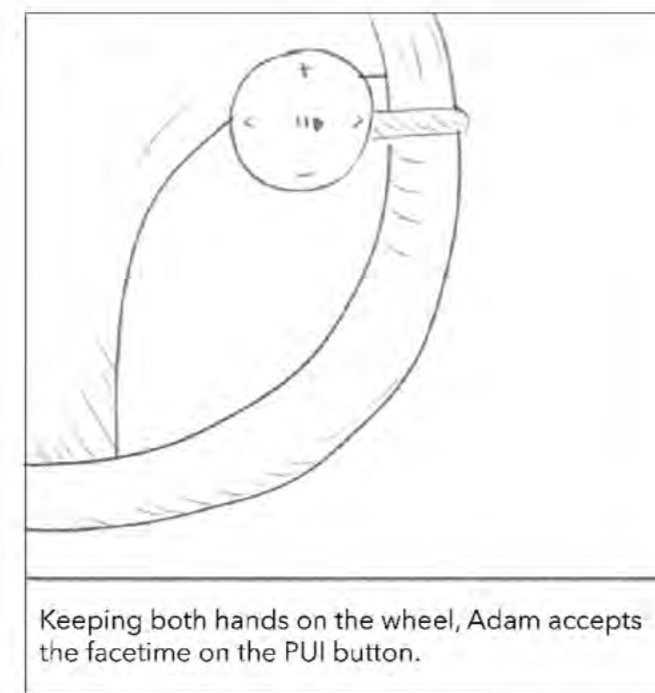
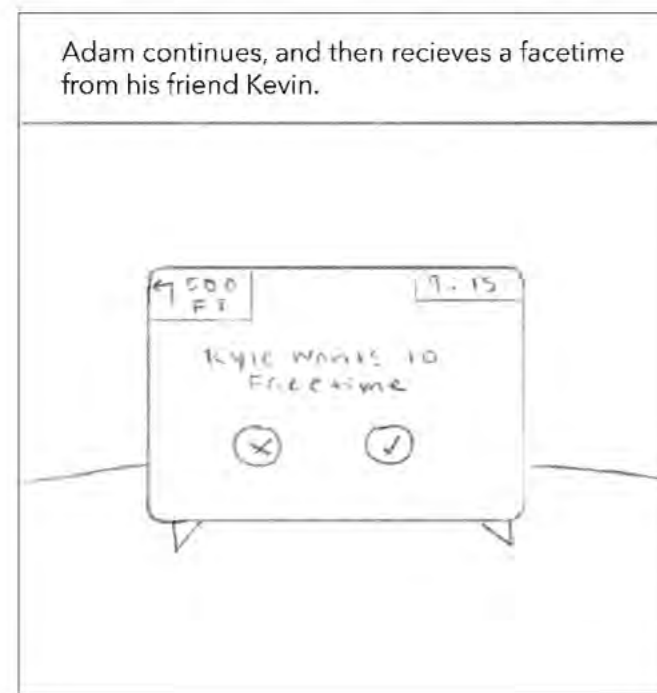
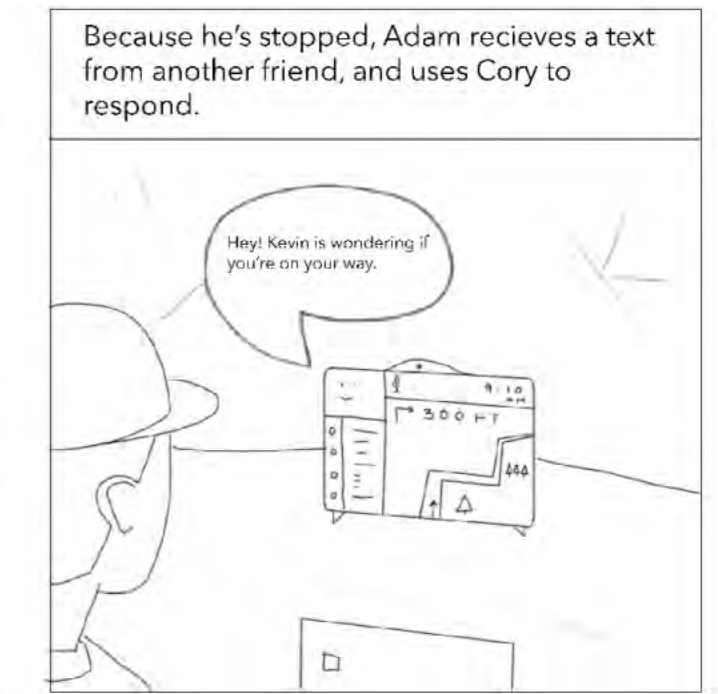
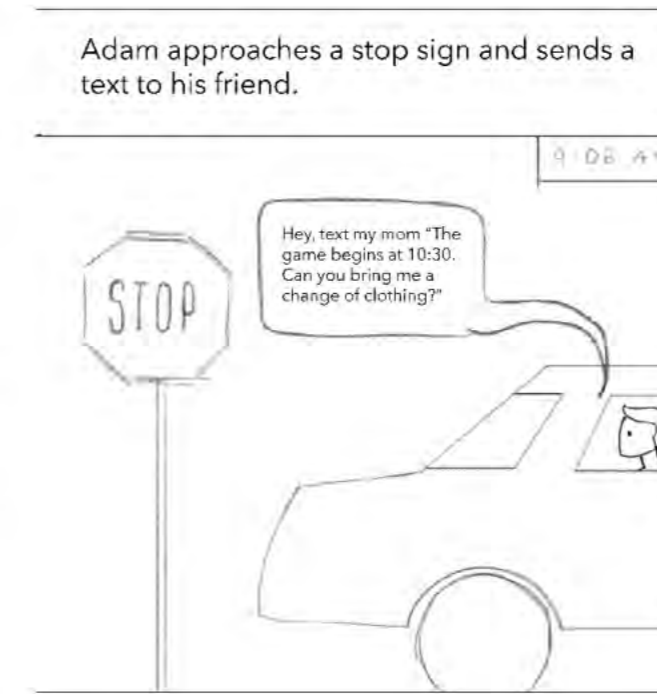
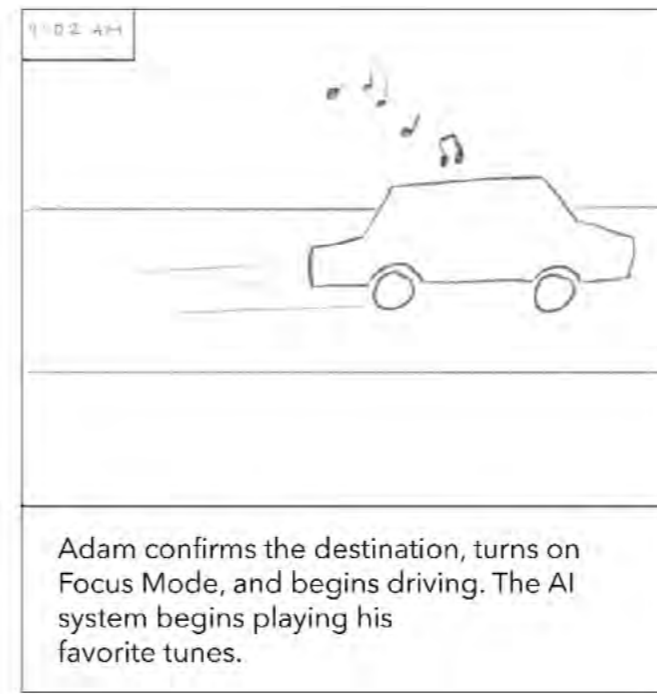
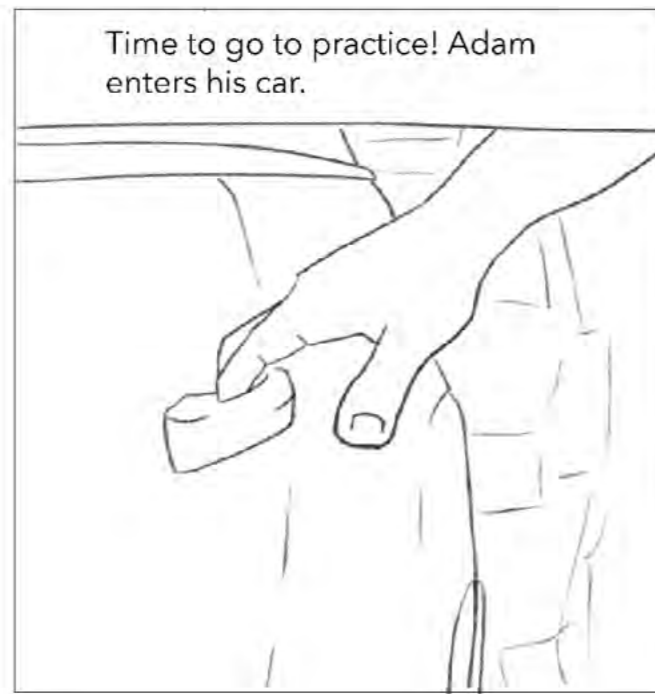
Steering Wheel Remote Control PUI's

- Reduces hands away from the steering wheel.
- Gives screen control while holding the steering wheel.
- Relies on tactile memory instead of visual required actions.
- Removes the inconvenience of commonly and frequently used commands.
- Reduces the disruption of sudden car movements when hovering over the screen.
- User feedback dsired steering wheel control since it is easier and safer then reaching over to the screen.



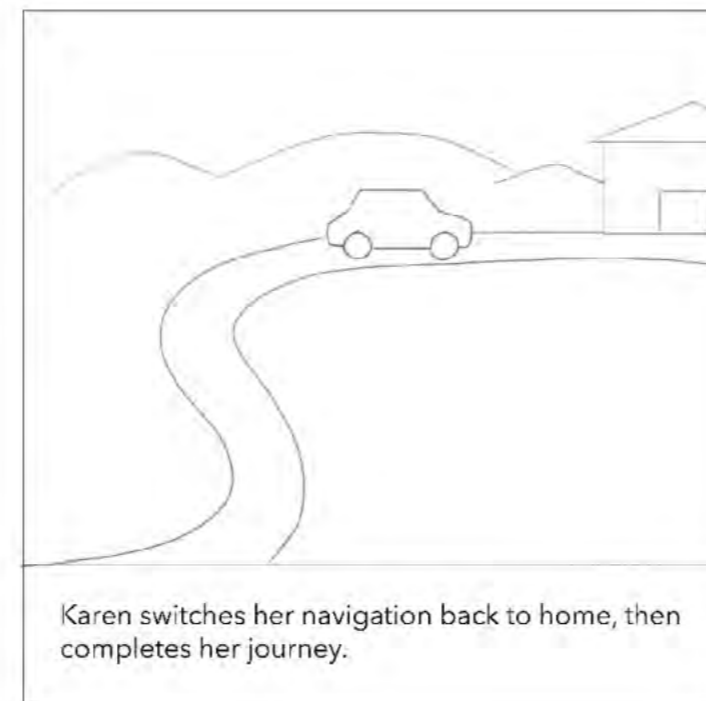
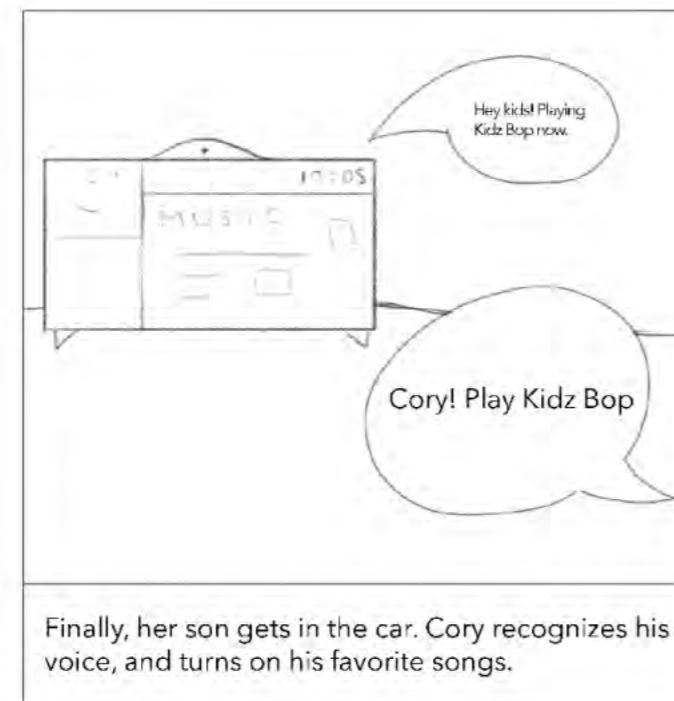
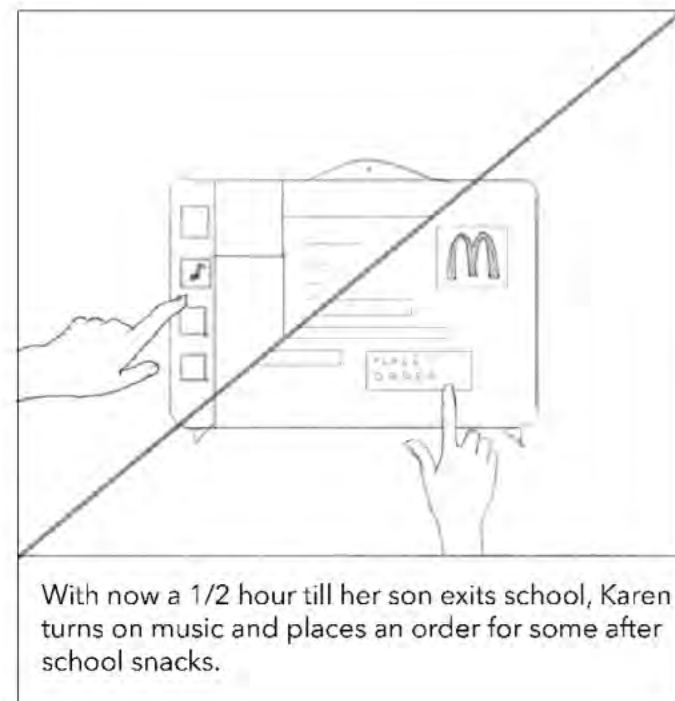
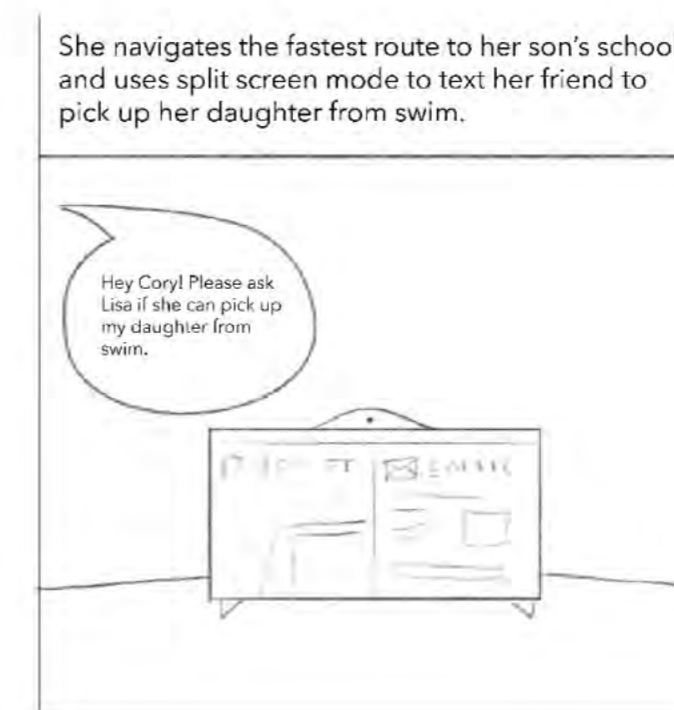
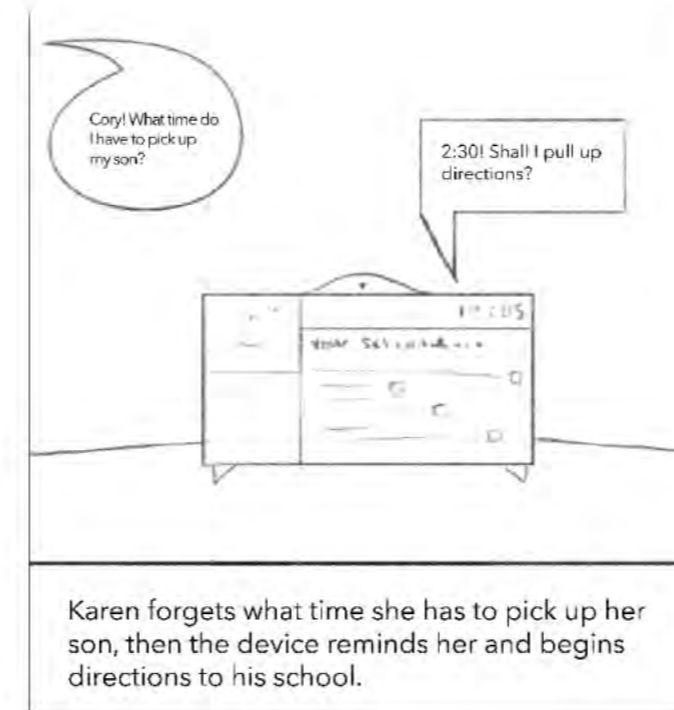
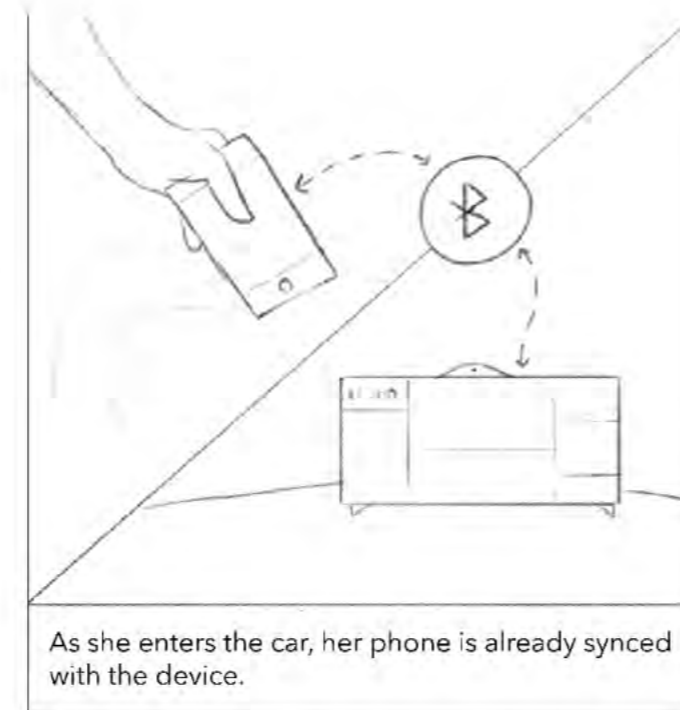
USER STORYBOARD

