Trackpack

Tracking your parcel

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Master test
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Preface

As the demands for logistics grows, transport in cities is becoming a problem. Transport vans are bad for air quality, cause noise nuisance and safety problems. Companies want to continue to offer reliable and efficient services and transport into the city center as fast as possible.

A solution to this problem are LEFVs (light electric vehicles). Independent LEFV drivers can transfer parcels from hubs outside the city center, into the city centre in a quick, easy and environmental friendly way.

For this solution to work there has to come an application that realizes this idea. For this application, design interfaces for 3 different devices, of which at least 1 for the LEFV driver and 1 for the person who orders.

Stakeholders:
- The person who order online and wants their parcel to be delivered in Amsterdam
The independent LEFV driver
Logistic service providers
Neighbors
Shops where parcels are delivered
Other stakeholders based on research
Options that are possible with the application:

Requirements:
Take demands and wishes of the different users into account
Make sure it is clear for which user the interface is meant and why this interface fits the user
Make sure the overall tone of voice/look & feel is appropriate for the device and the stakeholder
Take also exceptions into account
Make sure the interaction is fluid within the eco-system of devices that you use

Link to blog:
https://parceldeliverysystem.tumblr.com/tagged/UX/chrono

Table of contents

Concept

Based on the research

Defining the scope:
& requirements

I started with defining the scope that I wanted to focus on *(see blog: defining the scope)*. The moment I choose to focus on is the moment the package is on its way.

Receiver
For the receiver this means tracking their parcel and redirecting the driver if not home.

Device: Smartphone
This would be the best device for the user, because they'll always have it with them and can easily make adjustments.

Requirements:
- Being able to see where the driver is real time
- Redirect driver to other location (within a radius of ..km)
- Receiving notifications from driver
- Letting the driver know not to be home

Driver
For the driver this means following a route, scanning parcels and letten receivers know they'll be later.

Device: Tablet
This device would be available for the driver at the hub. They can click it on their vehicle. The screen will be big enough to see for the driver and still easy to use.

Requirements:
- To see the addresses and delivery times of the parcels
- To be able to notify delays/changes in his schedule
- To see the directions
- To scan the parcels

Concept:
& research

Within my concept I wanted to focus on the fact that services always give a wide delivery time. In my desk research I found that users find this very frustrating. Some results form this research that I used in my concept *(see blog: research from UX course)*:

- It is annoying if there is a broad delivery time (example: 11:00 - 15:00) because you can't always stay home for so long
- Users appreciate a personal touch
- User wants to be kept in the loop of the delivery process
- The user thinks a delivery experience is nice when it is planned good and the process goes as planned
- A bad delivery experience is when you're not at home and they come back the next day or leave it at a pick-up point
- It would be nice if you could change the delivery moment during the process
- The user checks track-and-trace code frequently due to excitement

After I decided, based on these results, to focus on managing the delivery time and keeping the user up to date during the whole process, I did some research on existing delivery apps to see how they did it *(see blog: research on existing apps)*. The most important results from this were:

- The way of showing where the driver is could be more detailed (postNL & DHL)
- When you're not home it is very annoying not to be able to plan your next delivery date/time (postNL & DHL)
- To see how many minutes it would take the deliverer to get to your address is nice (Thuisbezorgd)

Mash-up method
The Mash-up method is a way of getting new ideas about a subject *("Ideation Method: Mash-Up", 2018)*. After I defined the scope I used this method to generate idea's about how I'd like to visualize some ideas *(see blog: Ideation: Mash-up method)*. This method gave me the idea for the route preview for the receiver.

3C Framework:
How the devices work together

Consistency
There is one consistent part in my delivery system, which is the route preview. The receiver of the parcels sees the schematic route of the driver and all the stops on his smartphone. The receiver sees where the driver is on the route real time. The driver has the option to see this preview of the route also, on his Ipad. The only difference is that he sees the addresses and the receiver doesn't.

Continuous
When the user redirects the driver or says not to be home (smartphone), the driver will receive a message of this and his rout will be adjusted (Ipad). Also, when the driver has some delay in his route (Ipad), the receiver will get an alert of that (smartphone)

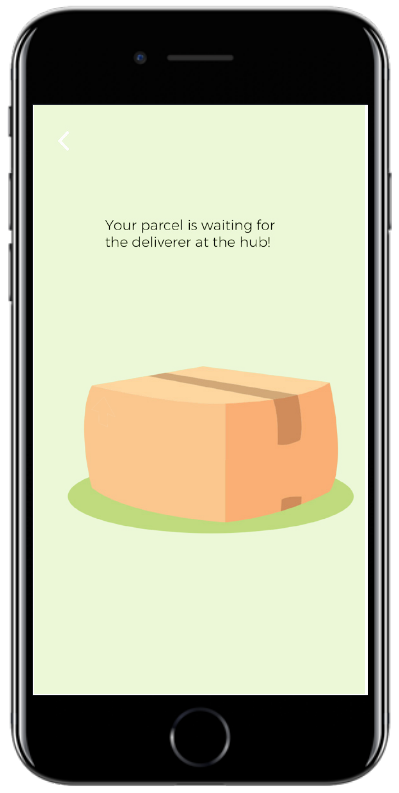
Complementary
The way the voice user interface and the app for the driver on the Ipad work together is complementary. When the driver receives an alert, he'll be able to see is on the screen but also will hear it from the vui. This works the same when the driver has some delays. Also when the driver want to switch screen he can do this bij clicking the screen or by giving a command to the vui.

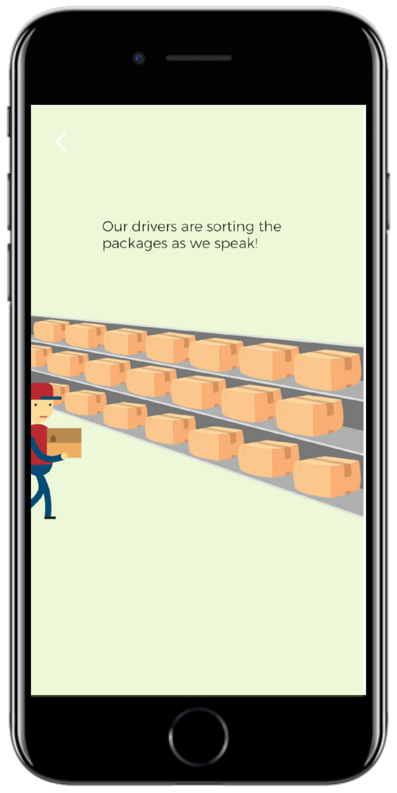
Receiver

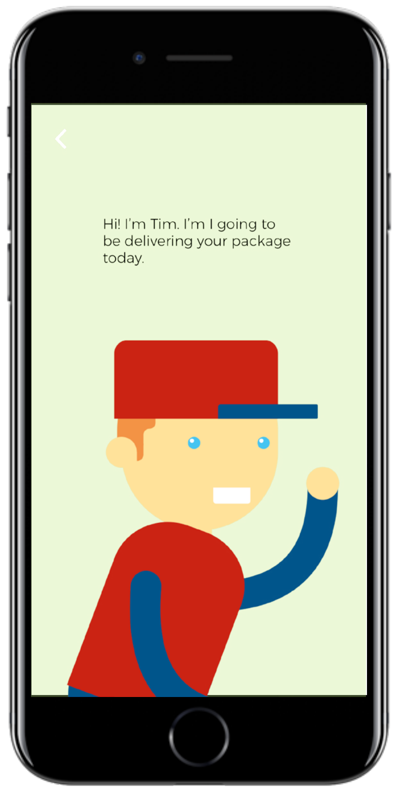
Most important screens

Waiting for parcel:

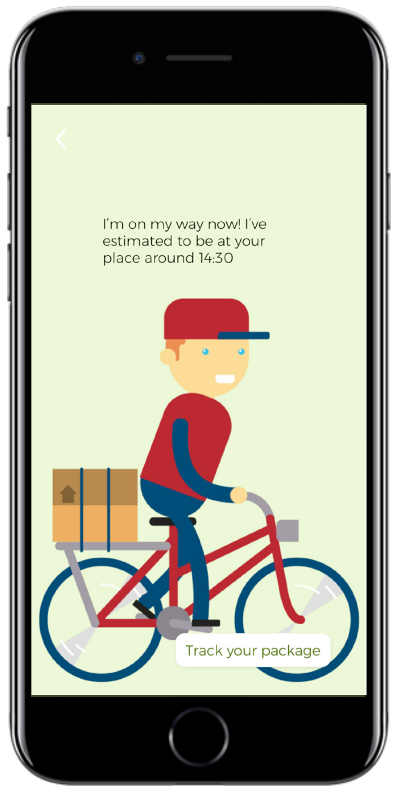
To be on its way

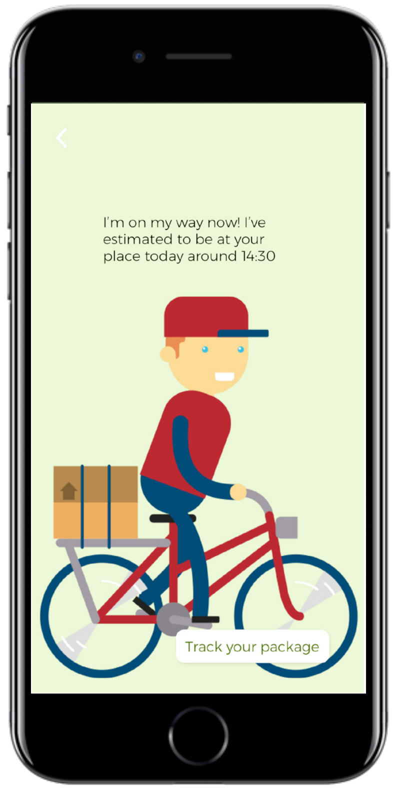

Your parcel is waiting for the deliverer at the hub!


Our drivers are sorting the packages as we speak!


Hi! I'm Tim. I'm I going to be delivering your package today.

Version 1 — — — — → Version 2


I'm on my way now! I've estimated to be at your place around 14:30


I'm on my way now! I've estimated to be at your place today around 14:30

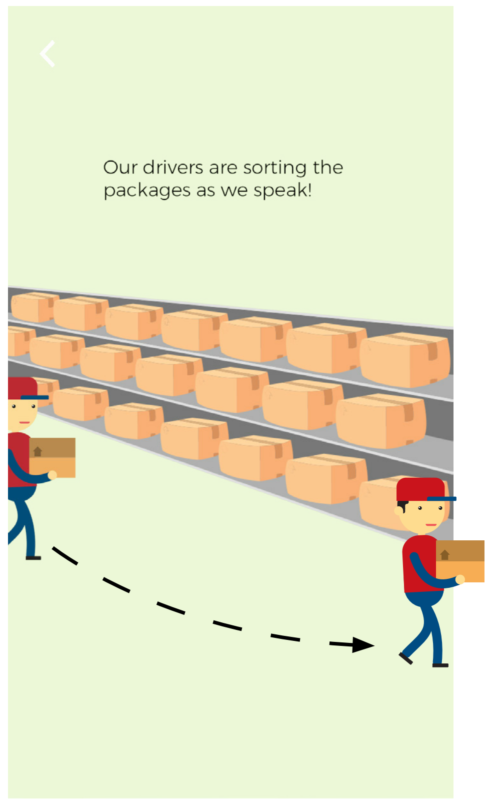
These screens are the ones the receiver will see before they can track their parcel. I implemented this to make the wait a little bit more fun. Out of my deskresearch and own experience *(See blog: research from UX course & research from existing apps)* came that the wait and long delivery time decreased the users enthusiasm about their parcel. Also this way the user will be kept up to date about the status of their parcel even before they can track it.

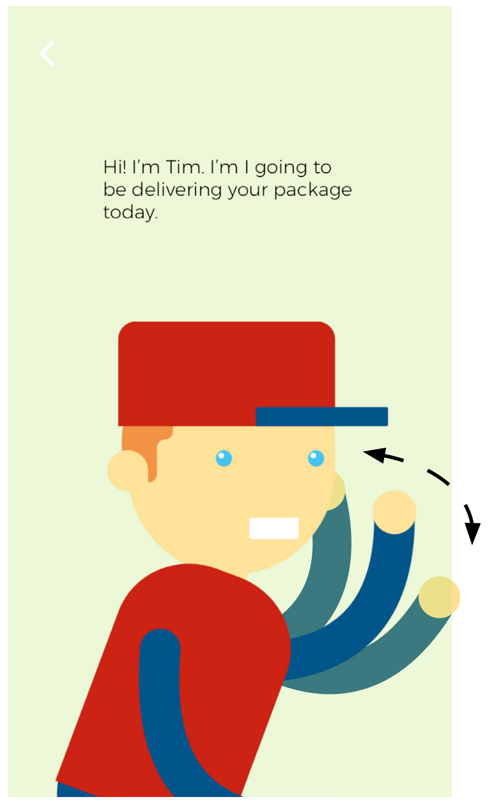
Seductive principle: Delighters
Seeing a schematic version of your parcel and what is happening at that moment makes it more fun to wait. Also the animations added makes the user feel like the drivers are really working on their delivery.

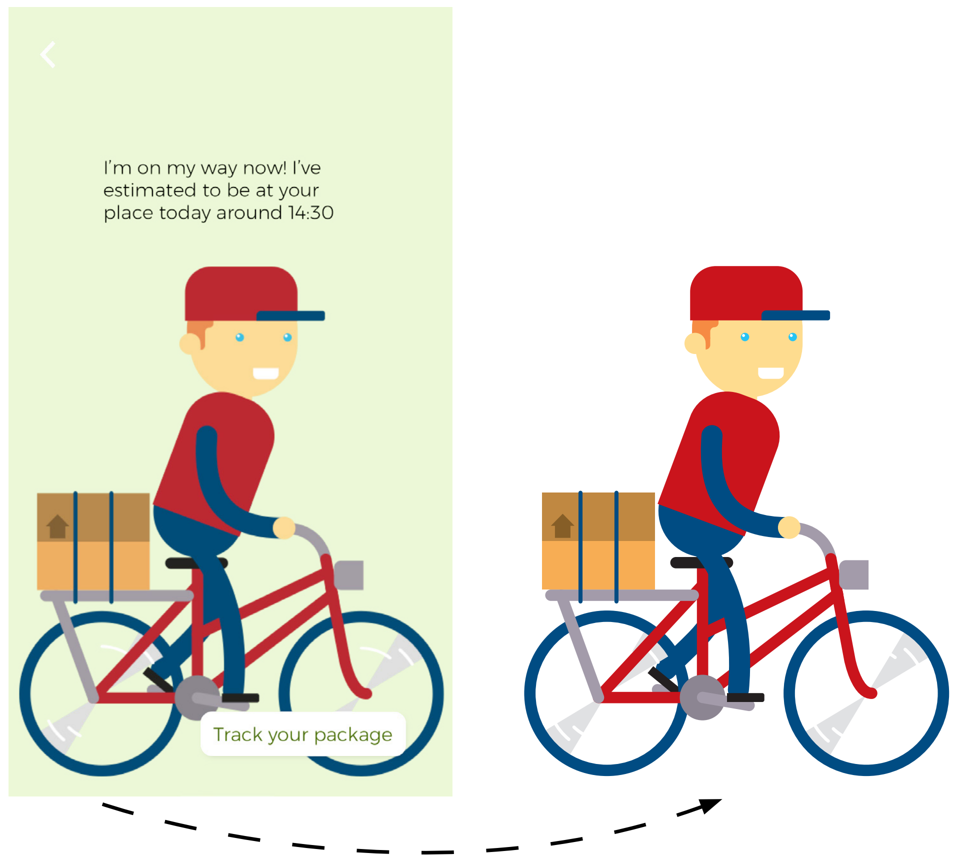
Seductive principle: Duration effect
Bij using the animation of the driver moving it feels like the user doesn't have to wait that long before being able to track their parcel. Something is happening within the system which makes waiting easier for the user.

Iteration
After my first user test *(see blog: test results - prototype v1)* came that it would be more clear if the day would be shown also with the delivery time on the last screen.

Animations:


Our drivers are sorting the packages as we speak!


Hi! I'm Tim. I'm I going to be delivering your package today.


I'm on my way now! I've estimated to be at your place today around 14:30

Trigger
The trigger is that the system changes to 'drivers are sorting' When the user opens the app, they'll see this screen with the animation of the drivers sorting packages.

Rule
The rule is the animation shown after the trigger. The driver is walking through the screen with a package.

Feedback
The feedback the user gets is that the app is showing the deliverers are working on their parcel and it won't take long before they'll come to deliver

Trigger
The trigger is that the system changes to 'assigned to driver' When the user opens the app, they'll see this screen with the animation of the driver introducing himself.

Rule
The rule is the animation shown after the trigger. The driver is waving at the user.

Feedback
The feedback the user gets is that the app is showing their package is picked up by a driver and is almost on its way.

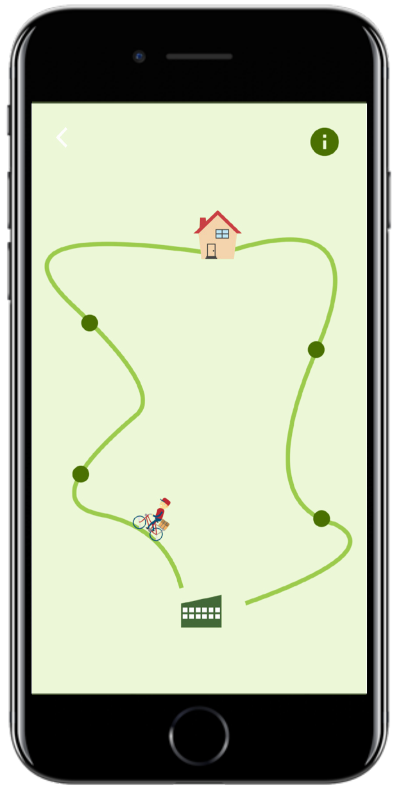
Trigger
The trigger is that the system changes to 'driver on his way' When the user opens the app, they'll see this screen with the animation of the driver riding of.

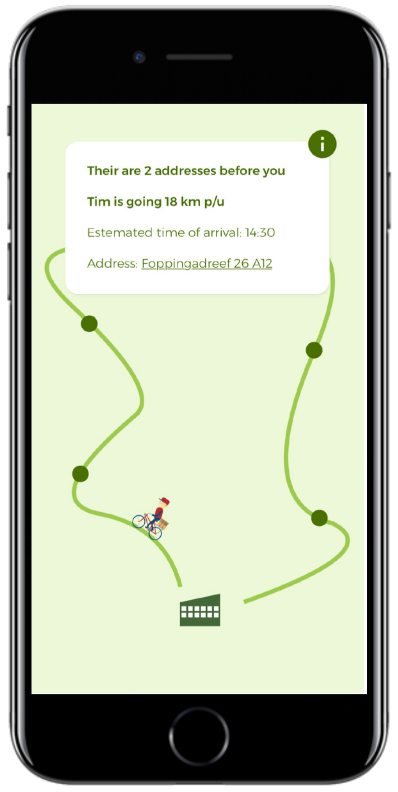
Rule
The rule is the animation shown after the trigger. The driver is starting his route.

Feedback
The feedback the user gets is that the app is showing their package is on its way.

Route preview
Following driver real time

Version 1 → Version 2



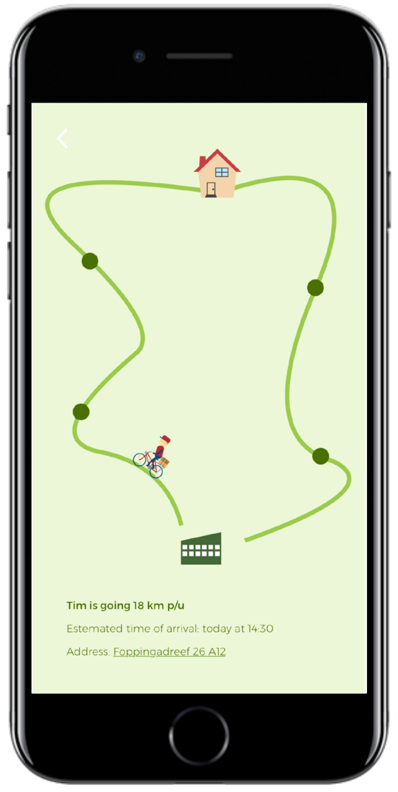


Their are 2 addresses before you

Tim is going 18 km p/u

Estemated time of arrival: 14:30

Address: Foppingadreef 26 A12



Tim is going 18 km p/u

Estemated time of arrival: today at 14:30

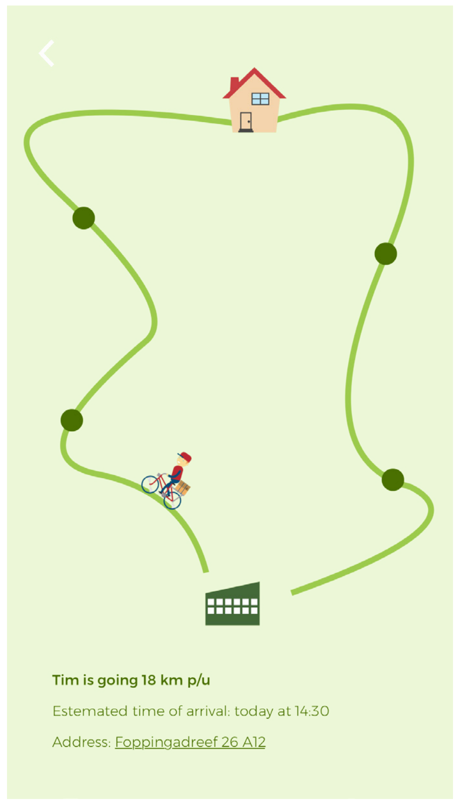
Address: Foppingadreef 26 A12

This is the main screen for the receiver. Here he'll be able to track the driver real time and see the delivery information. I made an abstract version of the route so that the user won't be able to see real addresses and places, but still has an idea of the drivers route and whereabouts.

UI stack: Partial state
The driver is on his way on the route. The receiver is able to see the whole route, and how far the driver is on it. The user can also see how many addresses are before him.

Iteration
In my first version I hid the delivery information behind a button and only focussed on the route. After my first user test *(see blog: test results - prototype v1)* came out that the user thinks this is important information and wants to see it right away, instead of behind a button. Also saying how many addresses before them is unnecessary information.