Adam's Storyboard



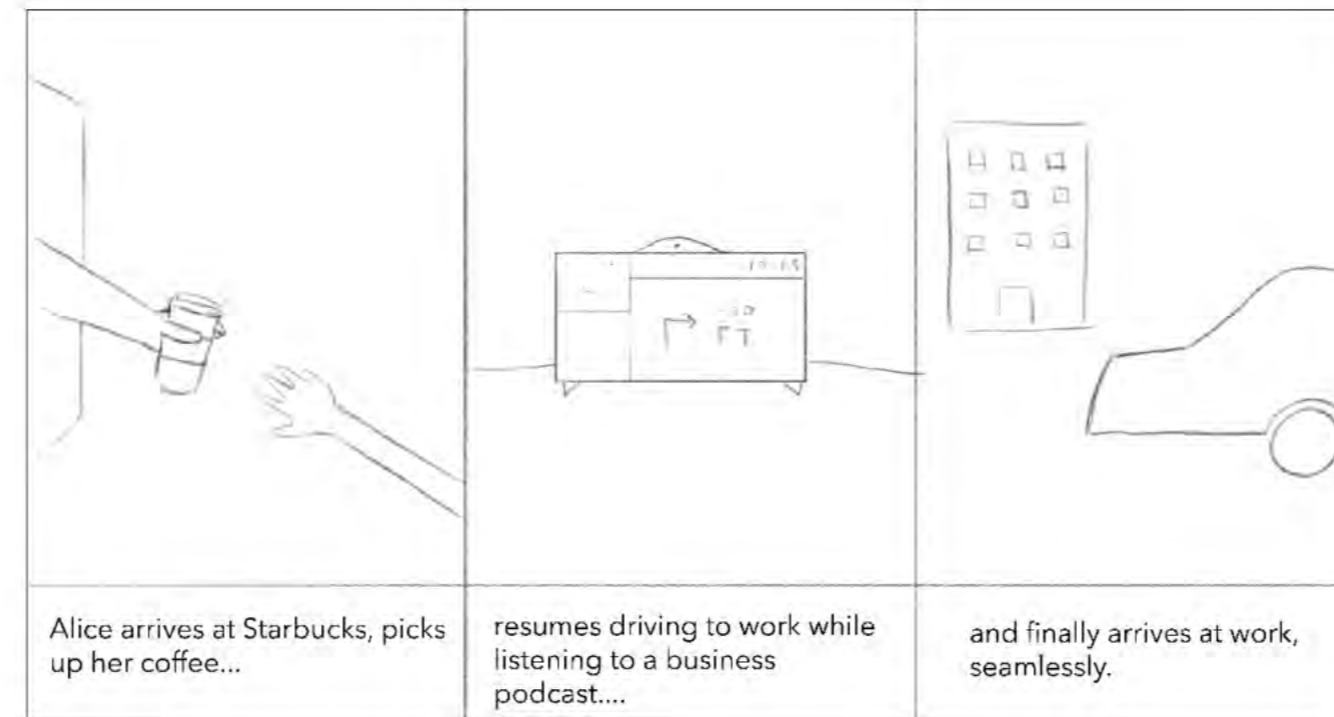
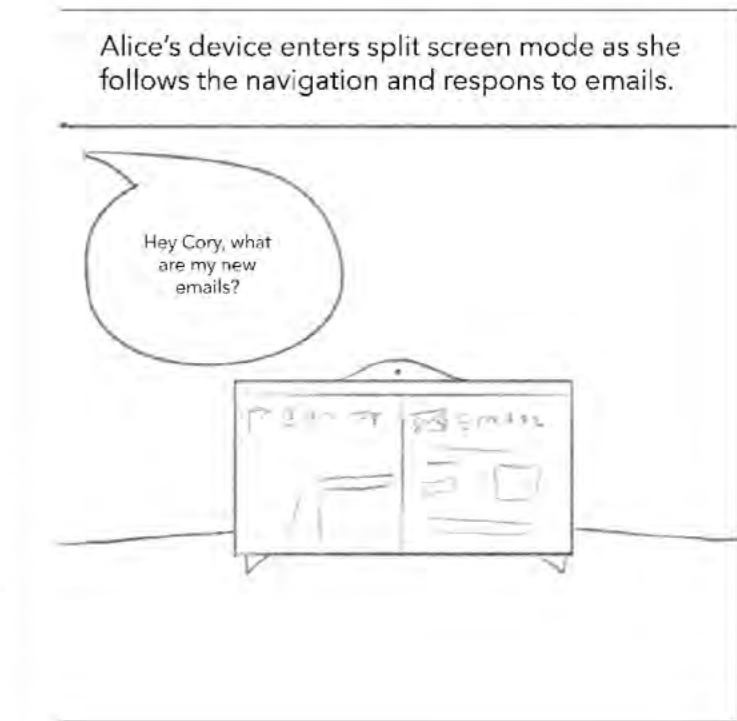
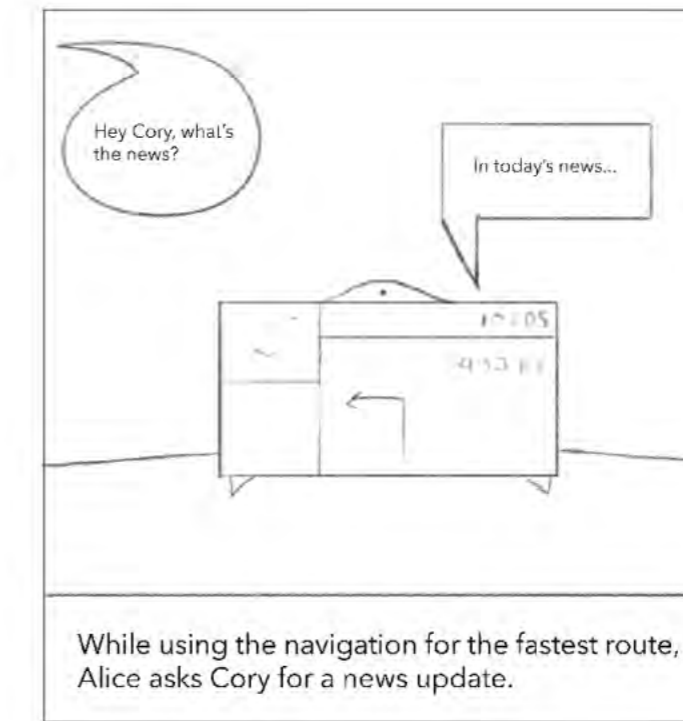
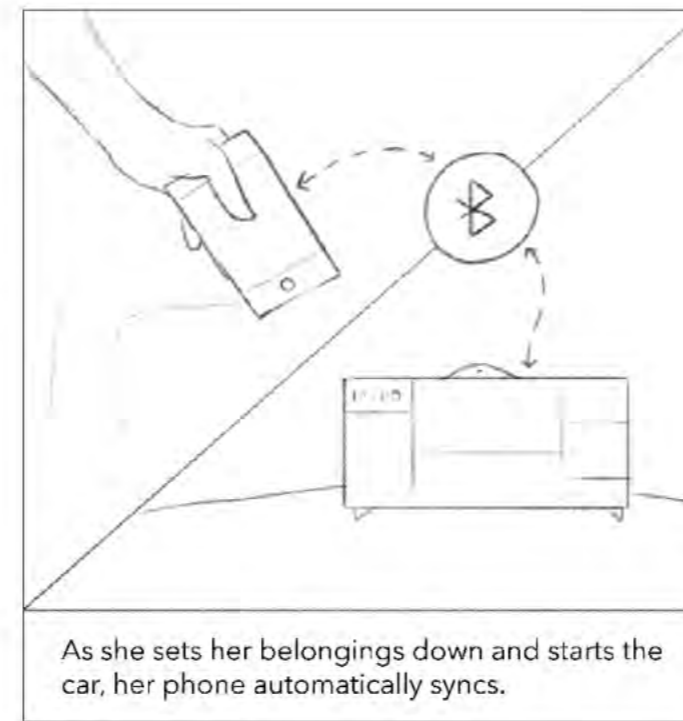
USER STORYBOARD

Karen's Storyboard



USER STORYBOARD

Alice's Storyboard

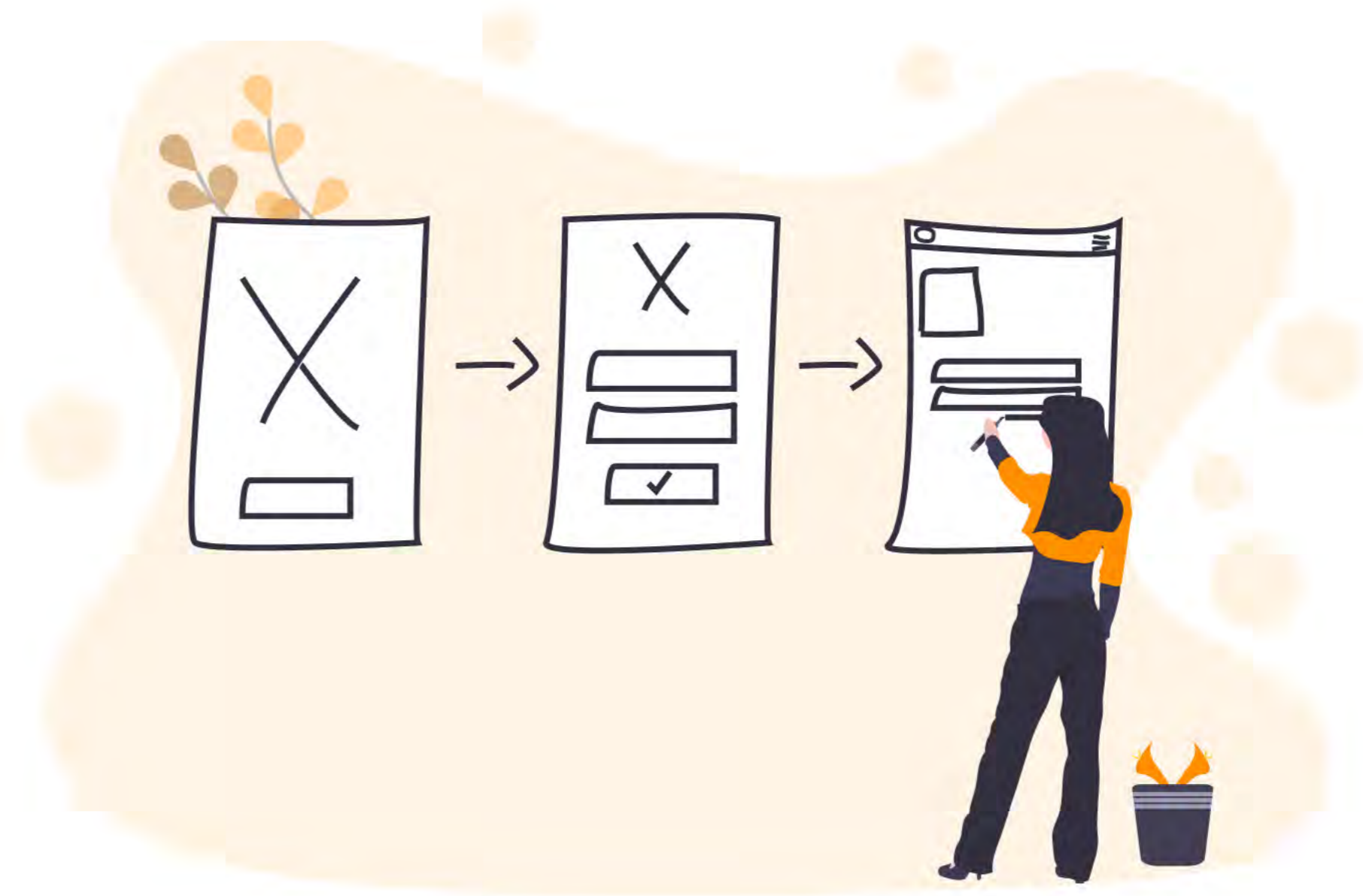


WIREFRAME

Task Flow

Low-Fidelity Wireframe

Voice Flow chart



Product Command Features



Touch

The user interacts with every screen product command features.



Voice

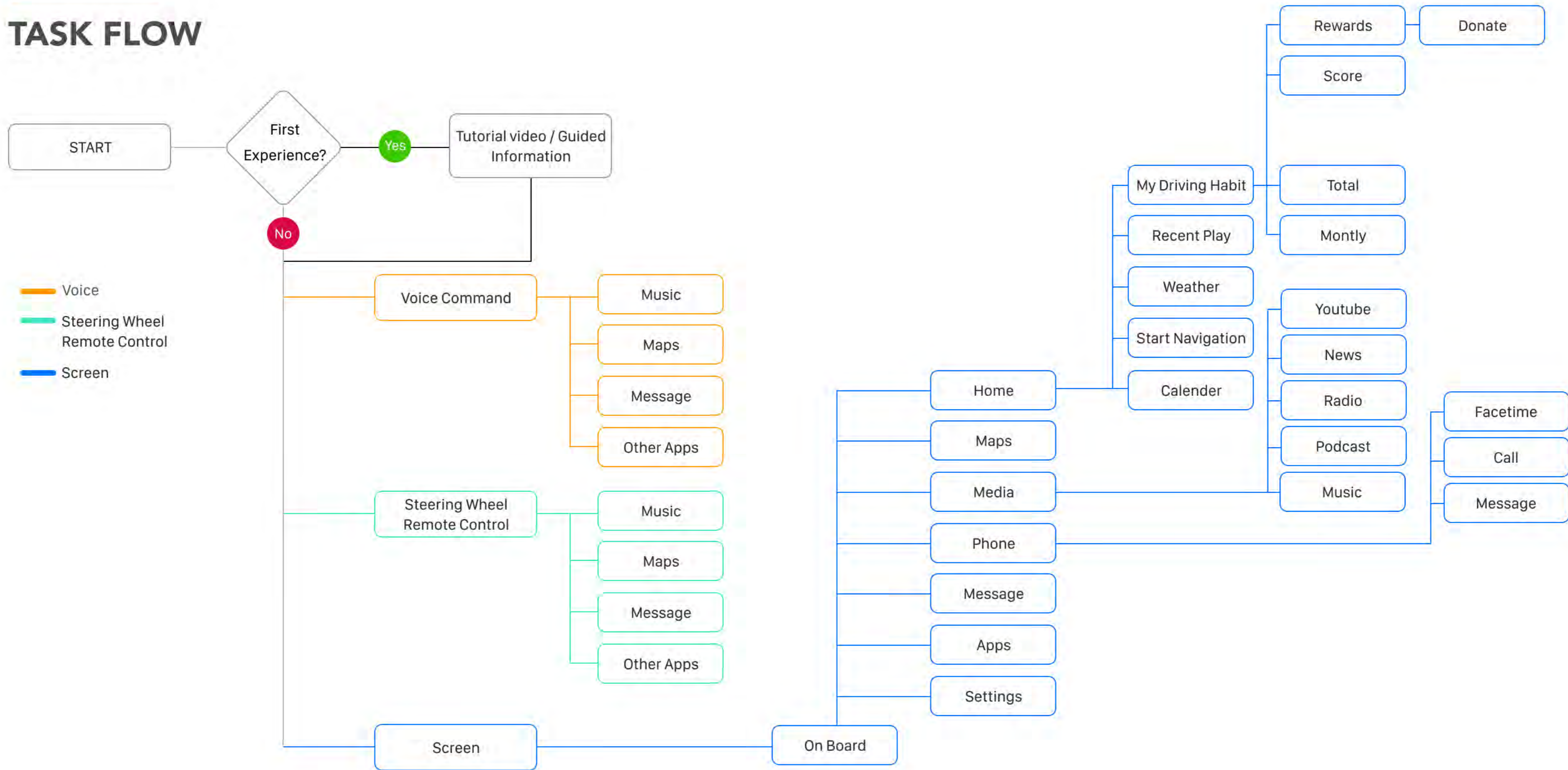
Voice assistant provides service for certain commands such as texting and opening applications.