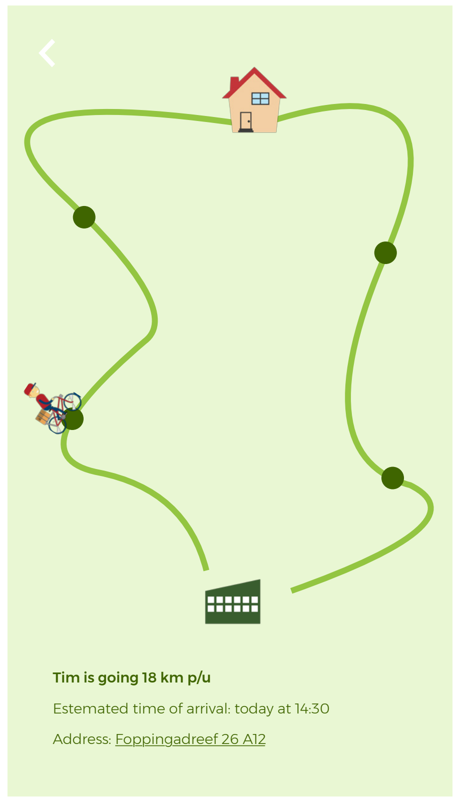
Animations:



Tim is going 18 km p/u

Estemated time of arrival: today at 14:30

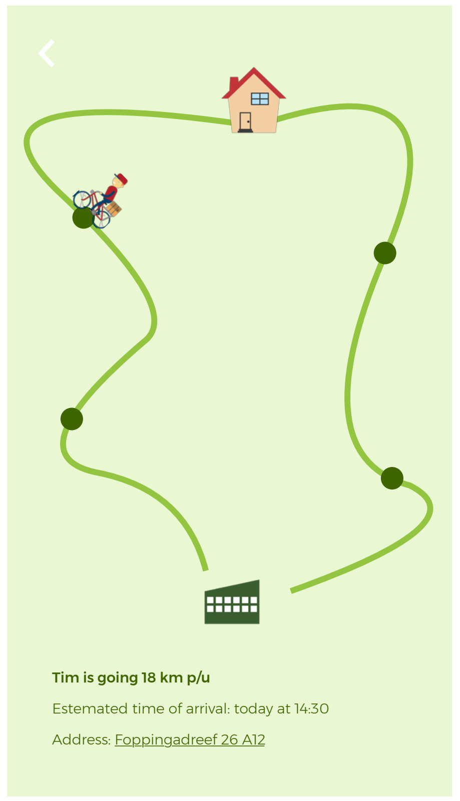
Address: Foppingadreef 26 A12



Tim is going 18 km p/u

Estemated time of arrival: today at 14:30

Address: Foppingadreef 26 A12



Tim is going 18 km p/u

Estemated time of arrival: today at 14:30

Address: Foppingadreef 26 A12

Trigger
The trigger is that the driver is moving. When the user opens the app, they'll see this screen with the animation of the driver moving up the route.

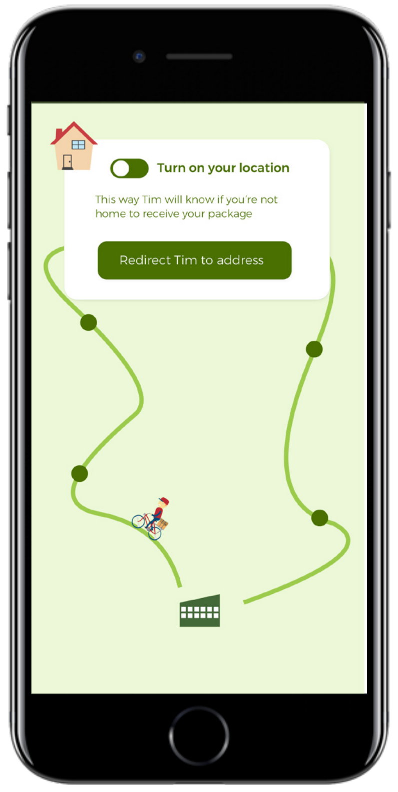
Rule
The rule is the animation shown after the trigger. The driver is cycling through the route.

Feedback
The feedback the user gets is that the app is showing the driver is getting closer to the users address.

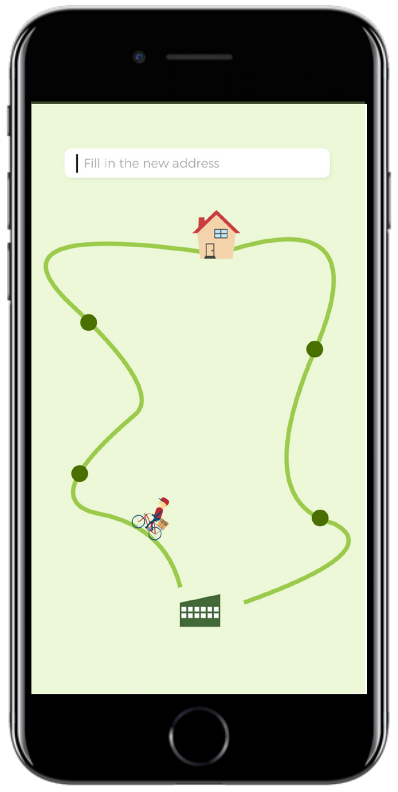
Location on

Let the driver know you're there

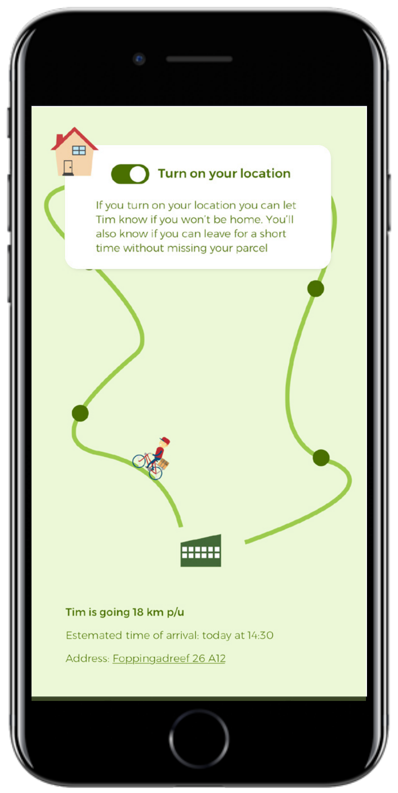
Version 1



This way Tim will know if you're not home to receive your package



Version 2

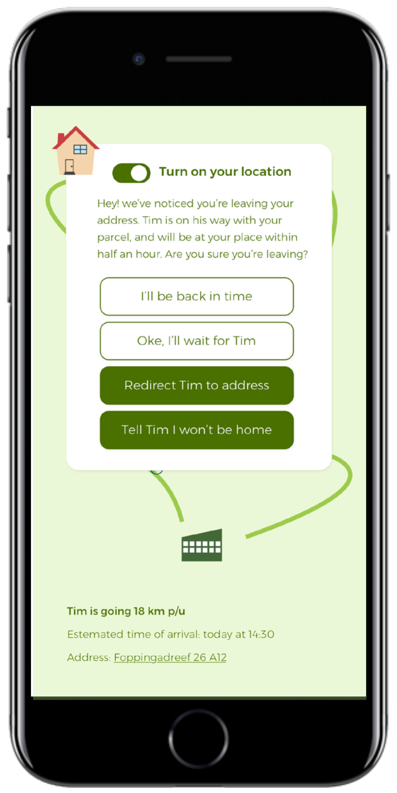


If you turn on your location you can let Tim know if you won't be home. You'll also know if you can leave for a short time without missing your parcel

Tim is going 18 km p/u

Estemated time of arrival: today at 14:30

Address: Foppingadreef 26 A12

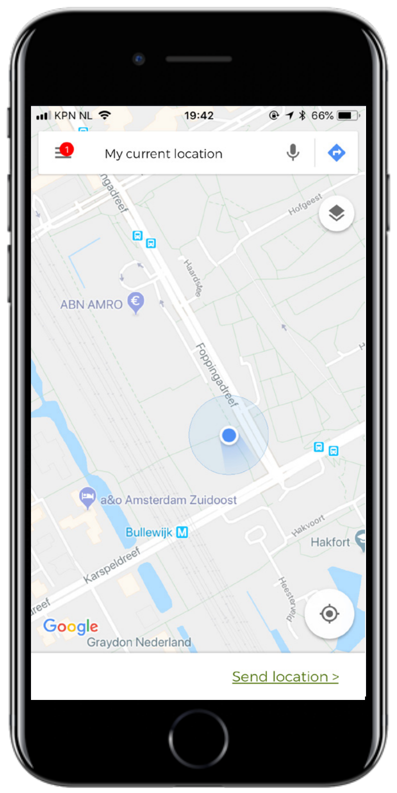


Hey! we've noticed you're leaving your address. Tim is on his way with your parcel, and will be at your place within half an hour. Are you sure you're leaving?

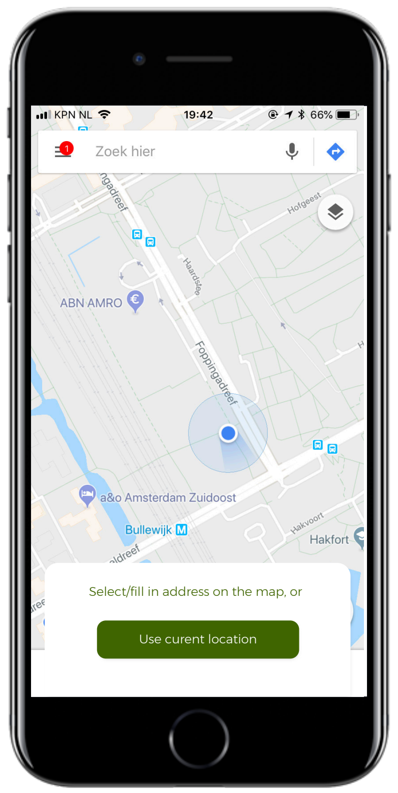
Tim is going 18 km p/u

Estemated time of arrival: today at 14:30

Address: Foppingadreef 26 A12



Version 3



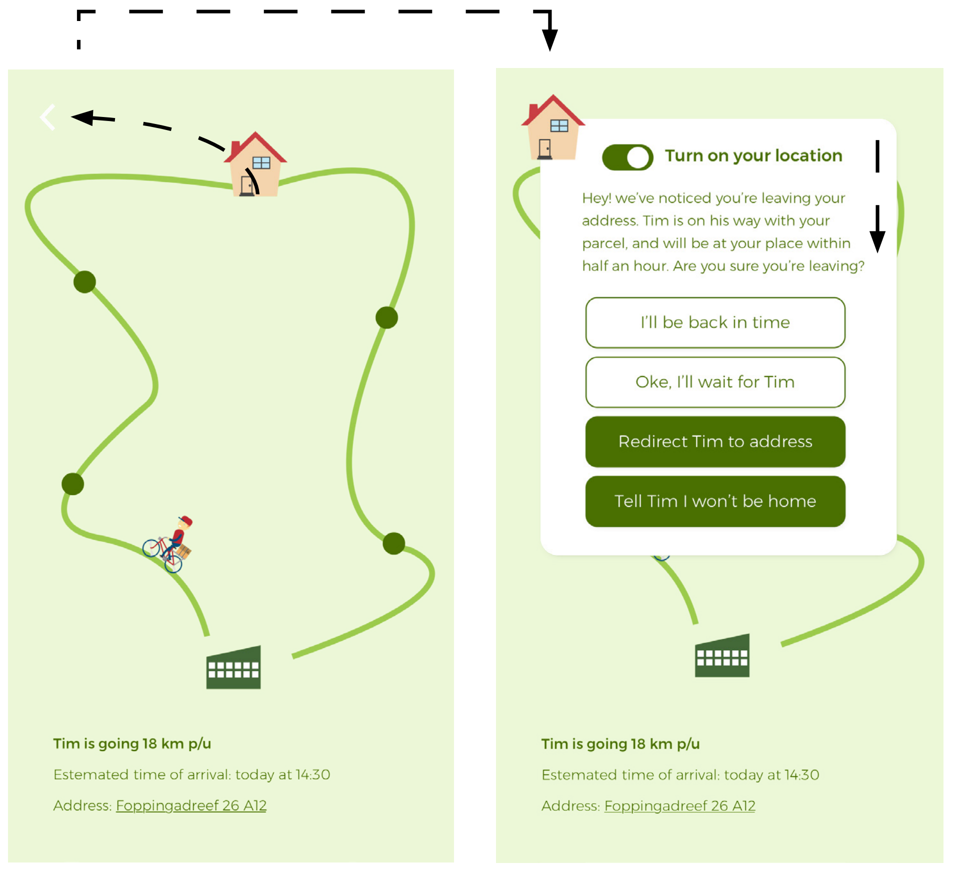
The user can choose to turn on his location. When he does this, he'll receive a notification when leaving his address. The notification will ask if the user is sure he's leaving, because the deliverer will be their within, for example, half an hour. The user can then choose to 'be back in time', 'wait', 'redirect' or 'not home'. This way the user is in control of what is happening to his parcel. Not being able to do this was a big frustration to users according to my research *(See blog: research from UX course & research from existing apps).*

Iterations
In my first version I used the location on function to let the driver know you won't be home. The user could only choose to redirect the driver. In my first user test *(see blog: test results - prototype v1)* I found out that this was confusing and the user wouldn't really know why to use it. Als the 'fill in address' wasn't easy to use, because you had to come up with an address yourself.

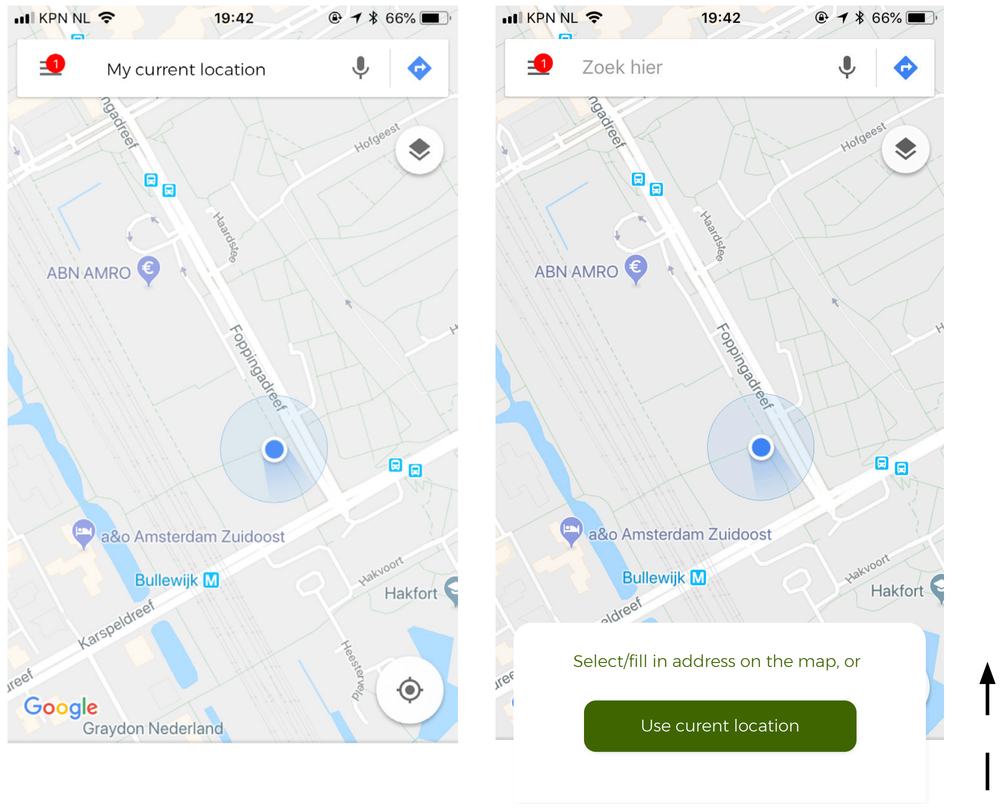
In my second version I adjusted this to turning on location for the user to know if he can leave or not. After leaving the user gets the four options to choose for. When redirecting the user could use the map or use his current location. In my second user test *(see blog: test results - prototype v2)* it turned out the location function worked pretty well, but finding the current location button wasn't that easy.

So in my third version I made this button more clear.

Animations:



Turn on your location
Hey! we've noticed you're leaving your address. Tim is on his way with your parcel, and will be at your place within half an hour. Are you sure you're leaving?
I'll be back in time
Oke, I'll wait for Tim
Redirect Tim to address
Tell Tim I won't be home
Tim is going 18 km p/u
Estemated time of arrival: today at 14:30
Address: Foppingadreef 26 A12



Trigger
The trigger is that the user clicks the house icon

Rule
The rule is the animation shown after the trigger. The house icon moves to the corner

Feedback
The feedback the user gets is that the location function becomes visible.

Trigger
The trigger is that the user clicks the redirect button

Rule
The rule is the animation shown after the trigger. The pop-up with the current location button slides up.

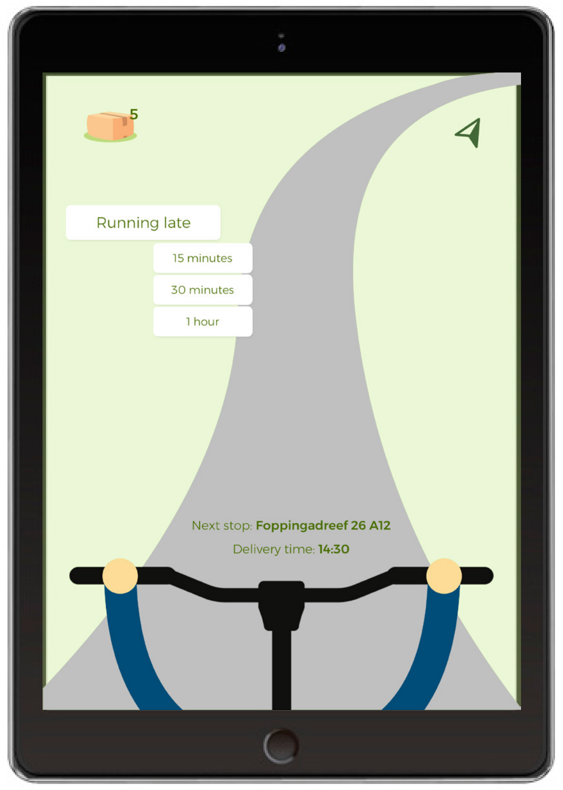
Feedback
The feedback the user gets is that the current location button is visible.

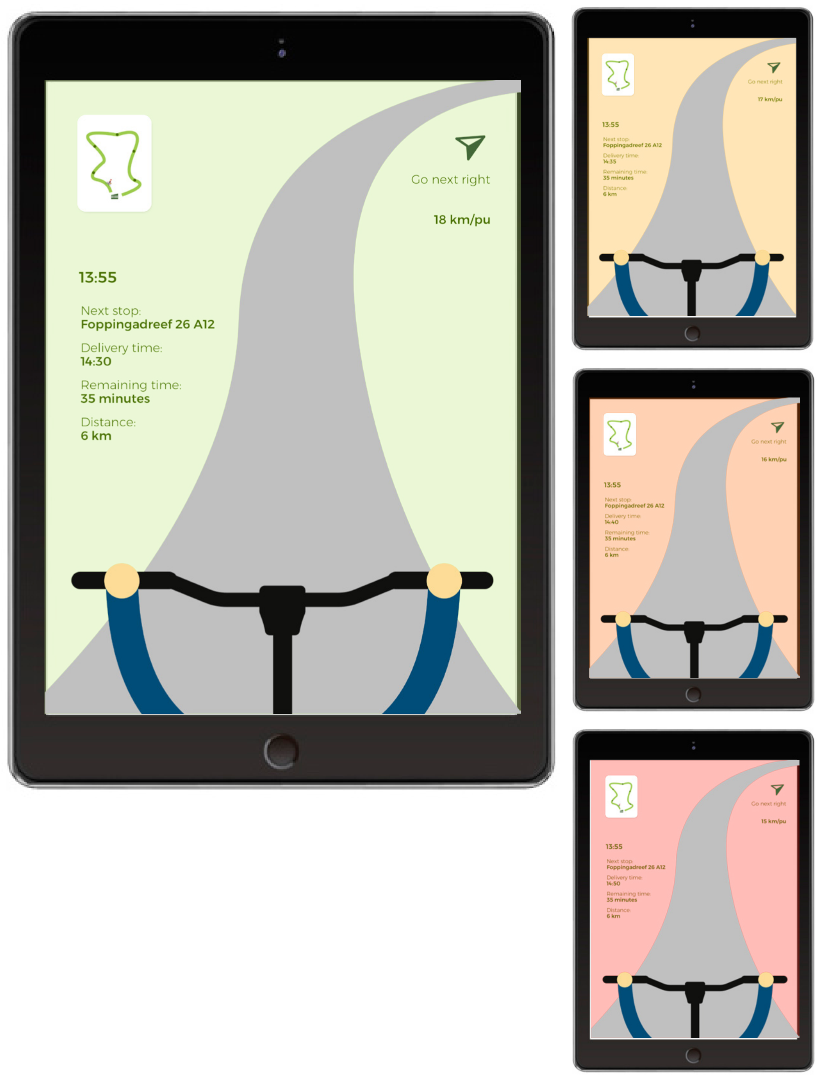
Driver

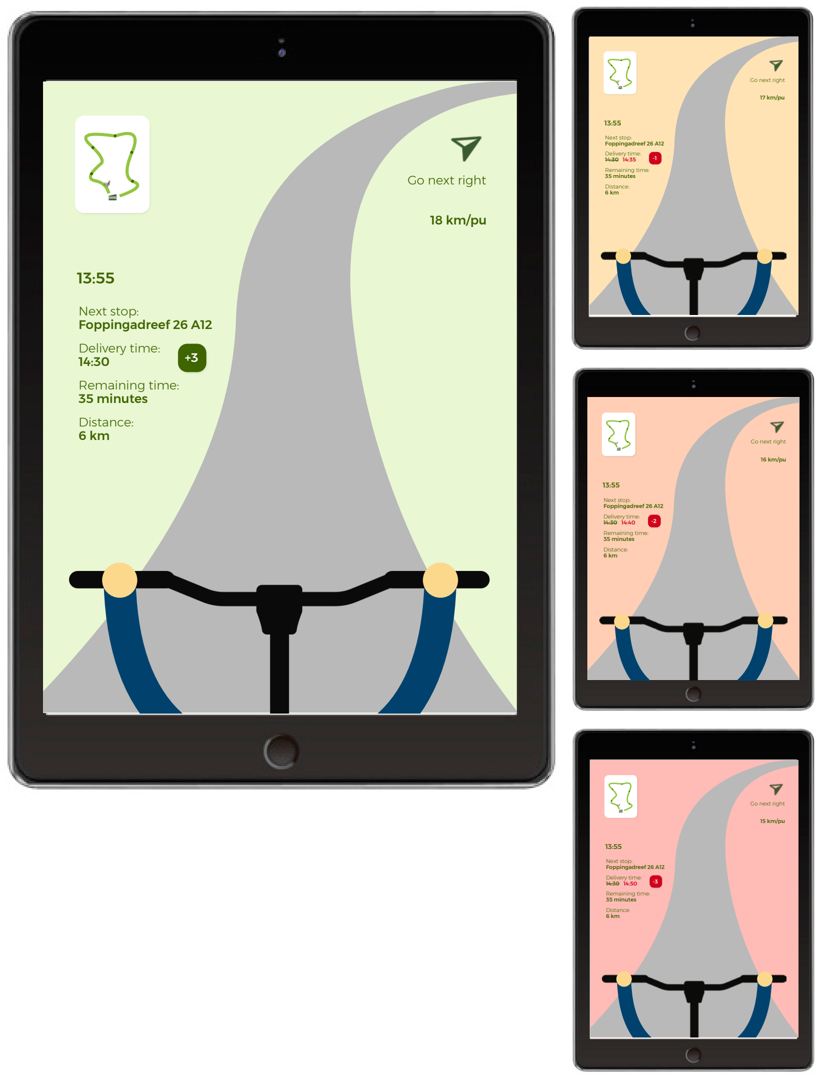
Most important screens

Navigation
Point of view

Version 1 → Version 2 → Version 3







The user sees a schematic point of view of his route. In the right corner are his directions. The screen color shows the user of he has a delay. When this is the case, the receiver will get a message of this. The user can score point with being on time. These point have an influence on his ratings.