Remote

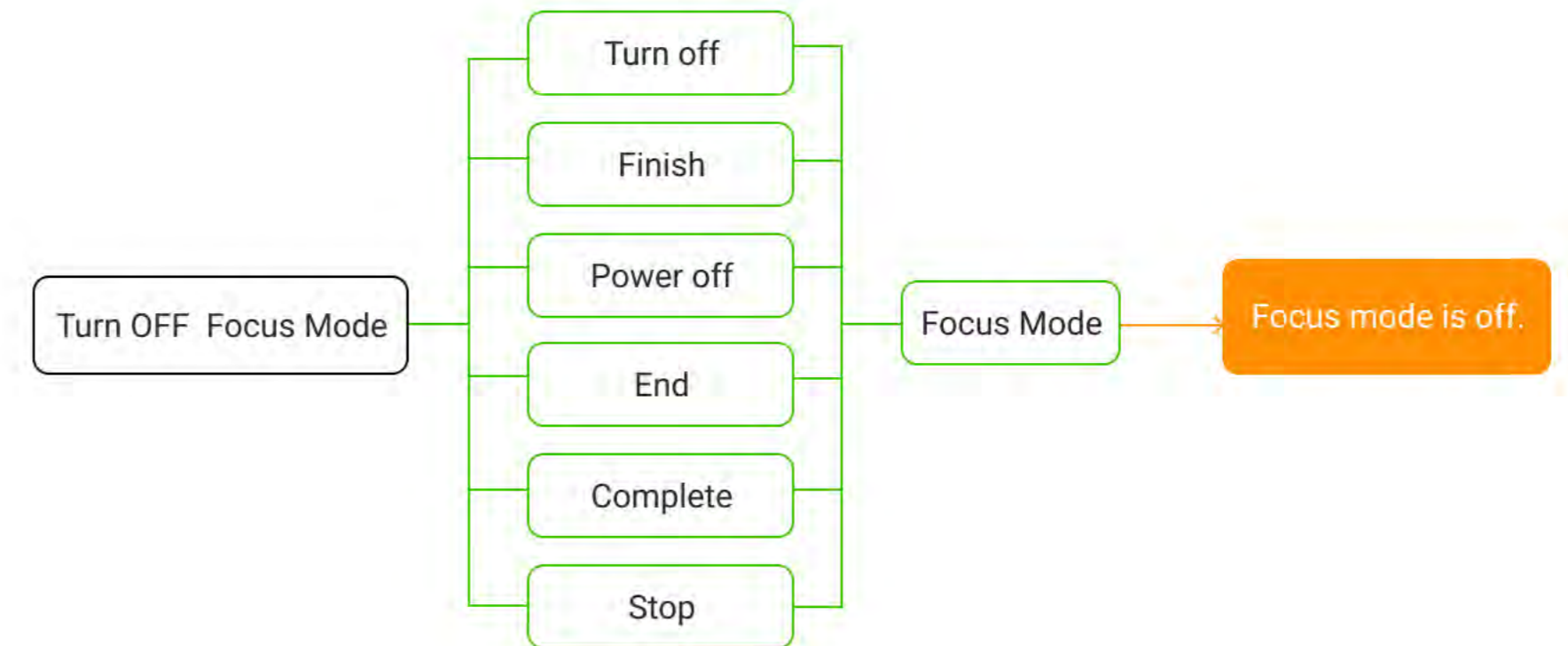
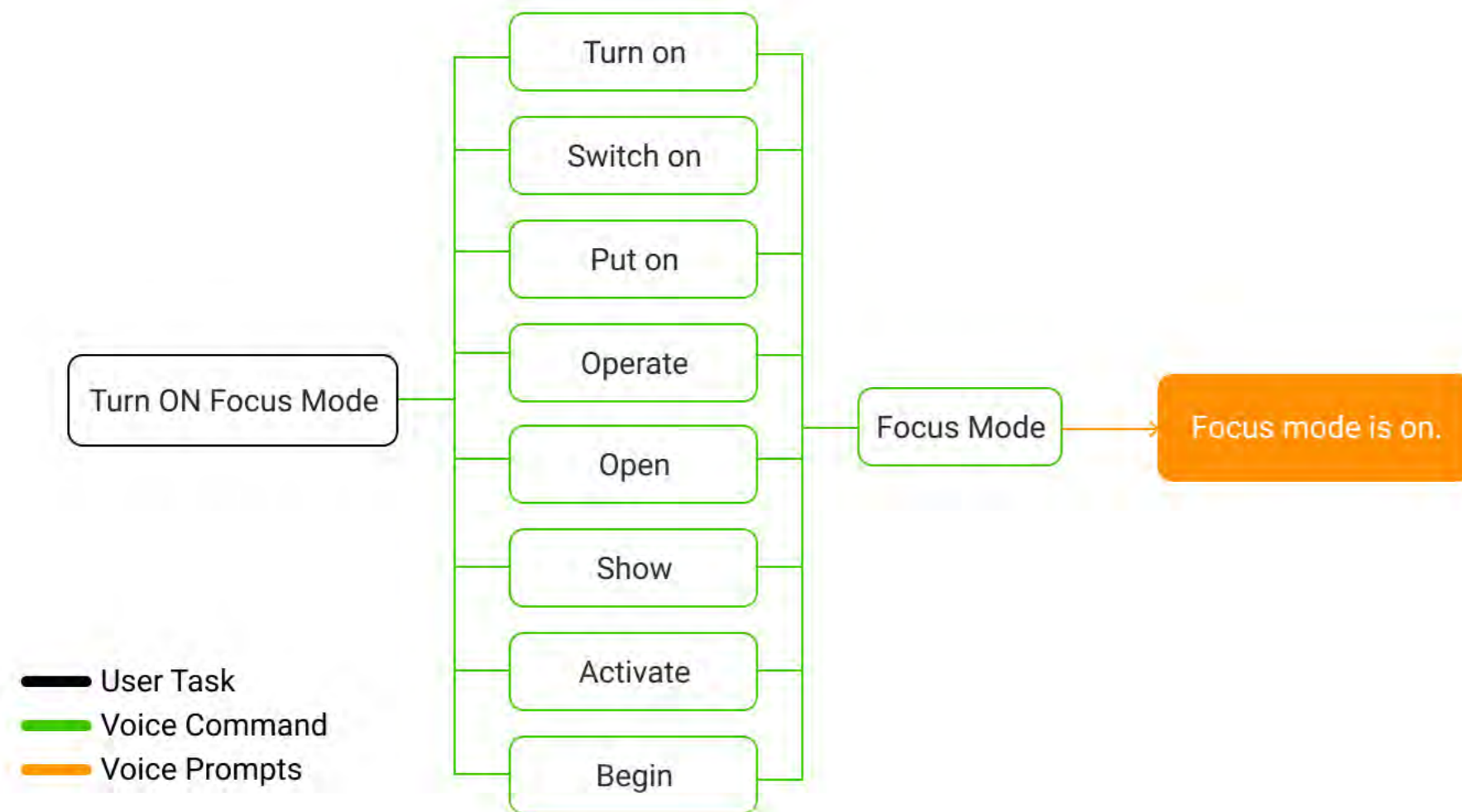
Steering wheel remote controls the most commonly and frequently used applications and commands on the screen.

TASK FLOW



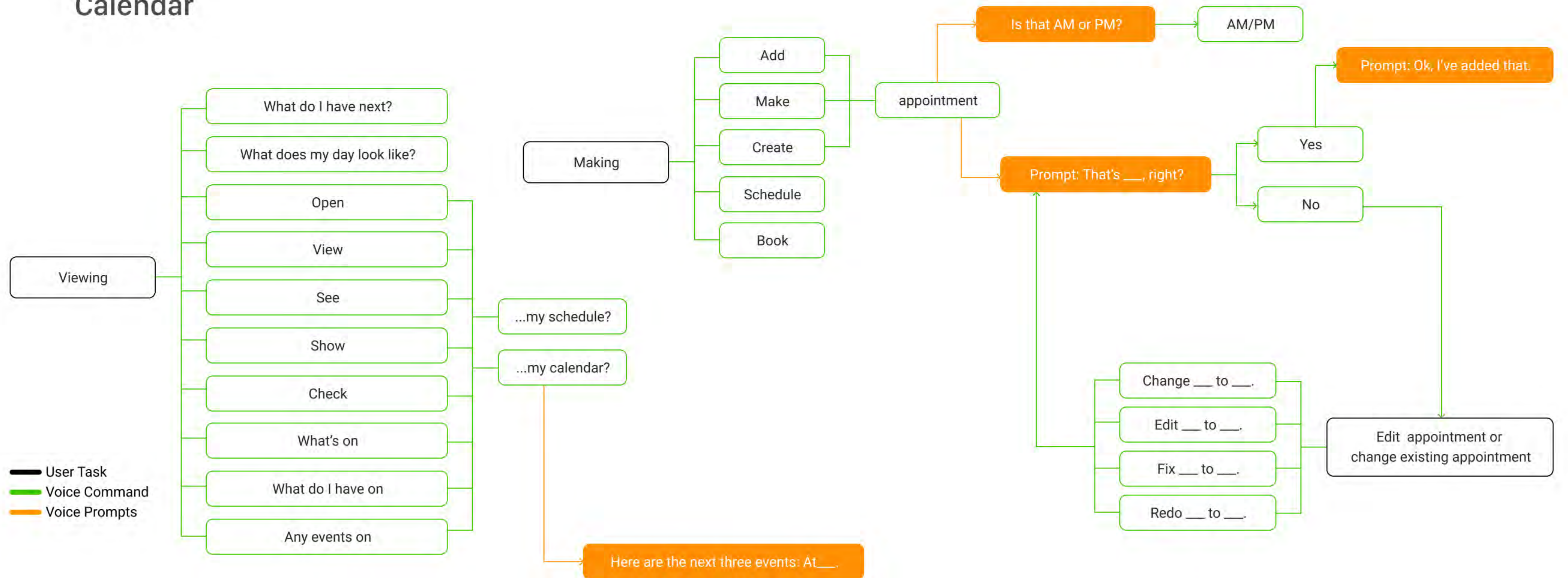
VOICE FLOW CHART

Focus Mode



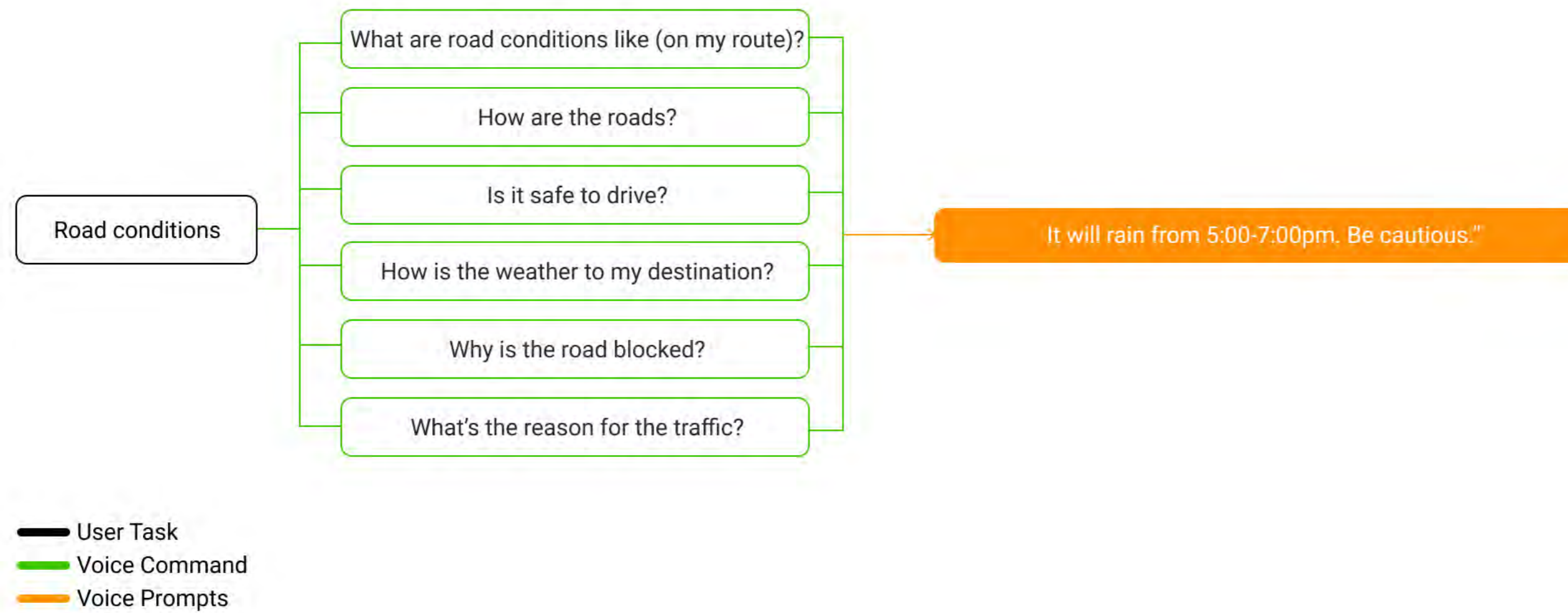
VOICE FLOW CHART

Calendar



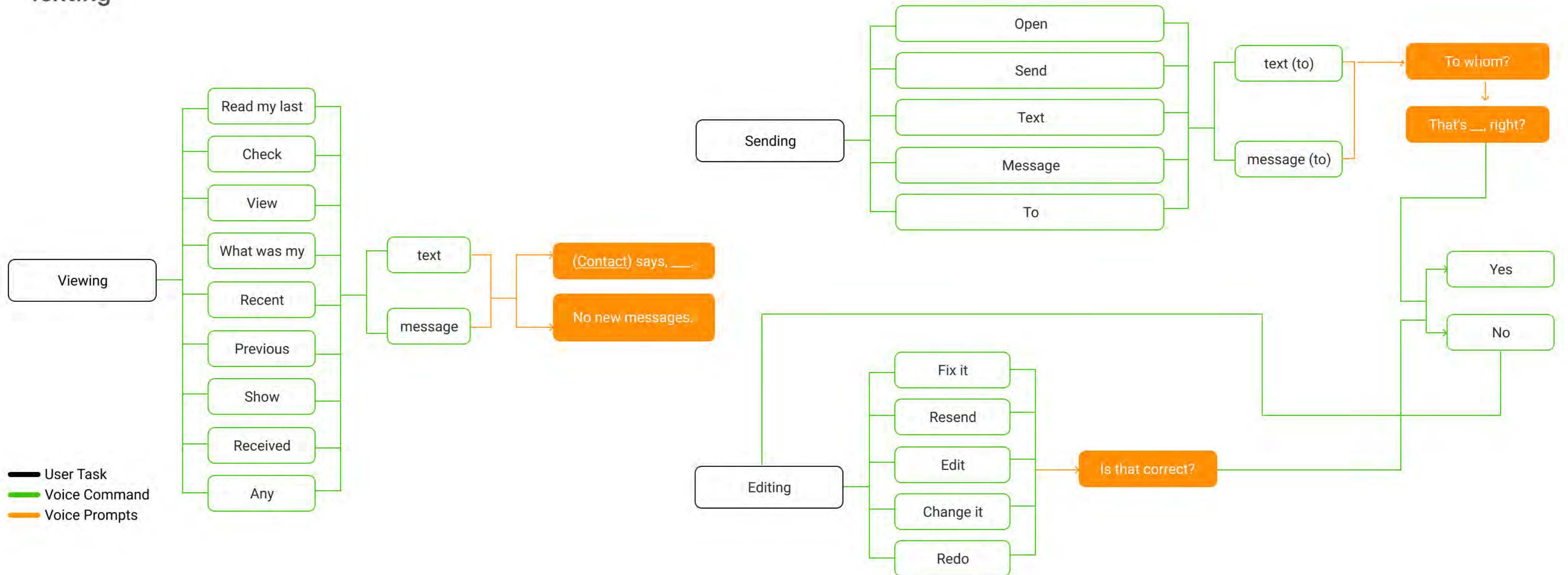
VOICE FLOW CHART

Road Related to Weather



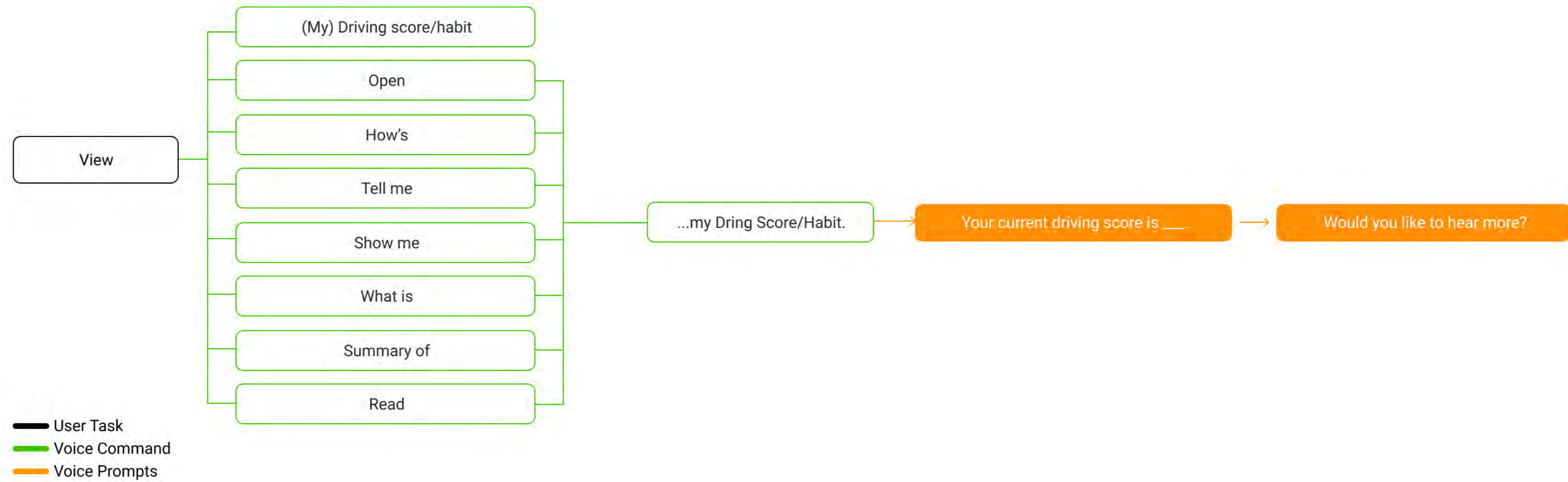
VOICE FLOW CHART

Texting



VOICE FLOW CHART

Driving Habit



Lo-Fidelity Wireframe

HOME SCREEN

- HOME
- Phone
- Music
- Messages
- Maps
- Apps
- Settings

Cory welcomes the user for positive car experience.

Good morning, Alice. It's Friday! sweet weekend is waiting for you

May 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Today Calendars Inbox

Delays text notification
Important so placed at top.
On and off toggle.

Focused Driving Mode

8:20

Text notifications

Current Time

Accessible sidebar displays most used product command features.

Customizable layout and app choice.

Easy to view calendar for Alice.

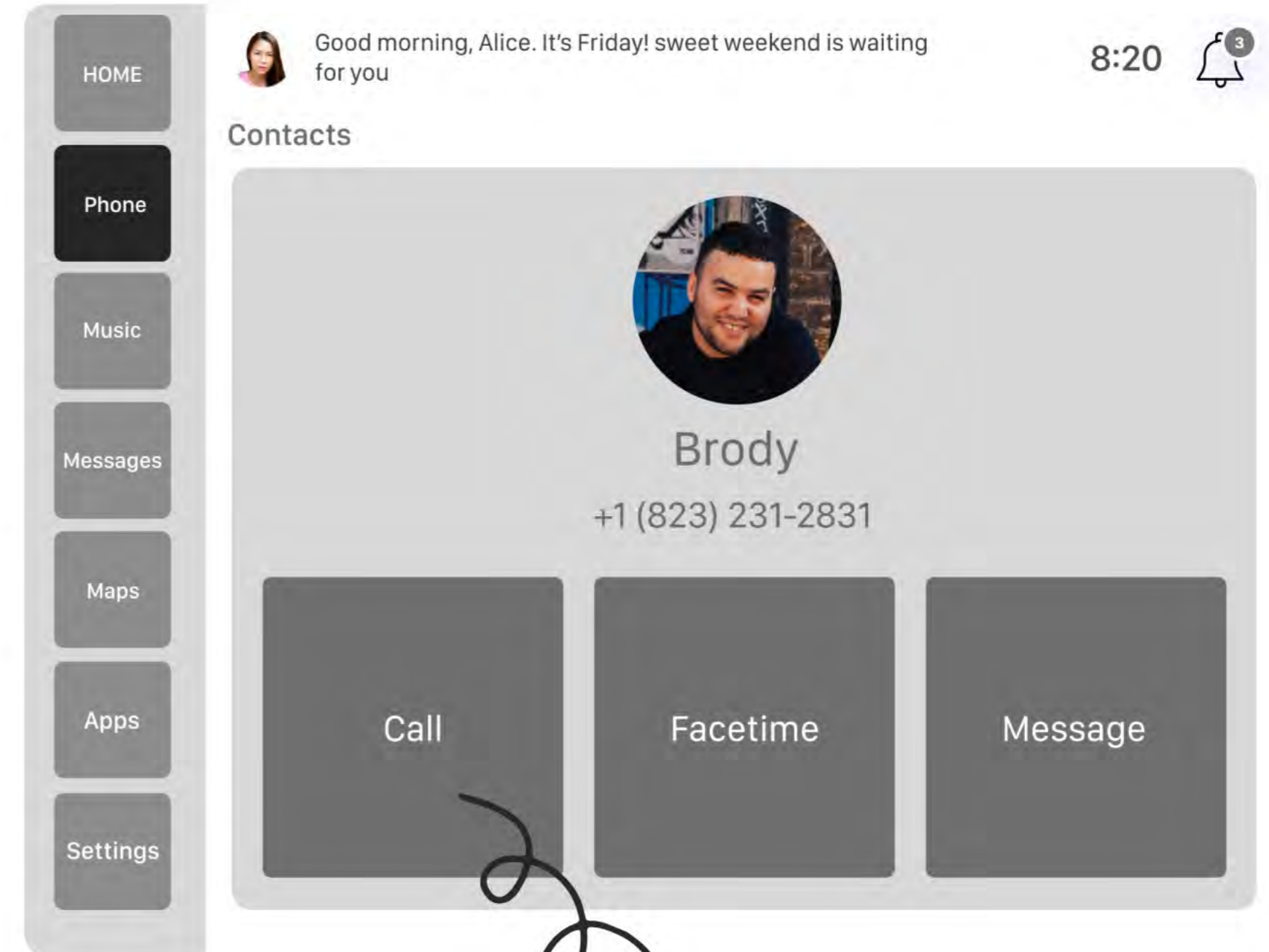
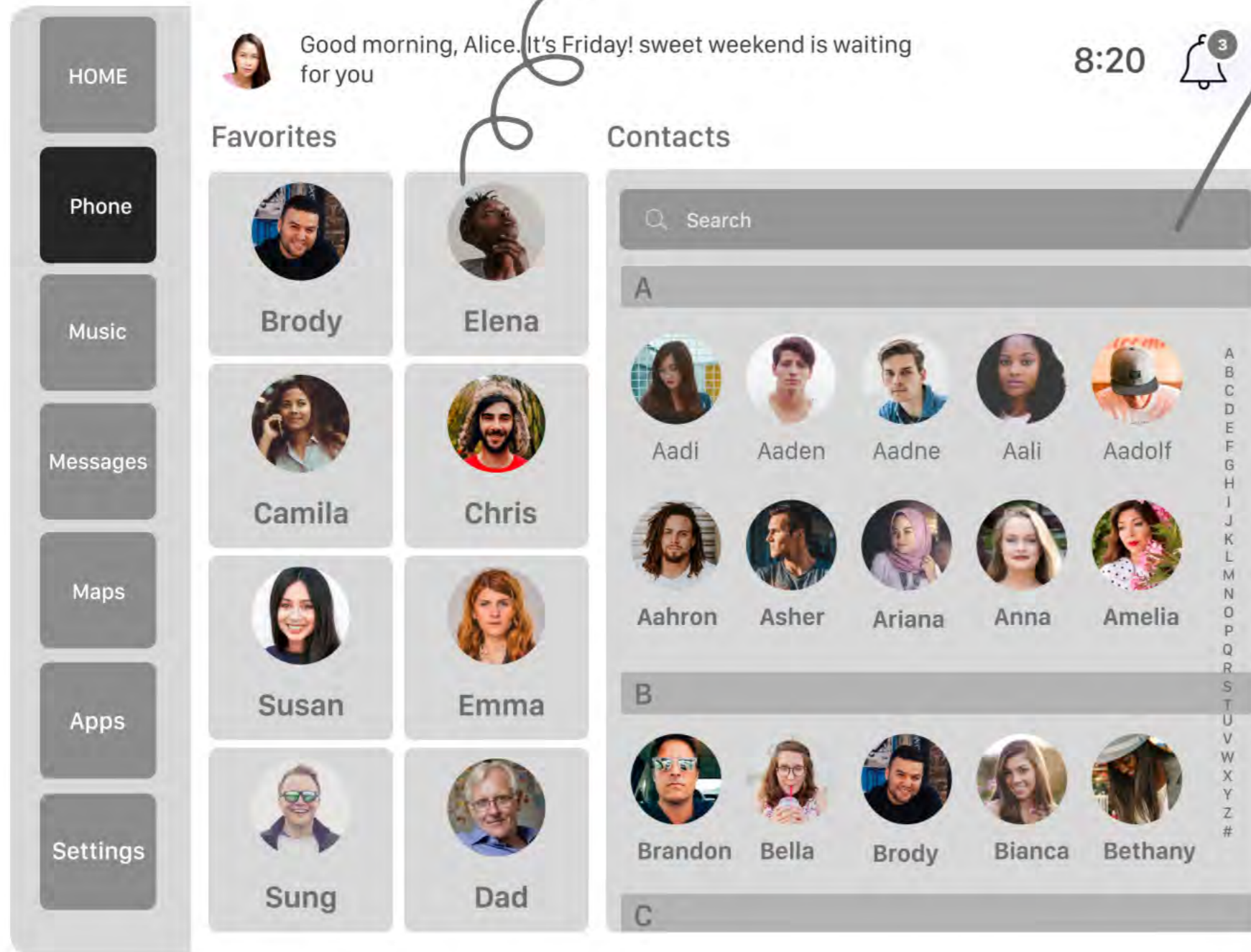
Voice command button

Lo-Fidelity Wireframe

PHONE SCREEN

Large buttons for easy viewing and tapping.

Search bar placed in recognizable location.



Accessible and large, easy to tap command buttons.

Lo-Fidelity Wireframe

MAPS SCREEN

My Driving Habit feature accessed at the top because it's related to driving.

map in the back

Easy to tap the latest search.

Commonly used and favorite addresses arranged in grid format for easy viewing and tapping.

Factors placed at the top for score calculation transparency.

Good morning, Alice. It's Friday! sweet weekend is waiting for you 8:20

My Driving Score

Acceleration	Braking	Cornering	Speed	Phone Use
72	63	71	88	62

My Driving Score

Total 81

Top 33%

My Driving Graph

Label 79

Total driving score is placed below the analysis. Shows your score in relation to other drivers for comparison.

Graph view to compare score with previous months.

USER TESTING

To gain more insight, we brought in a previous interviewee and an Apple Carplay user, to test our screen and steering wheel prototype.

We had a facilitator, note-taker, photographer, and used the heuristic evaluation method while conducting the user testing.



USER TESTING (SCREEN)



Scenerio	Success	Description	Importance	Comment
Turn on Focus Mode	✓	Located and turned on focus mode.	10	Understood and liked the position of the toggle button.
Drive "Home"	✓	Pressed maps on side menu and then selected favorite address.	8	Quickly found and understood the layout, but did not understand the grid organization.
Make a call to Brody	✓	Pressed phone on side menu and chose Brody in favorites contacts.	7	Easily found the function and liked the favorites outline.
View my driving habit	✓	Pressed My Driving Habit section.	9	Did not understand the location or order in relationship to navigation.

USER TESTING (STEERING WHEEL REMOTE)



Scenerio	Success	Description	Importance	Comment
Receiving a call	✗	Pressed Pause/Play Button.	8	Assumed it was the middle button even though it was pause and play.
Use voice command	✗	Didn't know what to press.	10	He said his first instinct was the pause/play button, but preferred an AI button.
Adjust the Volume	✓	Pressed left and right arrows.	7	Quickly and correctly pressed the right and left arrows.
Shuffle & forward music	✓	Pressed left and right arrows.	6	Understood long press was for forward and short press was for skip.
Pause/Play	✓	Pressed Pause/Play button.	5	Quickly and accurately understood pause/play.
Check text messages	✗	Didn't know what to press.	9	Assumed middle button would be selection, but wanted screen control from the PUI.

USER TESTING

The image shows a screenshot of an iOS home screen with several annotations. On the left is a sidebar with buttons for HOME, Phone, Music, Messages, Maps, Apps, and Settings. The main screen displays a notification: "Good morning, Alice. It's Friday! sweet weekend is waiting for you" with a profile picture. Below the notification is a calendar for May 2019, showing dates 1 through 31 with various holidays like Cinco de Mayo, Mother's Day, and Memorial Day. At the top right, there is a "Focused Driving Mode" toggle, the time "8:20", and a notification bell icon with a "3" badge. A large grey rectangular area on the right side of the screen is mostly obscured by a large red arrow pointing to it. At the bottom right, there is a microphone icon for voice commands. Red arrows point from text annotations to these specific elements.

Too much text

Title too long

Unclear if it was associated with SMS notifications or system notifications

Customization was not necessary or needed because of the split screen feature and sidebar

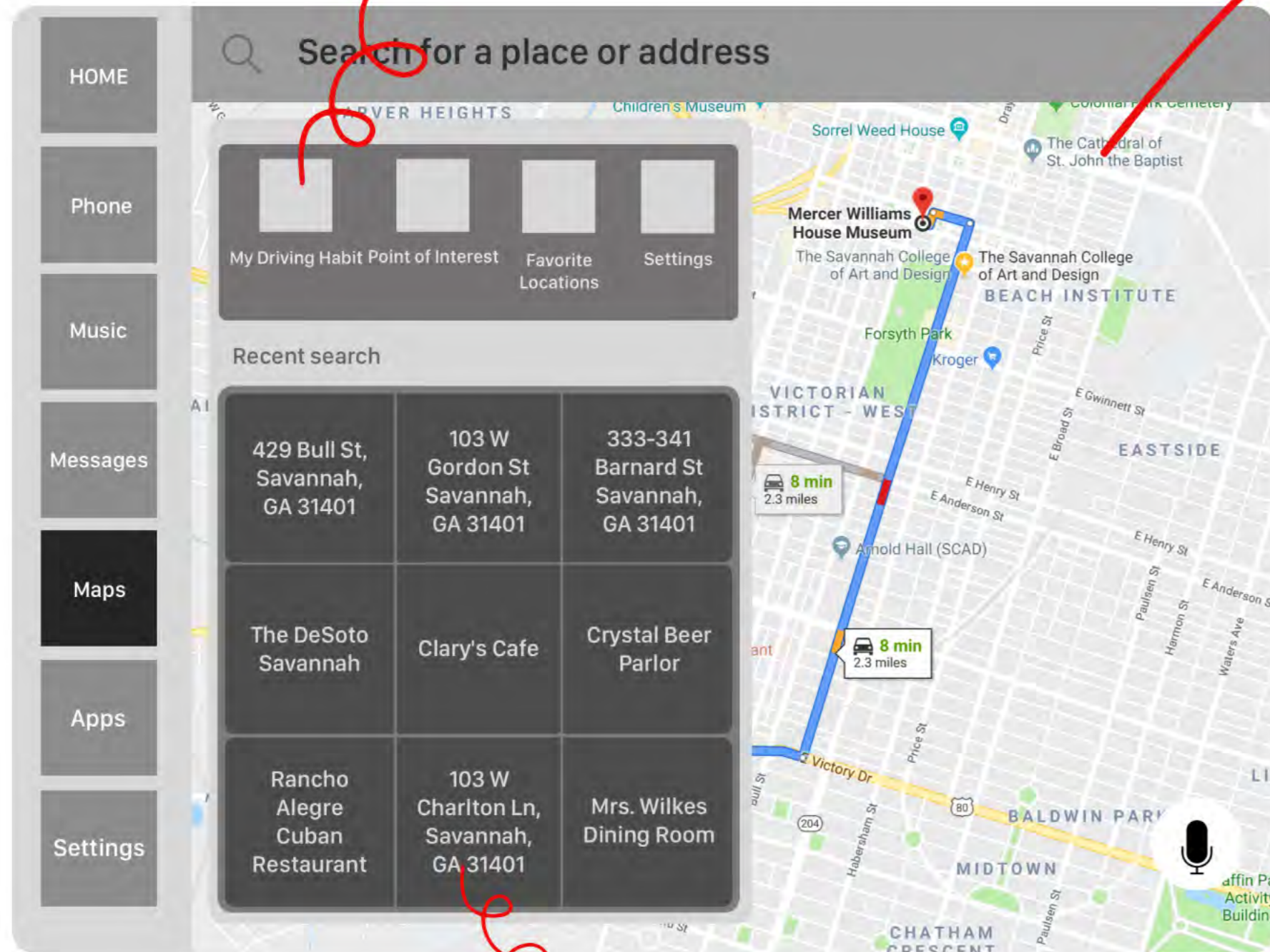
Voice command button was interfering with the buttons behind and was too far from users reach