Seductive principle: Achievements
Because the driver can score points with being on time and gets point subtracted for being to late, He'll be motivated to try to be on time. This rating system is important for the driver, because the company can see his achievements.

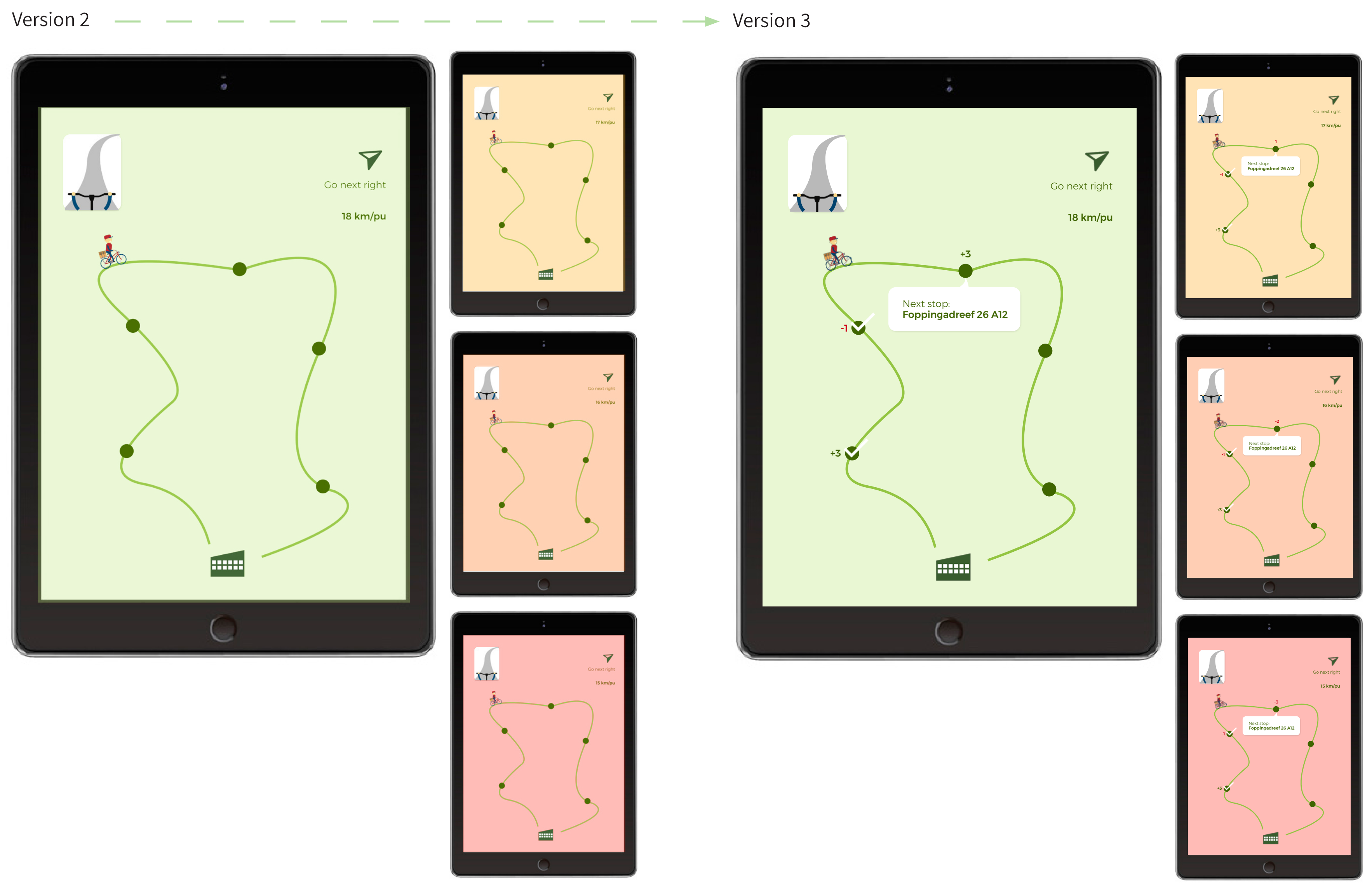
UI stack: Ideal state
The green screen is the ideal state for the user. This means he is on schedule and able to see all the necessary information

Iterations
In my first version I integrated button for the driver to say if he has delays. In my first user test *(see blog: test results - prototype v1)* I found out that it would be difficult for the driver to estimate how late he will be.

In my second version I adjusted this. Here the system will let the driver know if he is late automatically. The screen changes color depending on how late he is. In my second user test *(see blog: test results - prototype v2)* I found out this is clear for the driver, but it isn't a good trigger to try to be faster.

So in my third version I implemented a rating system which gives the driver points for being on time and subtracts point if the driver is late. I got this idea from the way bus drivers see if they are on time *(see blog: Busdrivers interface)*

Route preview



The user can switch screens between the point of view and the route overview. In the route overview he can see where on the route he is and how many addresses he still need to deliver. He can see which addresses he's done and which is the next address. Also he can see the points he got or are subtracted per address.

UI stack: Partial state
The driver is on his way on the route. The driver is able to see the whole route, and how far he is on it. The user can also see how many addresses are done and how many are to go.

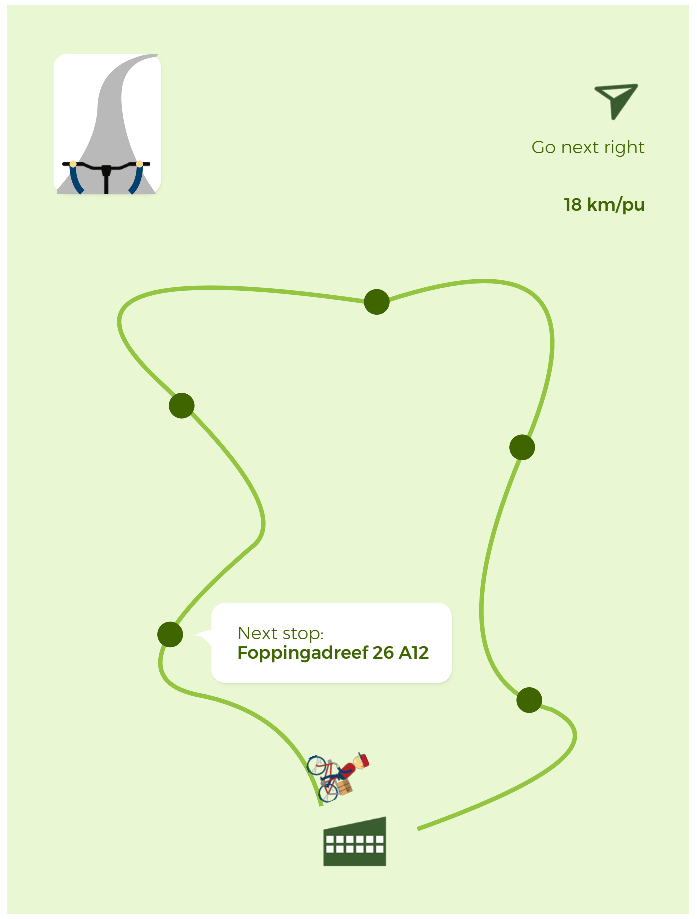
UI stack: Ideal state
The green screen is the ideal state for the user. This means he is on schedule and able to see all the necessary information

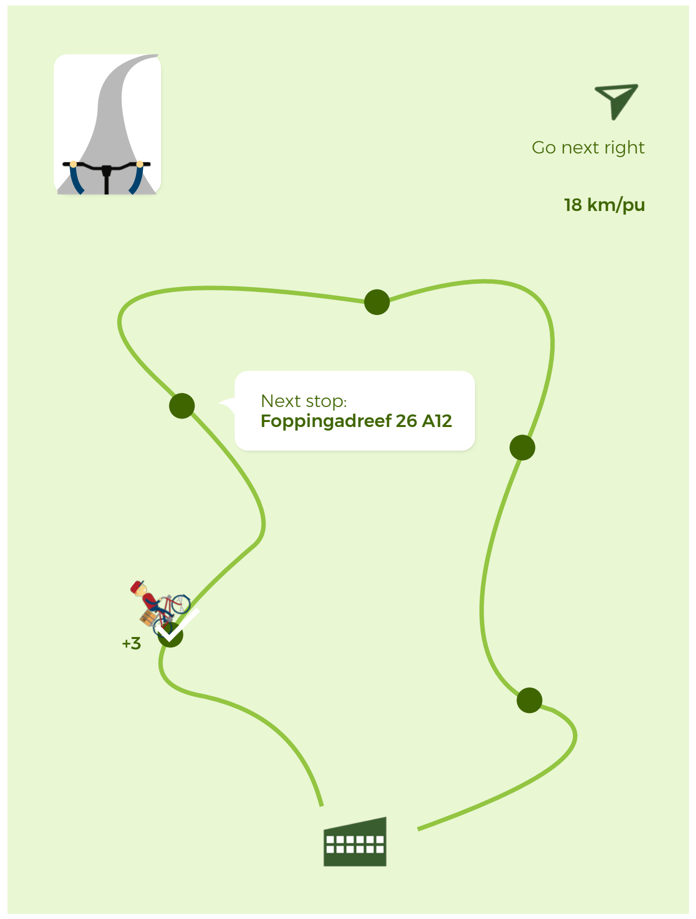
Iterations
In my first version I didn't have these screens at all. I only had the point of view. After the first user test *(see blog: test results - prototype v1)* I found the user was missing this overview.