Too small and too much information

USER TESTING

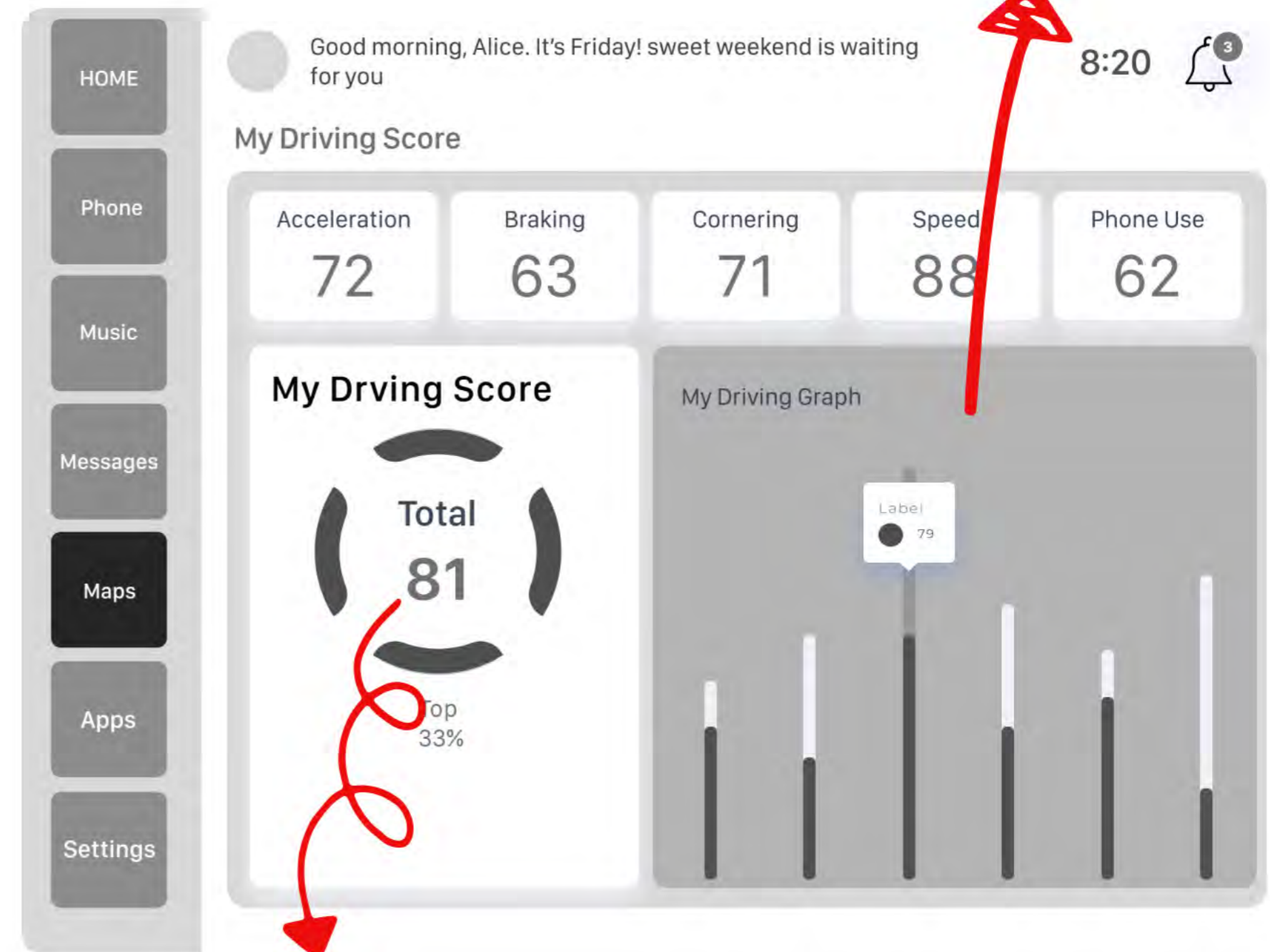
My Driving Habit score needs it's own location and is not the priority for navigation

Google maps UI can not be altered



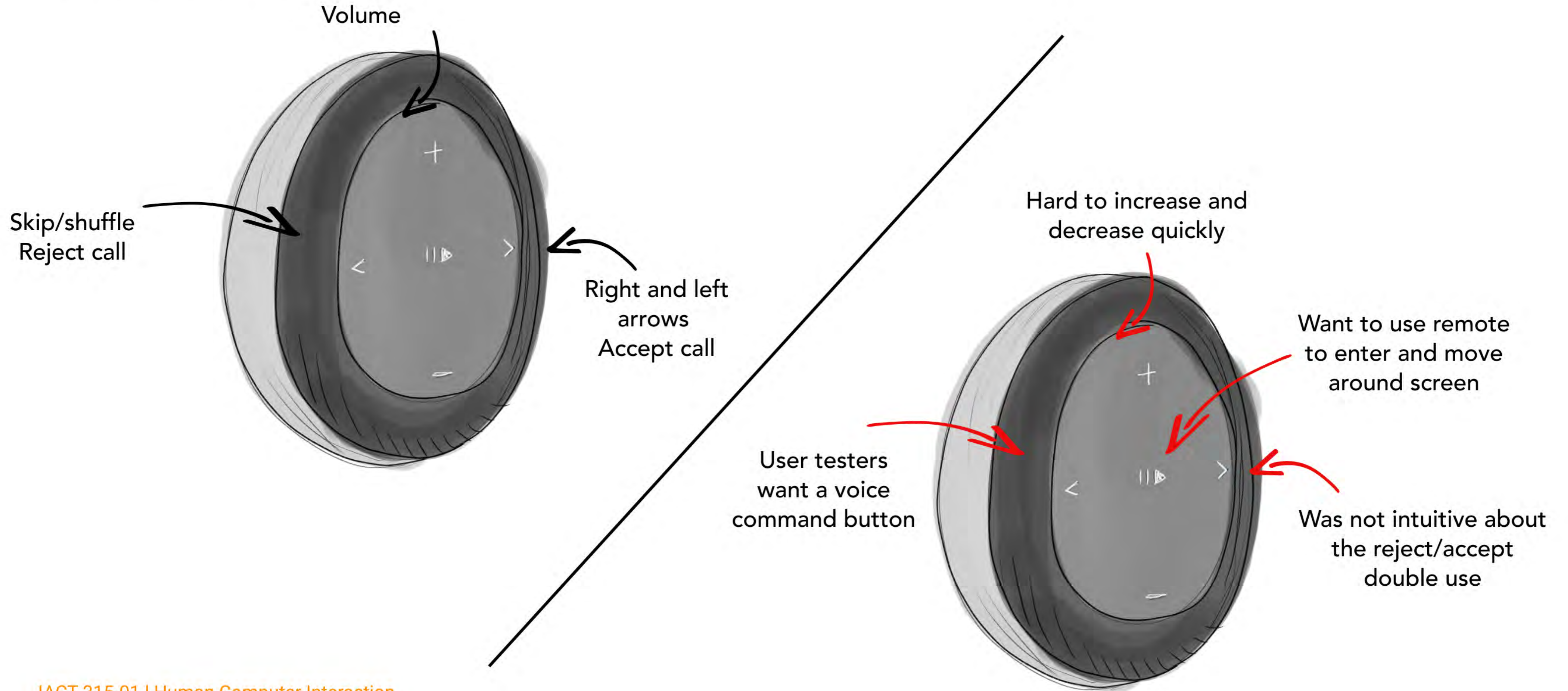
Unclear about order
Too much text

User testers wanted some form of organization and hierarchy



User testers were unclear of the calculation

USER TESTING



MID-FI WIREFRAMES

The wireframe shows a mobile application interface for driving analysis. At the top, there is a navigation bar with a home icon, a microphone icon labeled 'CORY' with the text 'Good morning, Alice.', the time '8:20 AM', and a 'Focus Mode' toggle switch. Below the navigation bar is a sidebar with icons for HOME, MAPS, MEDIA, PHONE, MESSAGE, APPS, and SETTINGS. The main content area is titled 'My Driving Score' and features a 'BACK' button. It displays five driving metrics: Acceleration (72), Braking (63), Cornering (71), Speeding (88), and Phone Use (62). Each metric is in a colored box: Acceleration (green), Braking (orange), Cornering (green), Speeding (green), and Phone Use (orange). Below these metrics is a large circular gauge showing a total score of 81, with 'Top 33%' and 'Based on monthly miles' text. To the right of the gauge is a 'Comprehensive Driving Report' section with three items: 'Over the speed limit' (227 Times, 140.42 miles), 'Rapid acceleration' (3 Times), and 'Abrupt braking' (20 Times). Each item includes a brief description and a suggestion. Annotations with green arrows point to various elements: 'Added a back button for user convenience.' points to the 'BACK' button; 'Explanation of total score as well as a order of overall standing with other users.' points to the '81 Top 33%' gauge; 'Driving Analysis factors color coded to represent order of numbers.' points to the metric boxes; 'Gamification through sharing/competing with friends and/or family and earning points to win rewards.' points to the 'Phone Use' metric and a gift icon; 'Testers wanted a community feeling with sharing scores.' points to a group of people icon; and 'Comprehensive driving report based on monthly miles with descriptions and suggestions to improve driving habits.' points to the report section.

Driving Analysis factors color coded to represent order of numbers.

Added a back button for user convenience.

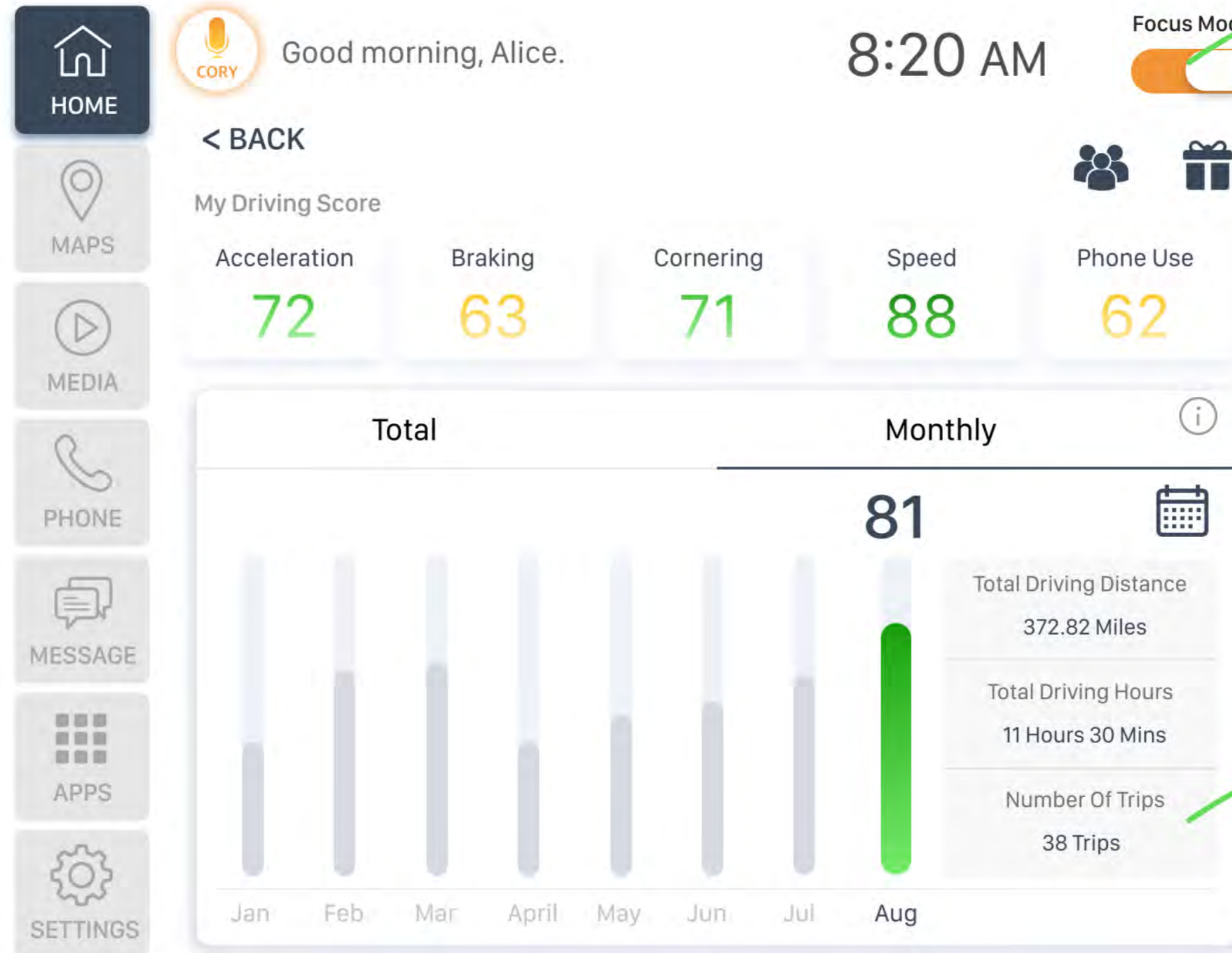
Explanation of total score as well as a order of overall standing with other users.

Gamification through sharing/competing with friends and/or family and earning points to win rewards.

Testers wanted a community feeling with sharing scores.

Comprehensive driving report based on monthly miles with descriptions and suggestions to improve driving habits.

MID-FI WIREFRAMES

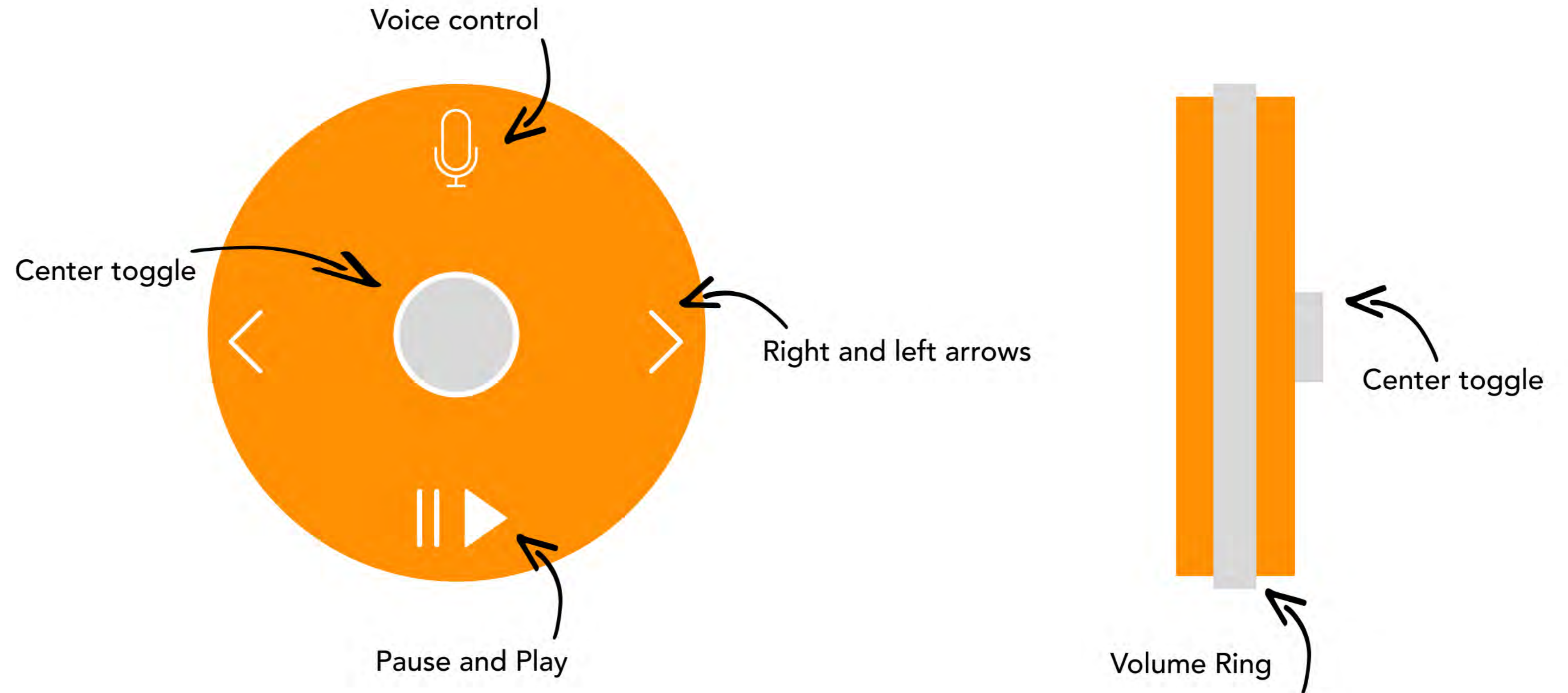


Light orange, which is associated with warning, for lower scores.
Green, which is associated with positive growth, for higher scores.

Split screen for full view of total and monthly Driving Habit calculations.

Overview of total driving history of the month.

MID-FI WIREFRAMES



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Voice control

Through our user testing, our testers wanted physical feedback when using Cory and they did not always want to use the "hello" command. Holding down also allows others to use voice command. Commonly used so it needs an individual button.

Right and left arrows

Simple arrows to imply multiple usage.
Left: reject call
Right: accept call
Long press: forward/rewind
Short press: shuffle/skip

Pause and Play

Media is one of the most common apps so pause and play is one of the most commonly used function.

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Center toggle

Center toggle (for screen control)

Press down: enter/ok

Rotate around to move through and choose an app.

Volume Ring

Around the side of the remote.

User testers wanted to be able to adjust volume in both large and small intervals.

Button light up in the dark for visual ease.