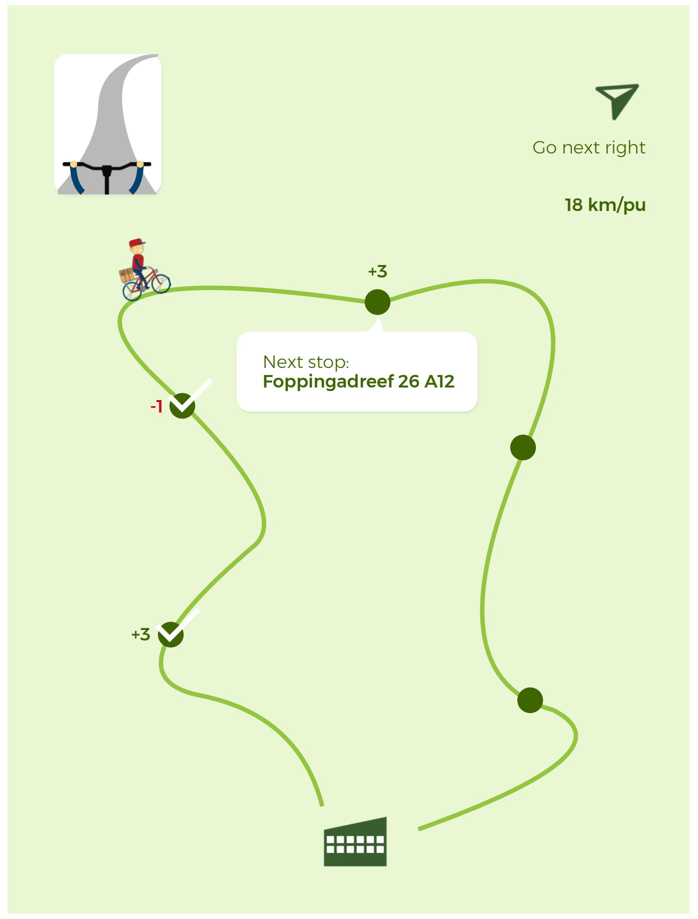
In my second version I implemented this overview the same way it was for the receiver on smartphone. In my second user test *(see blog: test results - prototype v2)* I found that the user was missing some information on the route and it looked a bit boring compared to the other screens

So in my third version showed which addresses were already done, the points per address and a pop-up with the next address.

Animations:







Trigger
The trigger is that the driver is moving. The user can see the animation when moving

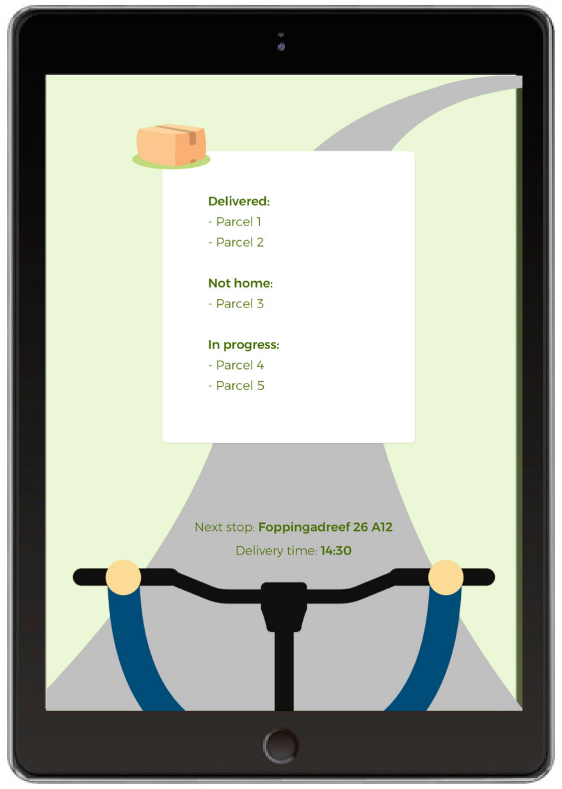
Rule
The rule is the animation shown after the trigger. The driver is getting further on his route

Feedback
The feedback the user gets is that the app is showing which addresses are already done and what the next address is.

Overview

When finished the route

Version 1 → Version 2

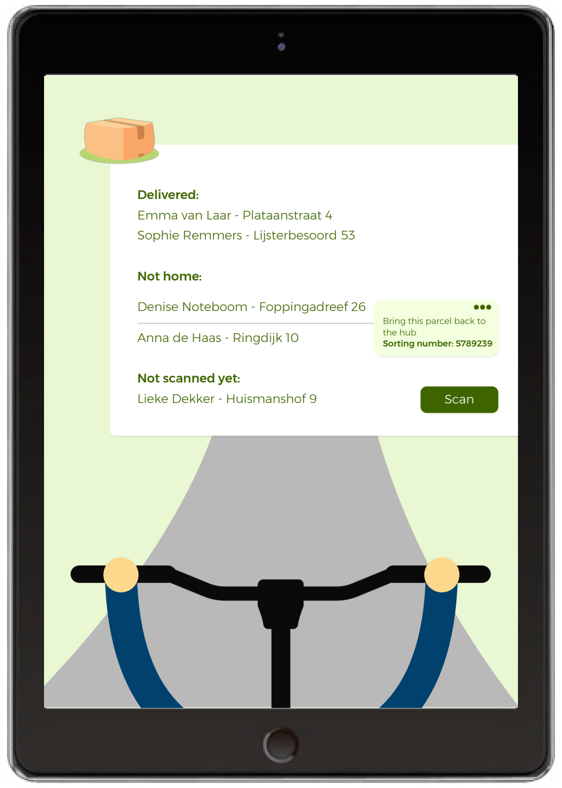

Delivered:
- Parcel 1
- Parcel 2

Not home:
- Parcel 3

In progress:
- Parcel 4
- Parcel 5

Next stop: **Foppingadreef 26 A12**

Delivery time: **14:30**


Delivered:

Emma van Laar - Plataanstraat 4

Sophie Remmers - Lijsterbesoord 53

Not home:

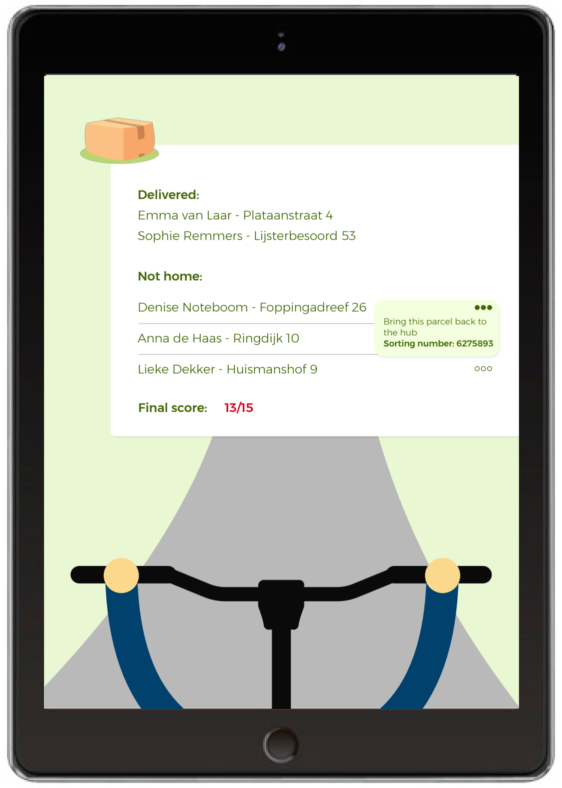
Denise Noteboom - Foppingadreef 26

Anna de Haas - Ringdijk 10

Bring this parcel back to the hub
Sorting number: 5789239

Not scanned yet:

Lieke Dekker - Huismanshof 9


Delivered:

Emma van Laar - Plataanstraat 4

Sophie Remmers - Lijsterbesoord 53

Not home:

Denise Noteboom - Foppingadreef 26

Anna de Haas - Ringdijk 10

Bring this parcel back to the hub
Sorting number: 6275893

Lieke Dekker - Huismanshof 9

Final score: 13/15

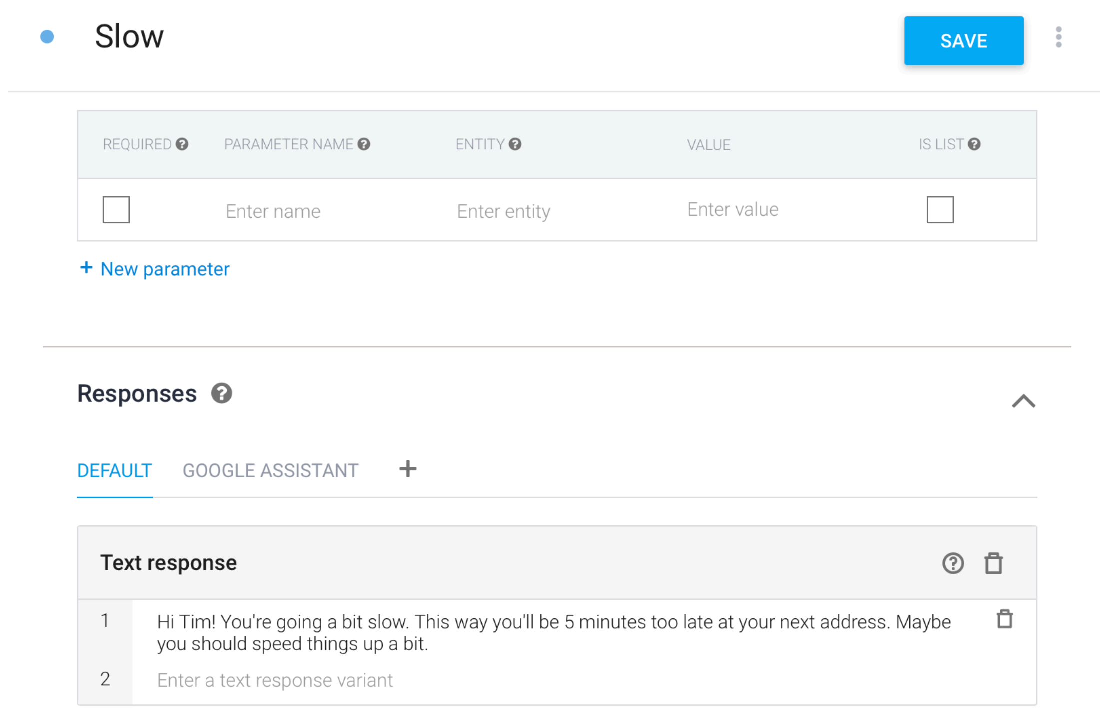
When the user finishes his route, he will she an overview of all the deliveries he just did. He can see the parcels he delivered, the ones that weren't home, and the ones he didn't scan yet (because someone said not to be home beforehand) He can scan the ones that aren't yet and see in the menu what he needs to do with the remaining parcels. At last he can see his final score.

Iterations
In my first version I thought it would be useful for the user to have this overview, but I didn't know exactly how it should look. After the first user test *(see blog: test results - prototype v1)* I found the user was missing a lot of information in this overview. The user wanted to see which parcels it's about, and what to do with is. Why is he seeing this overview?

So in my second version I put the parcels on name and address. I also added the menu that says what the user should do with the parcel. In my second user test *(see blog: test results - prototype v2)* I found that the user thinks this is much more clear and sees the use over the overview now

Voice user interface

Version 1 → Version 2



● Slow SAVE

REQUIRED	PARAMETER NAME	ENTITY	VALUE	IS LIST
☐	Enter name	Enter entity	Enter value	☐

+ New parameter

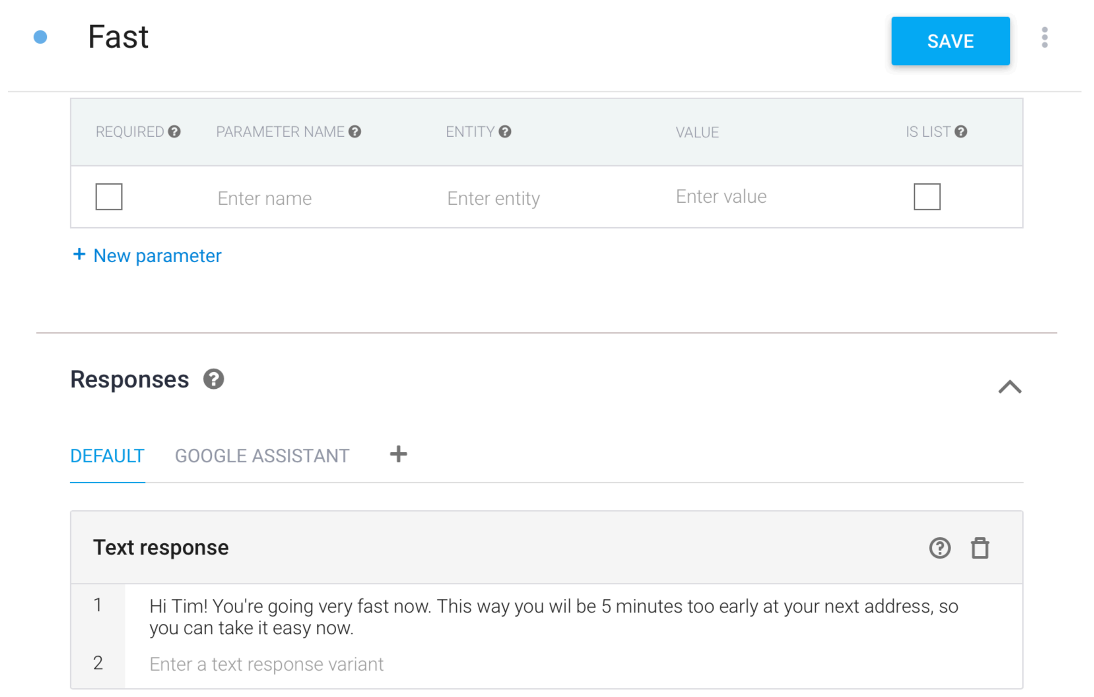
Responses

DEFAULT GOOGLE ASSISTANT +

Text response

1 Hi Tim! You're going a bit slow. This way you'll be 5 minutes too late at your next address. Maybe you should speed things up a bit.

2 Enter a text response variant



● Fast SAVE

REQUIRED	PARAMETER NAME	ENTITY	VALUE	IS LIST
☐	Enter name	Enter entity	Enter value	☐

+ New parameter

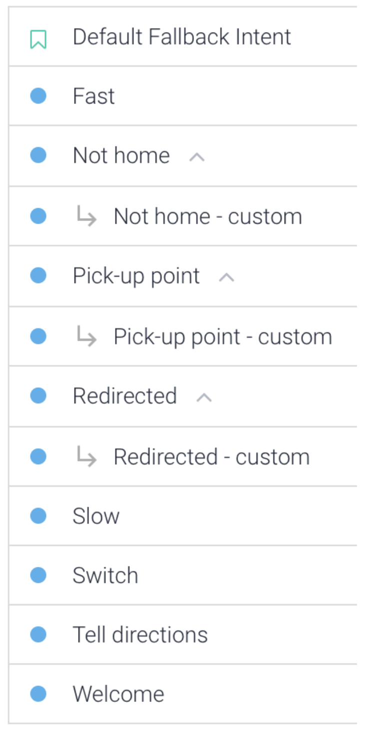
Responses

DEFAULT GOOGLE ASSISTANT +

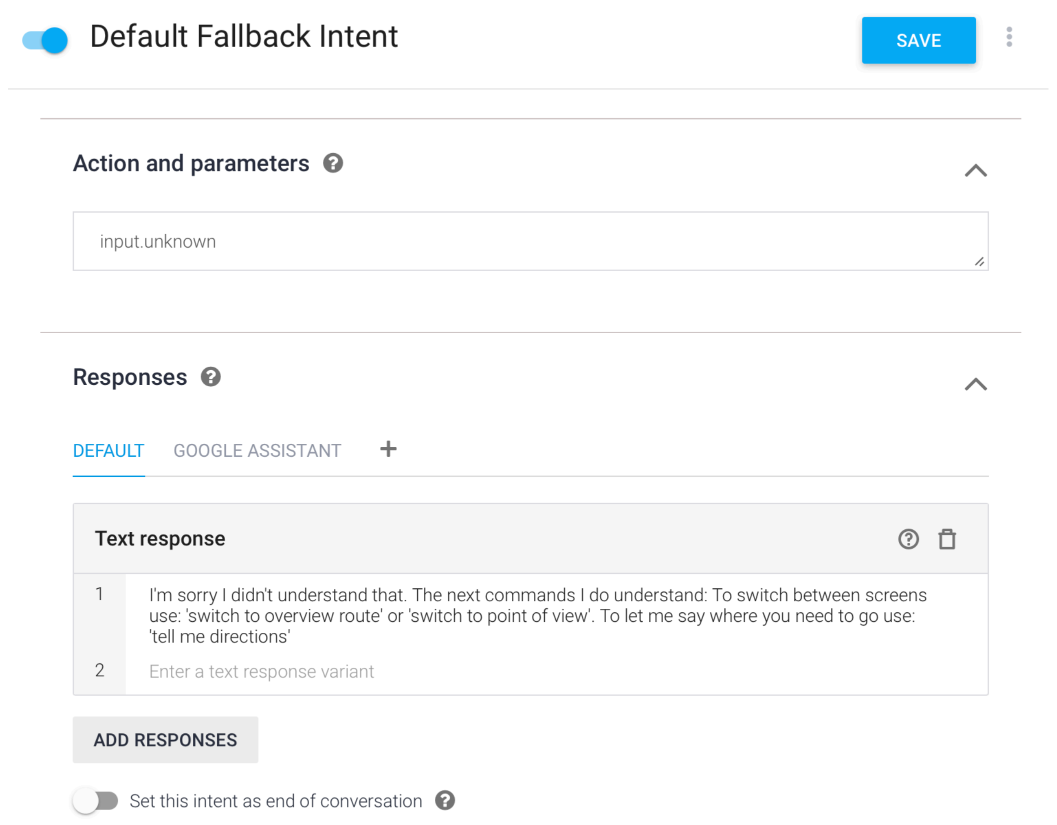
Text response

1 Hi Tim! You're going very fast now. This way you wil be 5 minutes too early at your next address, so you can take it easy now.

2 Enter a text response variant



- Default Fallback Intent
- Fast
- Not home
- ↳ Not home - custom
- Pick-up point
- ↳ Pick-up point - custom
- Redirected
- ↳ Redirected - custom
- Slow
- Switch
- Tell directions
- Welcome



Default Fallback Intent SAVE

Action and parameters

input.unknown

Responses

DEFAULT GOOGLE ASSISTANT +

Text response

1 I'm sorry I didn't understand that. The next commands I do understand: To switch between screens use: 'switch to overview route' or 'switch to point of view'. To let me say where you need to go use: 'tell me directions'

2 Enter a text response variant

ADD RESPONSES

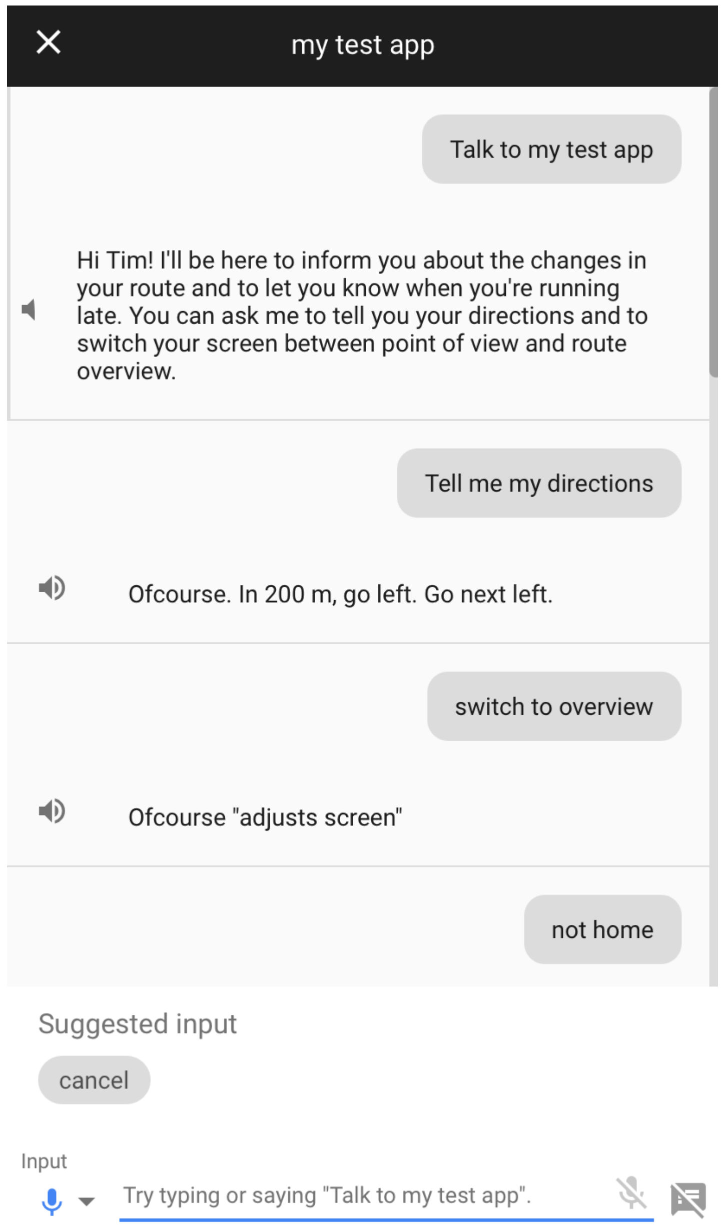
Set this intent as end of conversation

The driver can use the voice user interface. The VUI will tell the driver the alerts he receives like, 'user not home', 'redirected to address' or 'redirected to pick-up point'. The VUI will also tell the driver if he is going to slow. The driver can ask the VUI to switch screens and to tell him directions. These options are here for the driver so he won't have to be using his screen while cycling.

Iterations
In my first version I put all the information the driver needs. I wanted to test if the information told was clear and if the driver would know which commands to use. After the first usertest *(see blog: testresults VUI)* I found The information told was clear to the user, but the commands were not.

So in my second version I integrated a default fallback intent that, when the vui doesn't understand a command, it'll tell the user which commands he does understand.

Conversation
Example


my test app

Talk to my test app

Hi Tim! I'll be here to inform you about the changes in your route and to let you know when you're running late. You can ask me to tell you your directions and to switch your screen between point of view and route overview.