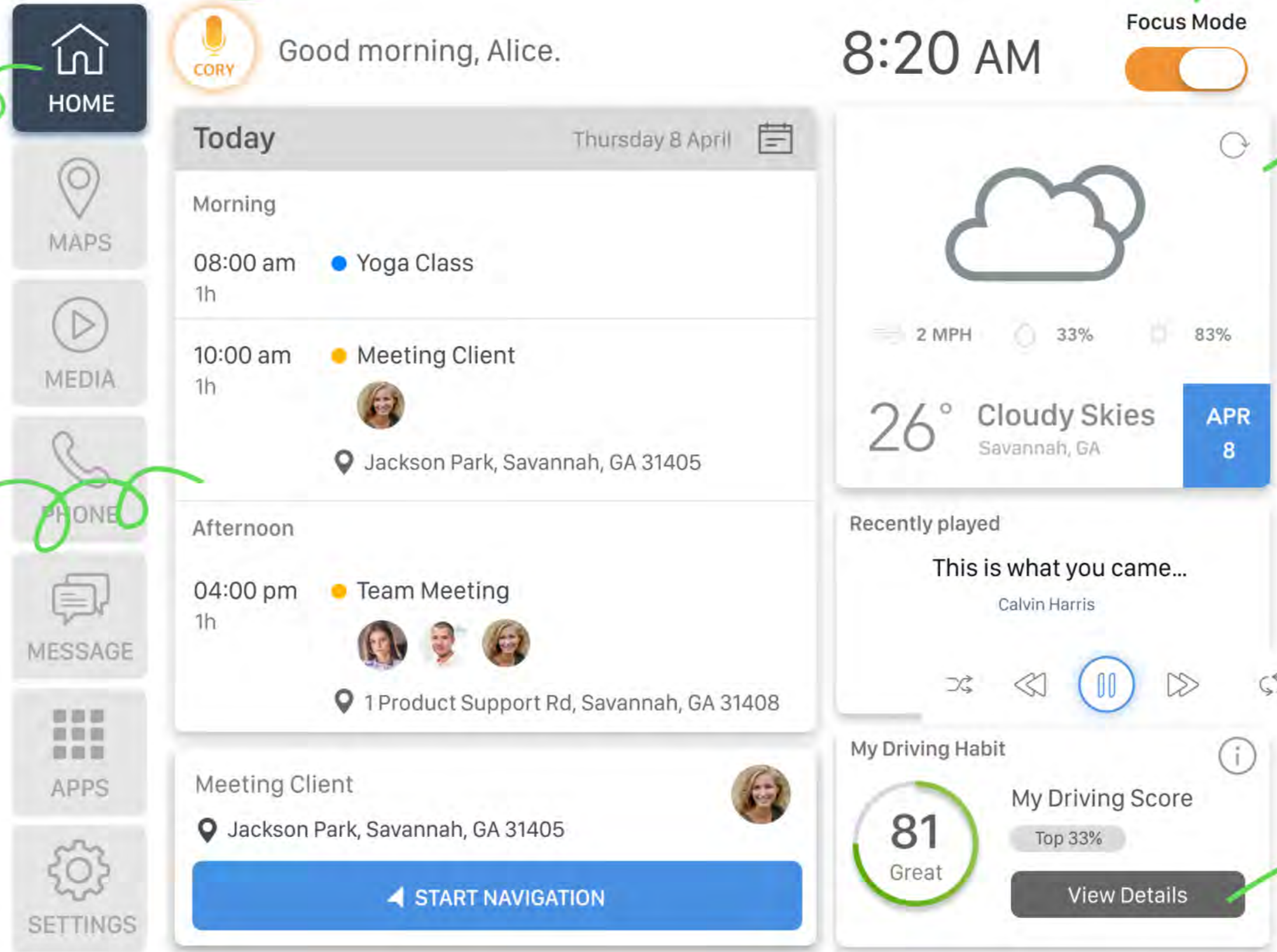
MID-FI WIREFRAMES

Side bar changed to icons for clarity, and round corners for a button feeling. Colored grey for common function.

Calendar shortened text and in list format for readability. Placed above maps for easy access to addresses.

Cory placed at top right hand and colored orange for importance

Title shortened. Changed to orange because it is an important feature.



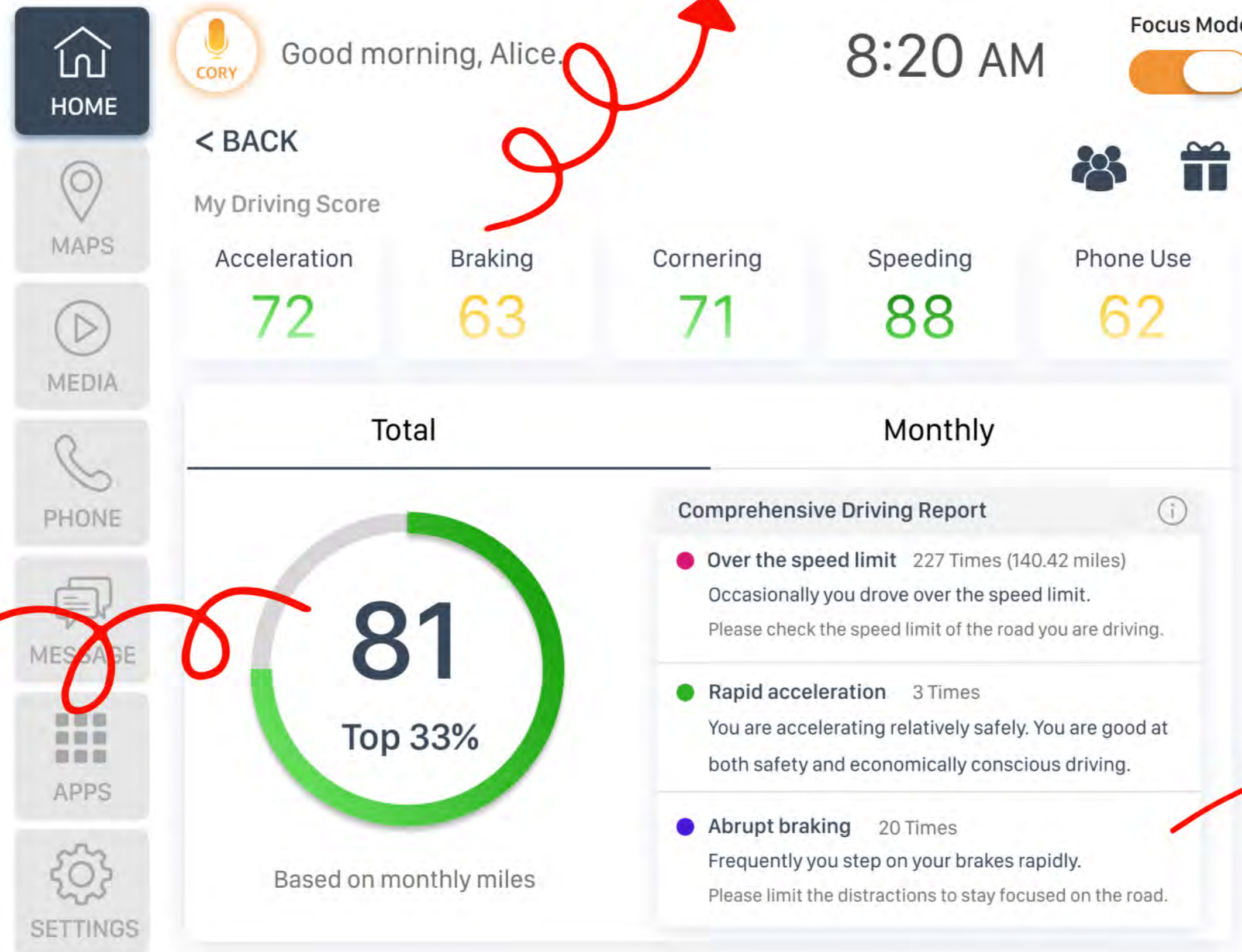
User testers wanted to see the weather for the day.

Home screen fixed design for clear user work flow.

My Driving Score changed to My Driving Habit for a more positive feeling. Fixed on homescreen because of its importance.

MID-FI WIREFRAMES

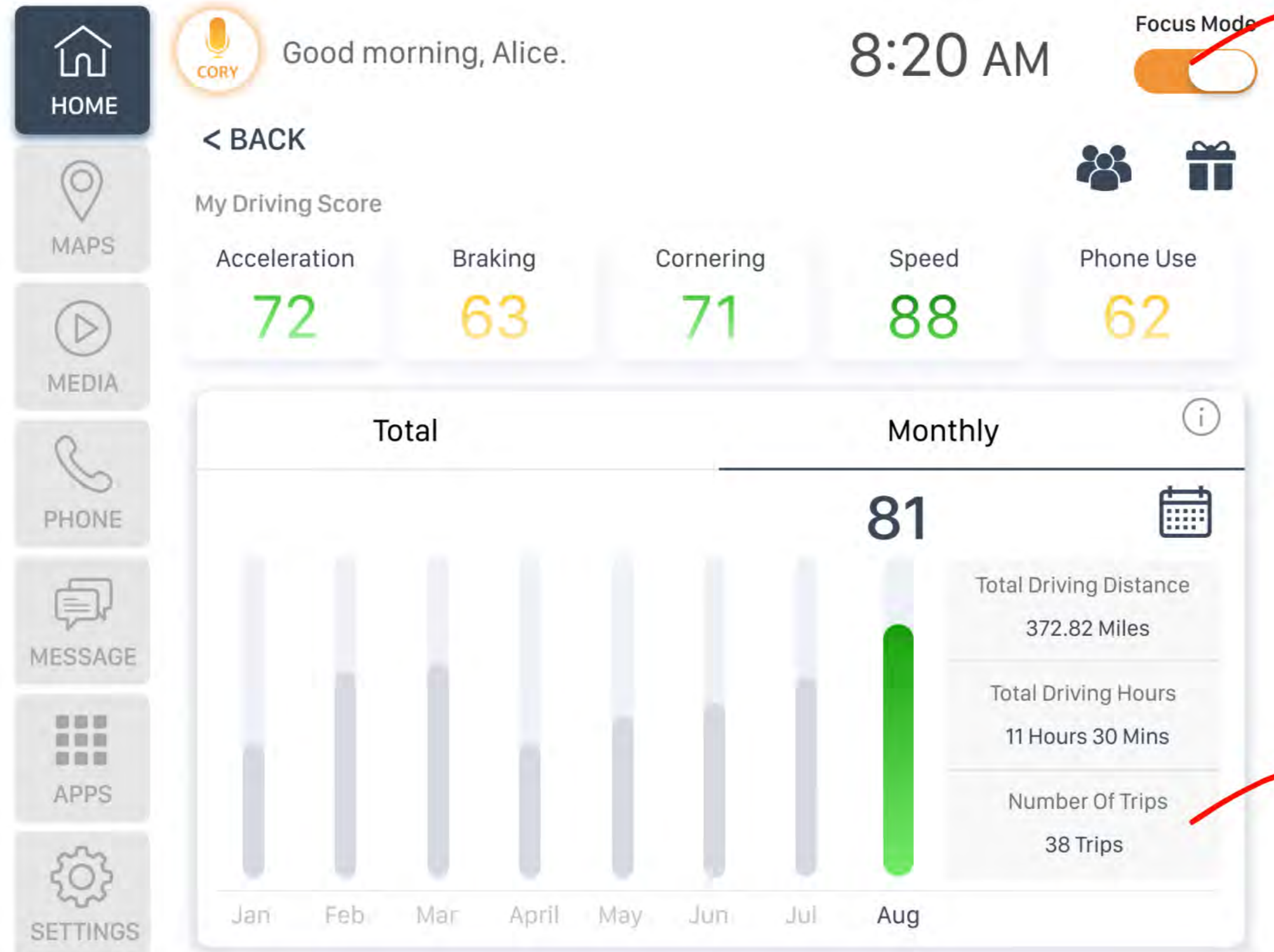
Testers were confused by the heirarchy of the colors



Not clear about the calculations of the total number.

Colors of the Comprehensive Driving Report and the Factors do not connect.

MID-FI WIREFRAMES



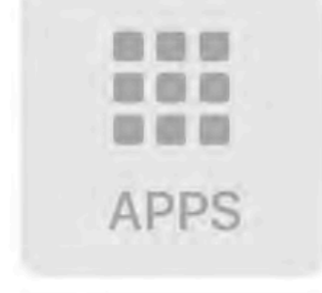
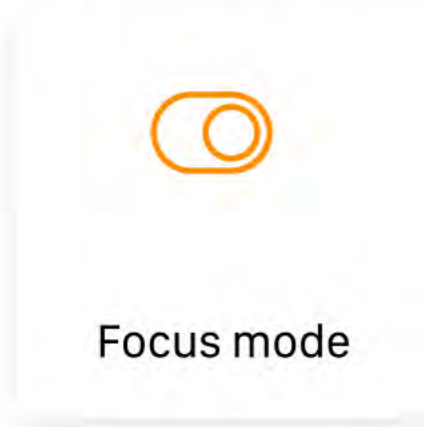
Light orange, which is associated with warning, for lower scores.
Green, which is associated with positive growth, for higher scores.

Split screen for full view of total and monthly Driving Habit calculations.

Unclear about the correlation between the monthly scores and the driving factors.

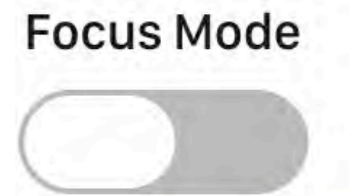


HI-FI WIREFRAMES



Good morning, Alice. It's Friday! sweet weekend is waiting for you.

8:20 AM



Today

Thursday 8 April

Morning

Class ●
Work ●

08:00 am ● Yoga Class
1h

10:00 am ● Meeting Client
1h



● Jackson Park, Savannah, GA 31405

Afternoon

04:00 pm ● Team Meeting
1h



● 1 Product Support Rd, Savannah, GA 31408

Meeting Client

Jackson Park, Savannah, GA 31405



A weather widget showing a cloud icon, wind speed (2 MPH), humidity (33%), and sun icon (83%). The temperature is 26° and the sky is "Cloudy Skies" in Savannah, GA. A blue button shows "APR 8".

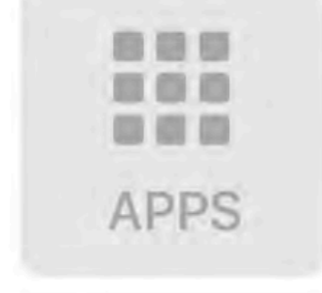
A music player widget titled "Recently played" with the song "This is what you came..." by Calvin Harris. It features standard playback controls: shuffle, previous, play/pause, next, and repeat.

A "My Driving Habit" widget showing a score of 81 on a scale of 0 to 100. The score is labeled "Great". A "View Score Details" button is at the bottom.

HI-FI WIREFRAMES

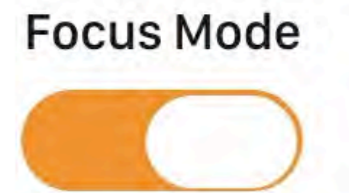
100

Driving Habit



Good morning, Alice. It's Friday! sweet weekend is waiting for you.

8:20 AM



Today

Thursday 8 April

Morning

08:00 am 1h ● Yoga Class

10:00 am 1h ● Meeting Client

04:00 pm 1h ● Team Meeting

Meeting Client

Jackson Park, Savannah, GA 31405

[START NAVIGATION](#)

26° Cloudy Skies

Savannah, GA

APR 8

2 MPH 33% 83%

Recently played

This is what you came...

Calvin Harris

⏮ ⏪ ⏸ ⏩ ⏭

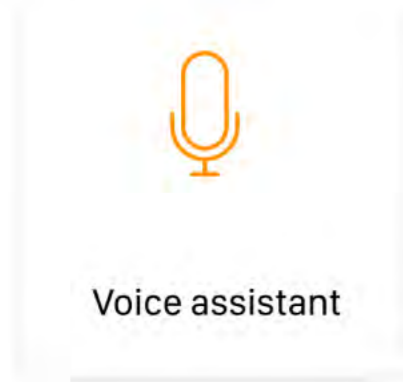
My Driving Habit

81

Great

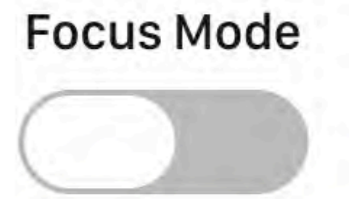
View Score Details

HI-FI WIREFRAMES



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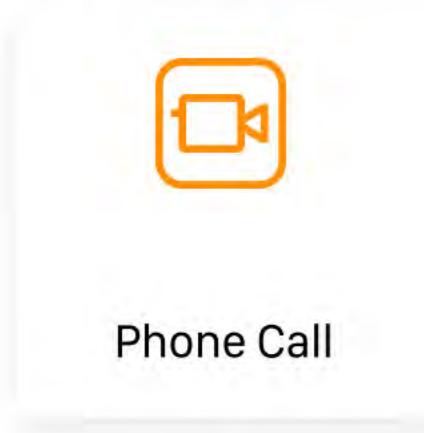
START NAVIGATION

Cloudy Skies Savannah, GA
26°
2 MPH 33% 83%
APR 8

Recently played
This is what you came...
Calvin Harris
[Play/Pause/Next/Previous/Repeat icons]

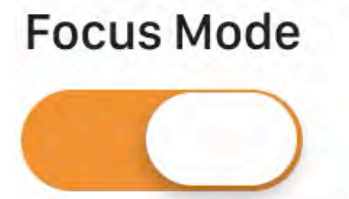
My Driving Habit
81
Great
View Score Details

HI-FI WIREFRAMES

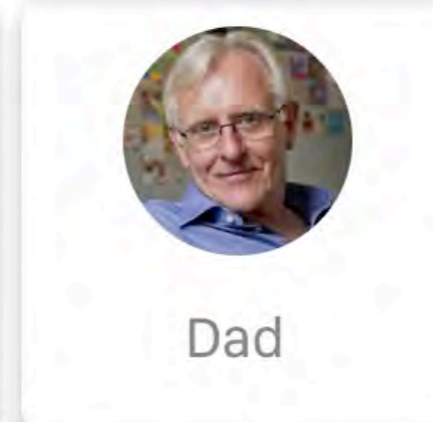
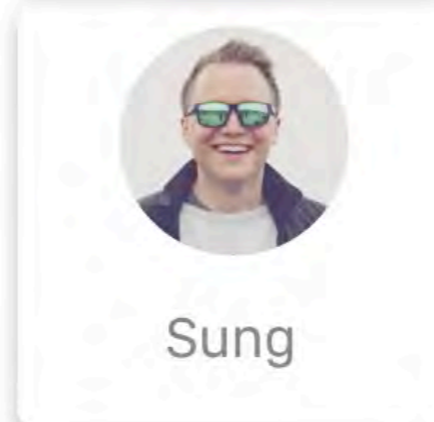
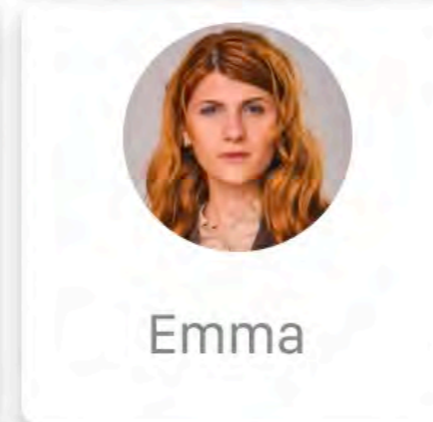
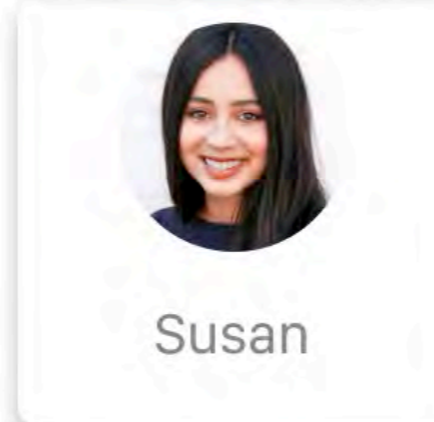
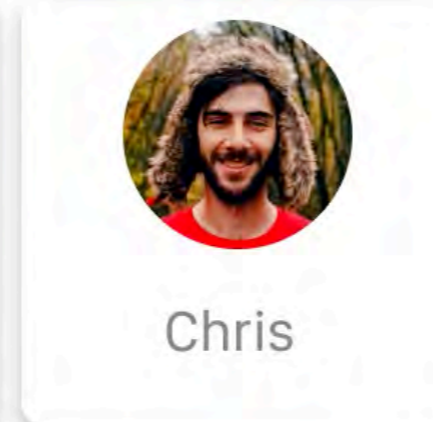
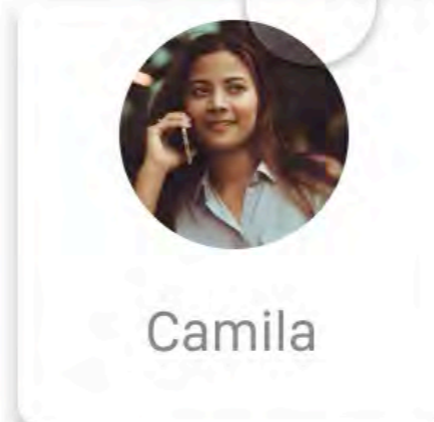
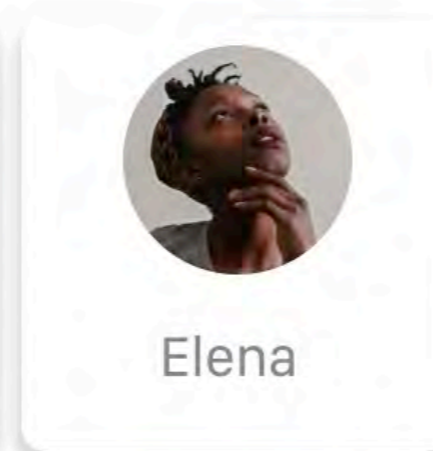
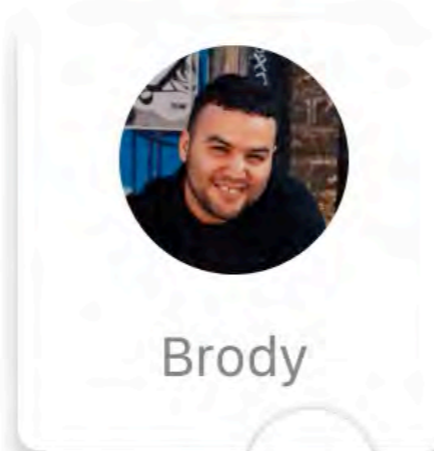


Good morning, Alice. It's Friday! sweet weekend is waiting for you

8:20 AM



Favorites



Contacts

Search

A

Aadi	Aaden	Aadne	Aali	Aadolf

B

Aahron	Asher	Ariana	Anna	Amelia

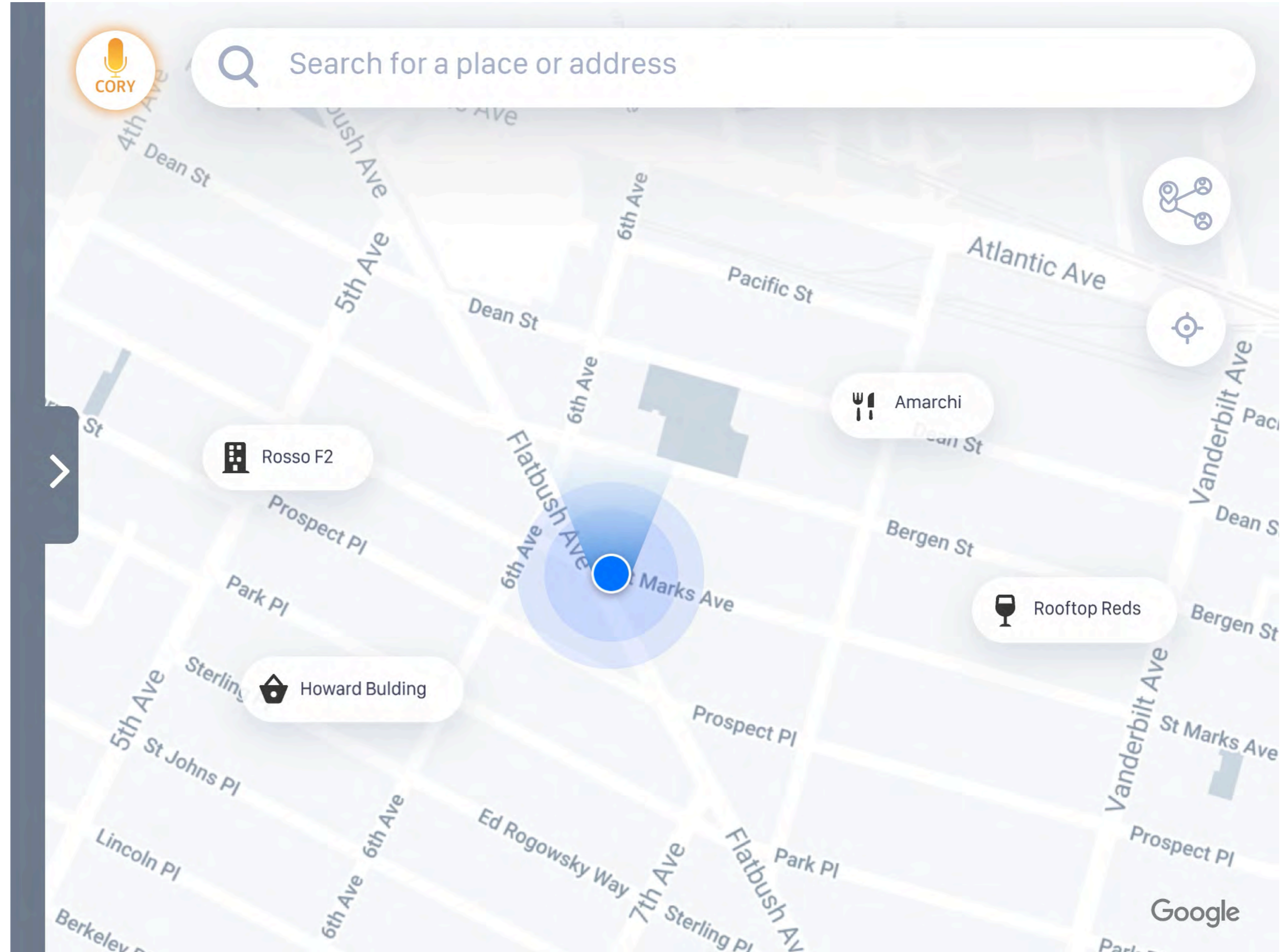
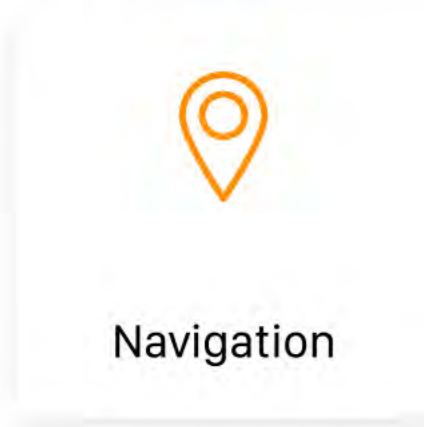
B

Brandon	Bella	Brody	Bianca	Bethany

C

ABCDEFGHIJKLMNOPQRSTUVWXYZ#

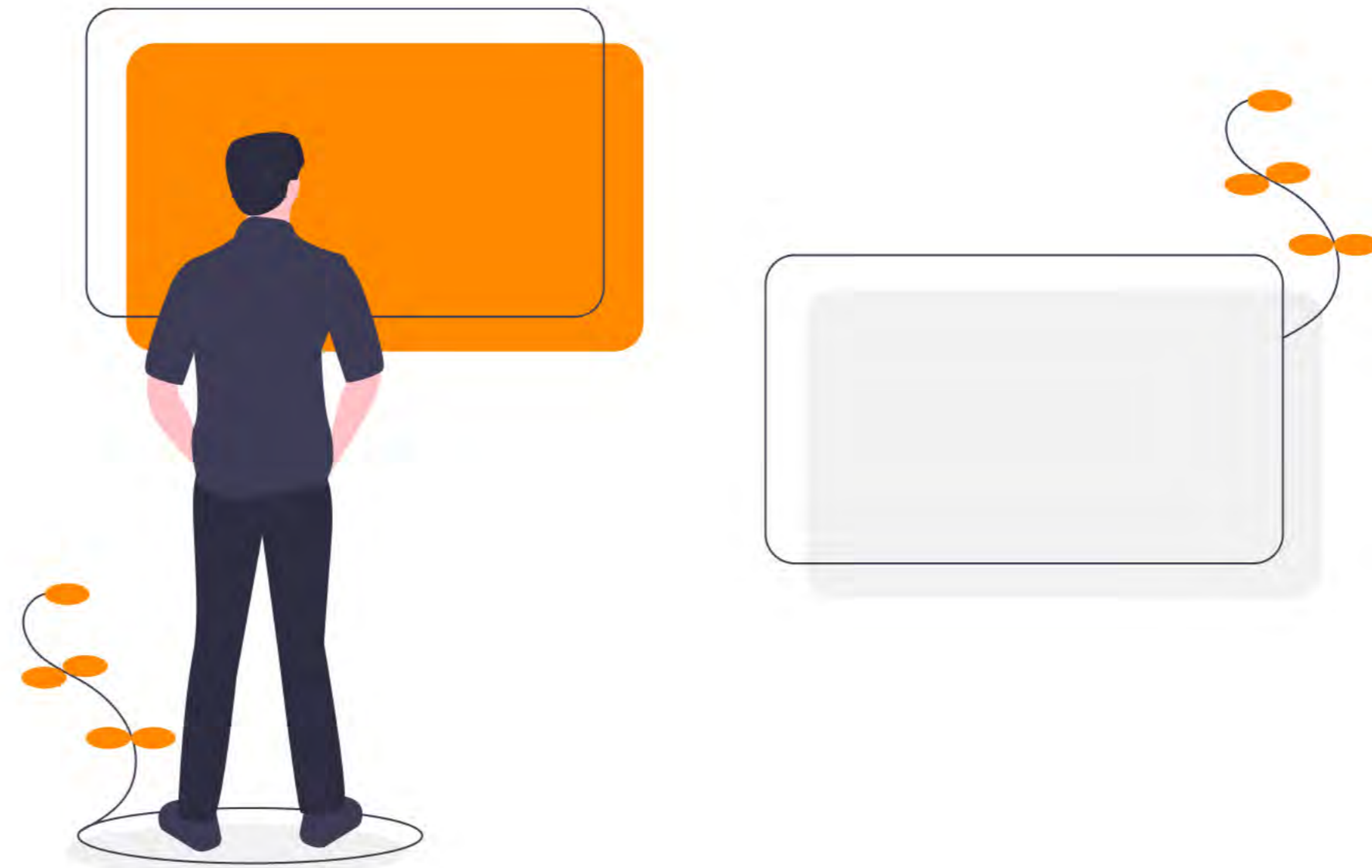
HI-FI WIREFRAMES



BRAND IDENTITY

Brand Image

Style Guide



ALL IN ONE COPILOT.

cair

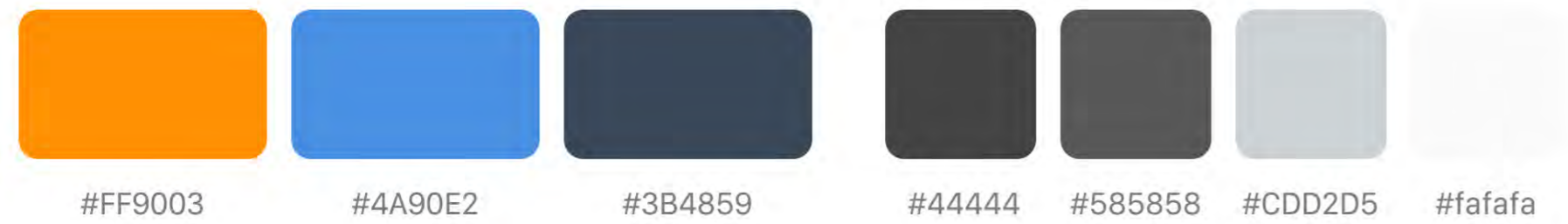
ALL IN ONE COPILOT



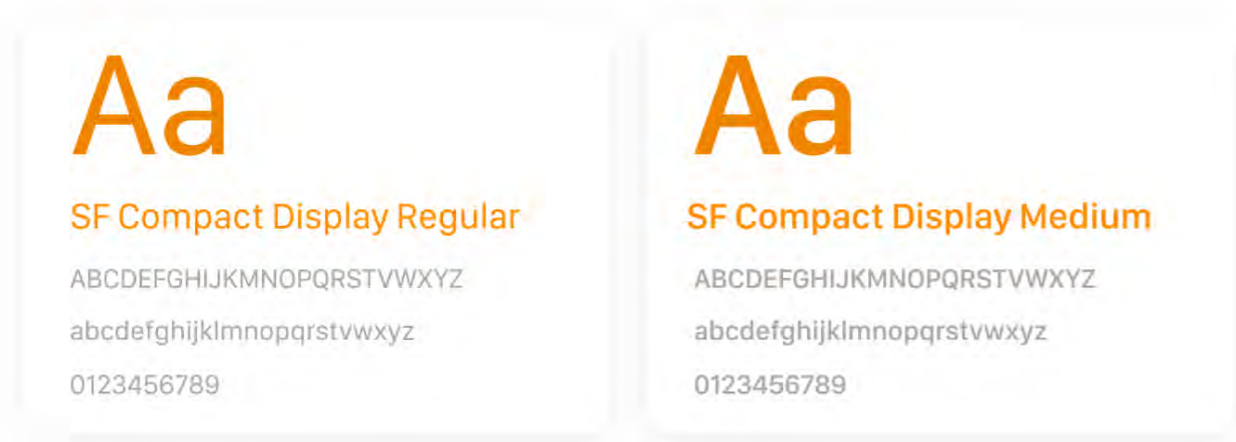


cair Style Guide

01 Color Palette



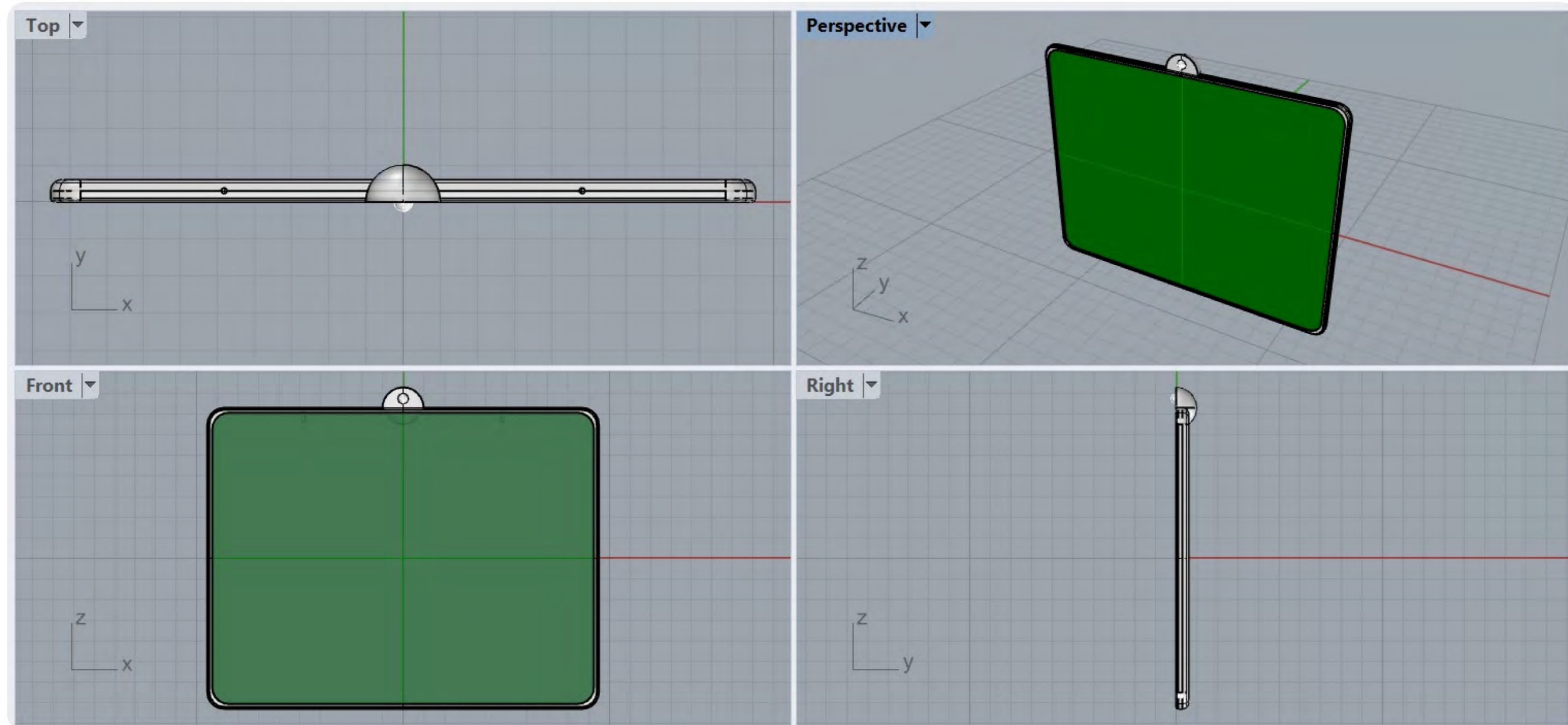
02 Typography



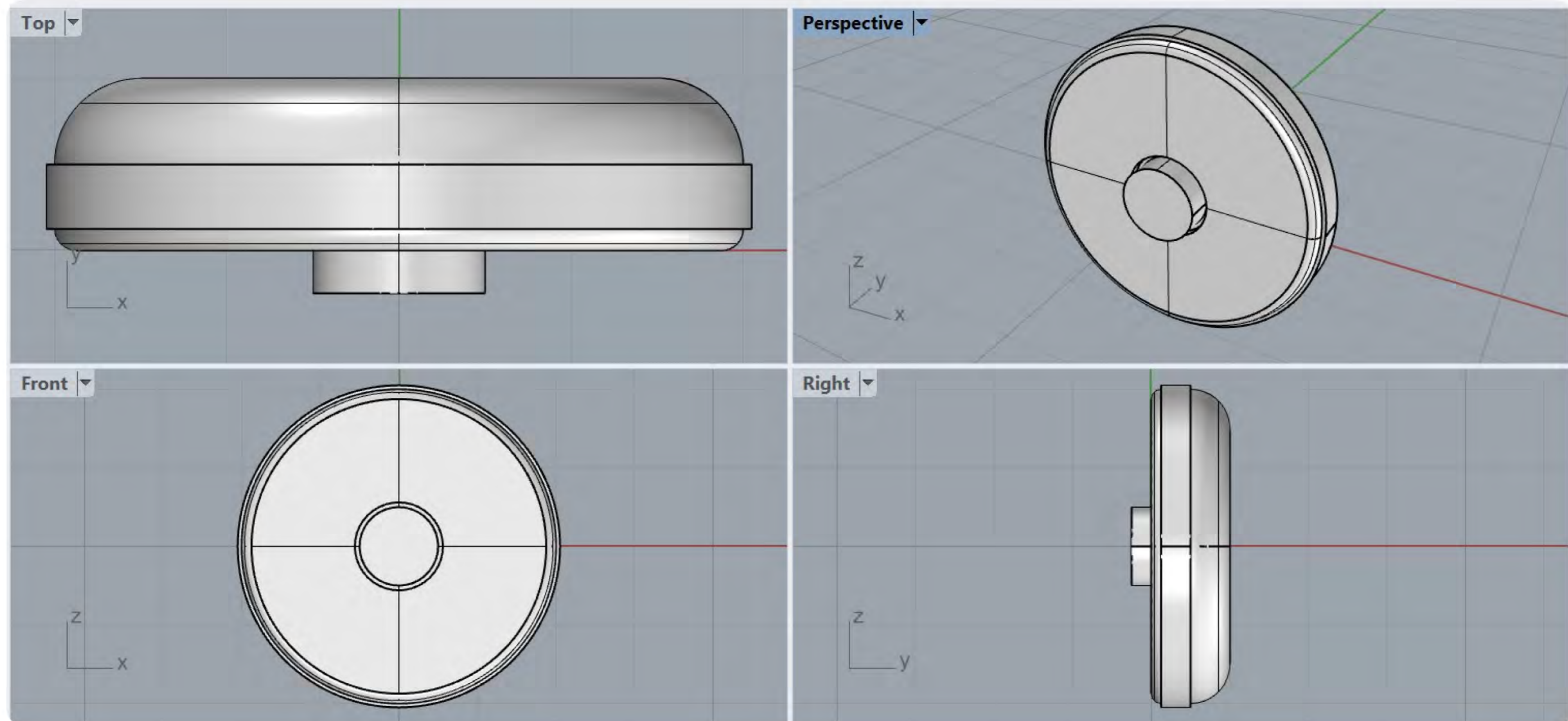
03 Iconography



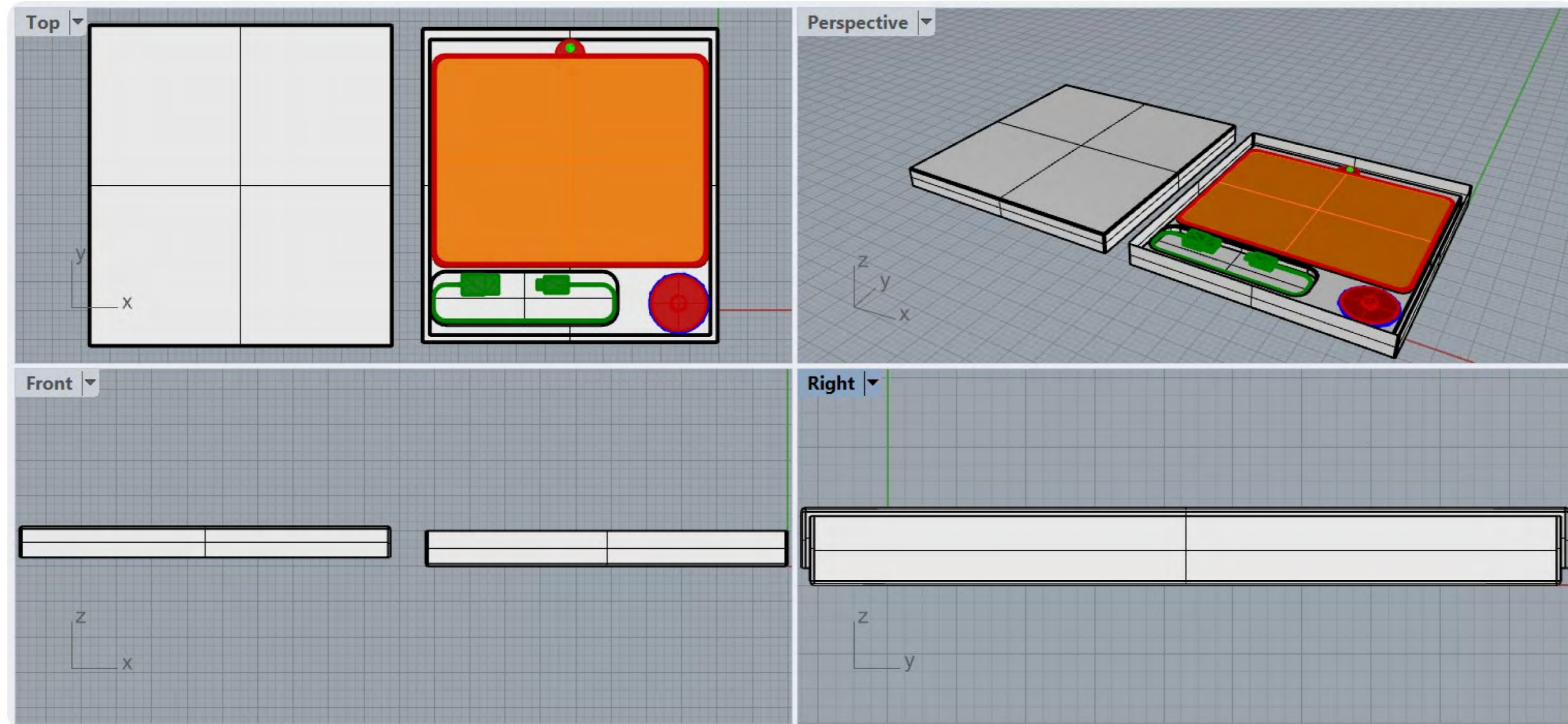
3D Modeling (Screen)



3D Modeling (PUI Button)



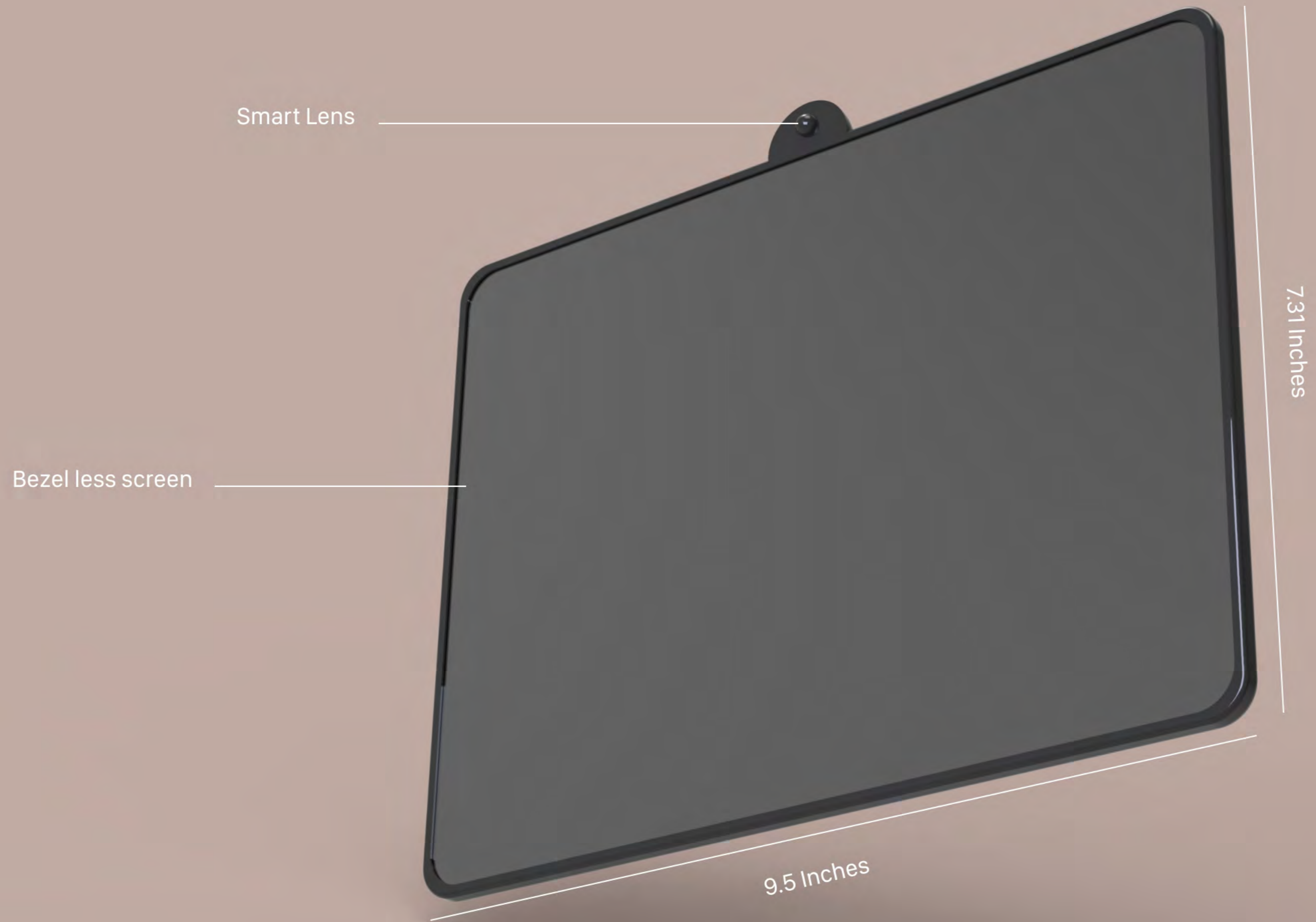
3D Modeling (Packaging)





cair



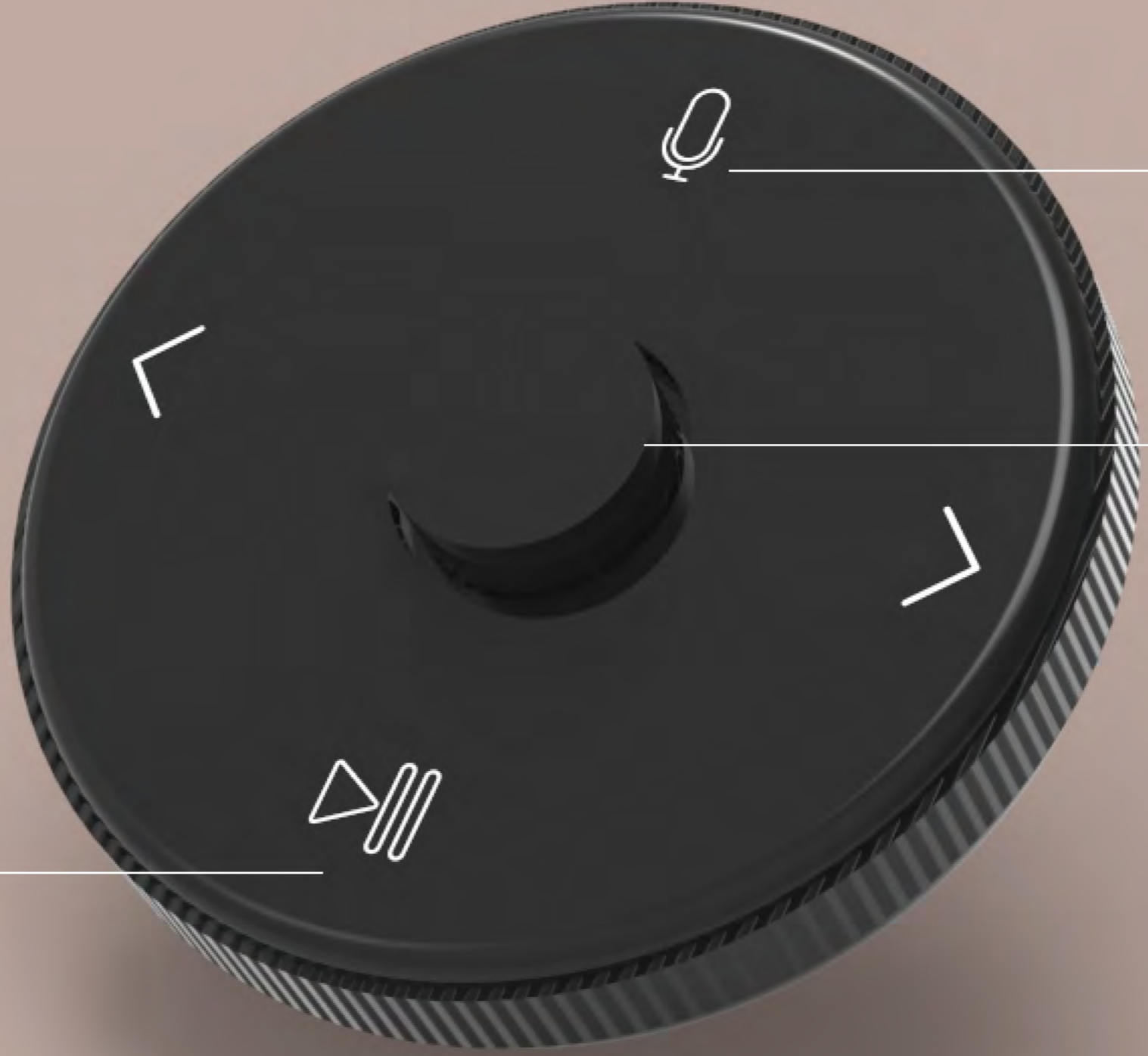


Smart Lens

Bezel less screen

7.31 Inches

9.5 Inches



Voice Command

Joy Stick

Play & Pause