Tell me my directions

Ofcourse. In 200 m, go left. Go next left.

switch to overview

Ofcourse "adjusts screen"

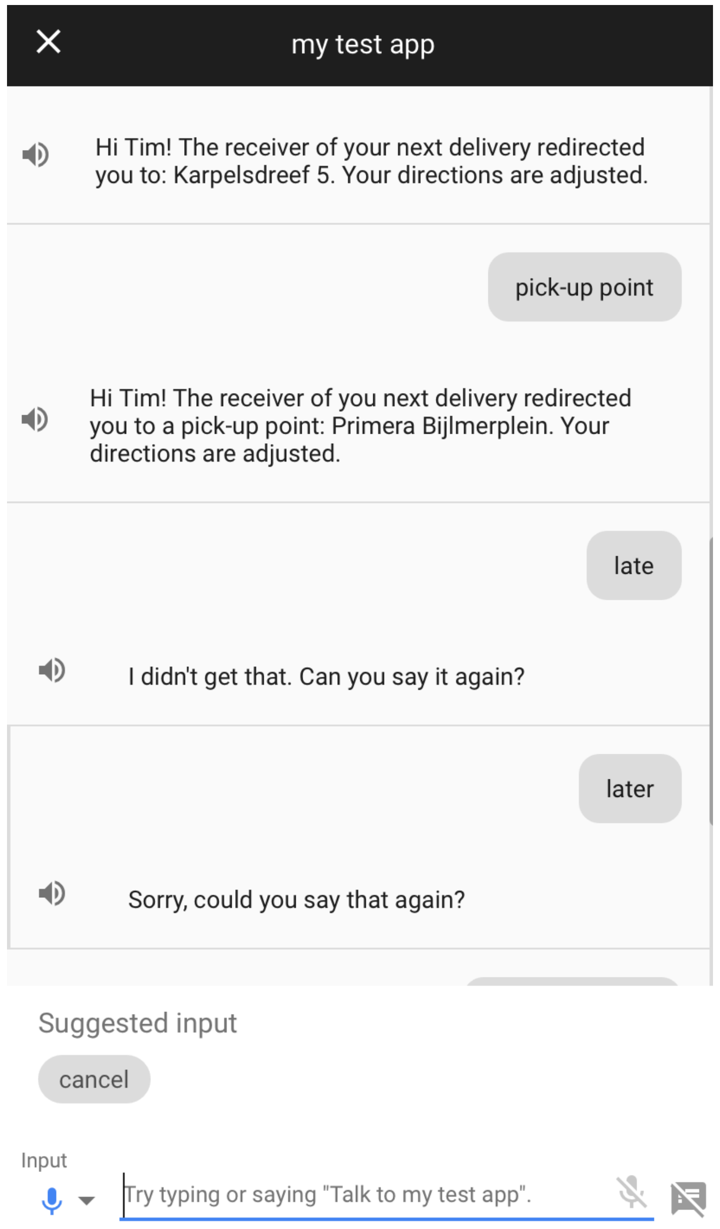
not home

Suggested input

cancel

Input

Try typing or saying "Talk to my test app".


my test app

Hi Tim! The receiver of your next delivery redirected you to: Karpelsdreef 5. Your directions are adjusted.

pick-up point

Hi Tim! The receiver of you next delivery redirected you to a pick-up point: Primera Bijlmerplein. Your directions are adjusted.

late

I didn't get that. Can you say it again?

later

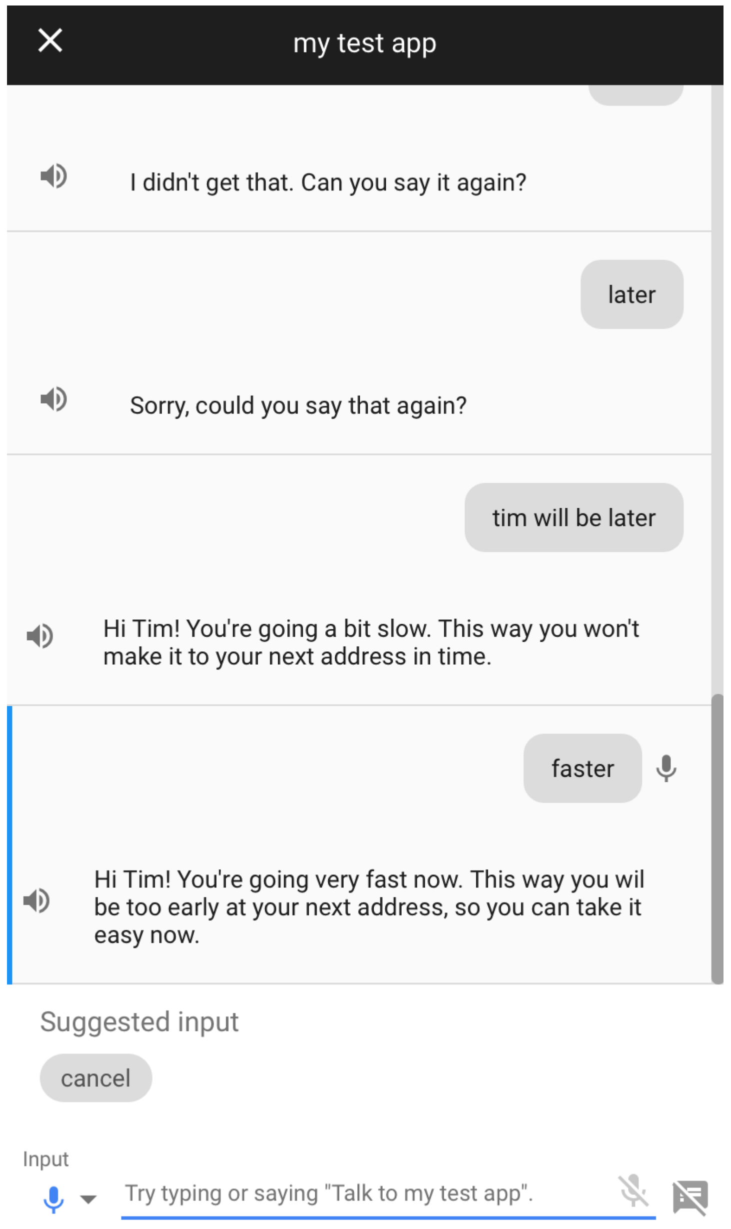
Sorry, could you say that again?

Suggested input

cancel

Input

Try typing or saying "Talk to my test app".


my test app

I didn't get that. Can you say it again?

later

Sorry, could you say that again?

tim will be later

Hi Tim! You're going a bit slow. This way you won't make it to your next address in time.

faster

Hi Tim! You're going very fast now. This way you wil be too early at your next address, so you can take it easy now.

Suggested input

cancel

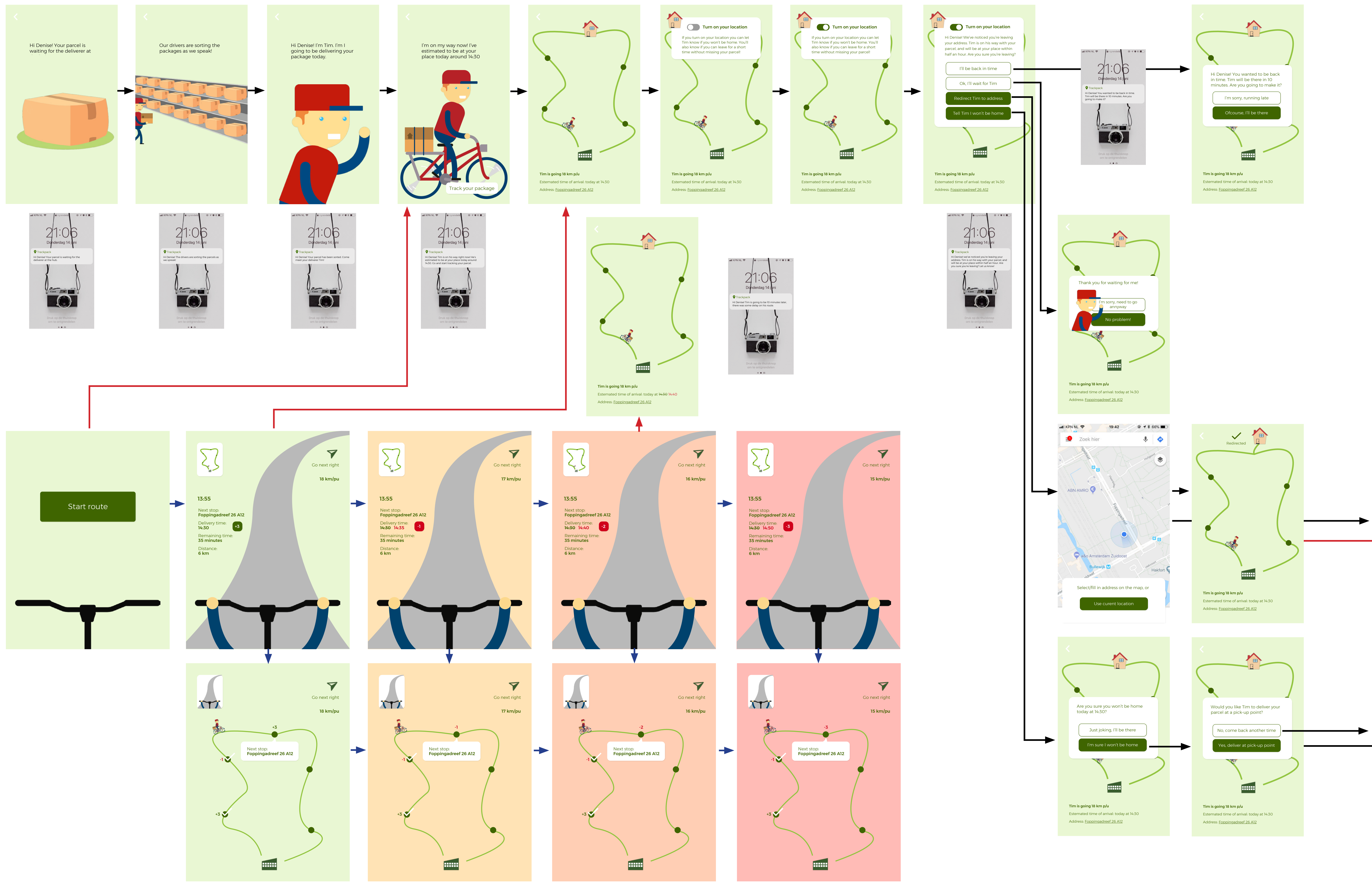
Input

Try typing or saying "Talk to my test app".

Seductive principle:Sonsory appeal
Because the vui tells the driver his information, he's more likely to recall it and act on it. For example, when the driver is going to slow and the vui tells him to speed up, he's more likely to do this than when he just sees it on his screen.

Final wireflow

Bringing the devices together


Hi Denise! Your parcel is waiting for the deliverer at

Our drivers are sorting the packages as we speak!

Hi Denise! I'm Tim. I'm I going to be delivering your package today.

I'm on my way now! I've estimated to be at your place today around 14:30

Trackpack
Hi Denise! Your parcel is waiting for the deliverer at the hub.

Trackpack
Hi Denise! The drivers are sorting the parcels as we spreak!

Trackpack
Hi Denise! Your parcel has been sorted. Come meet your deliverer Tim!

Trackpack
Hi Denise! Tim is on his way right now! He's estimated to be at your place today around 14:30. Go and start tracking your parcel.

Tim is going 18 km p/u
Estemated time of arrival: today at 14:30
Address: Foppingadreef 26 A12

Turn on your location
If you turn on your location you can let Tim know if you won't be home. You'll also know if you can leave for a short time without missing your parcel!

Turn on your location
Hi Denise! We've noticed you're leaving your address. Tim is on his way with your parcel, and will be at your place within half an hour. Are you sure you're leaving?

Trackpack
Hi Denise! we've noticed you're leaving your address. Tim is on his way with your parcel, and will be at your place within half an hour. Are you sure you're leaving? Let us know!

Trackpack
Hi Denise! You wanted to be back in time. Tim will be there in 10 minutes. Are you going to make it?

Hi Denise! You wanted to be back in time. Tim will be there in 10 minutes. Are you going to make it?

Trackpack
Hi Denise! Tim is going to be 10 minutes later, there was some delay on his route.

Tim is going 18 km p/u
Estemated time of arrival: today at ~~14:30~~ 14:40
Address: Foppingadreef 26 A12

Thank you for waiting for me!

Select/fill in address on the map, or

Are you sure you won't be home today at 14:30?

Would you like Tim to deliver your parcel at a pick-up point?

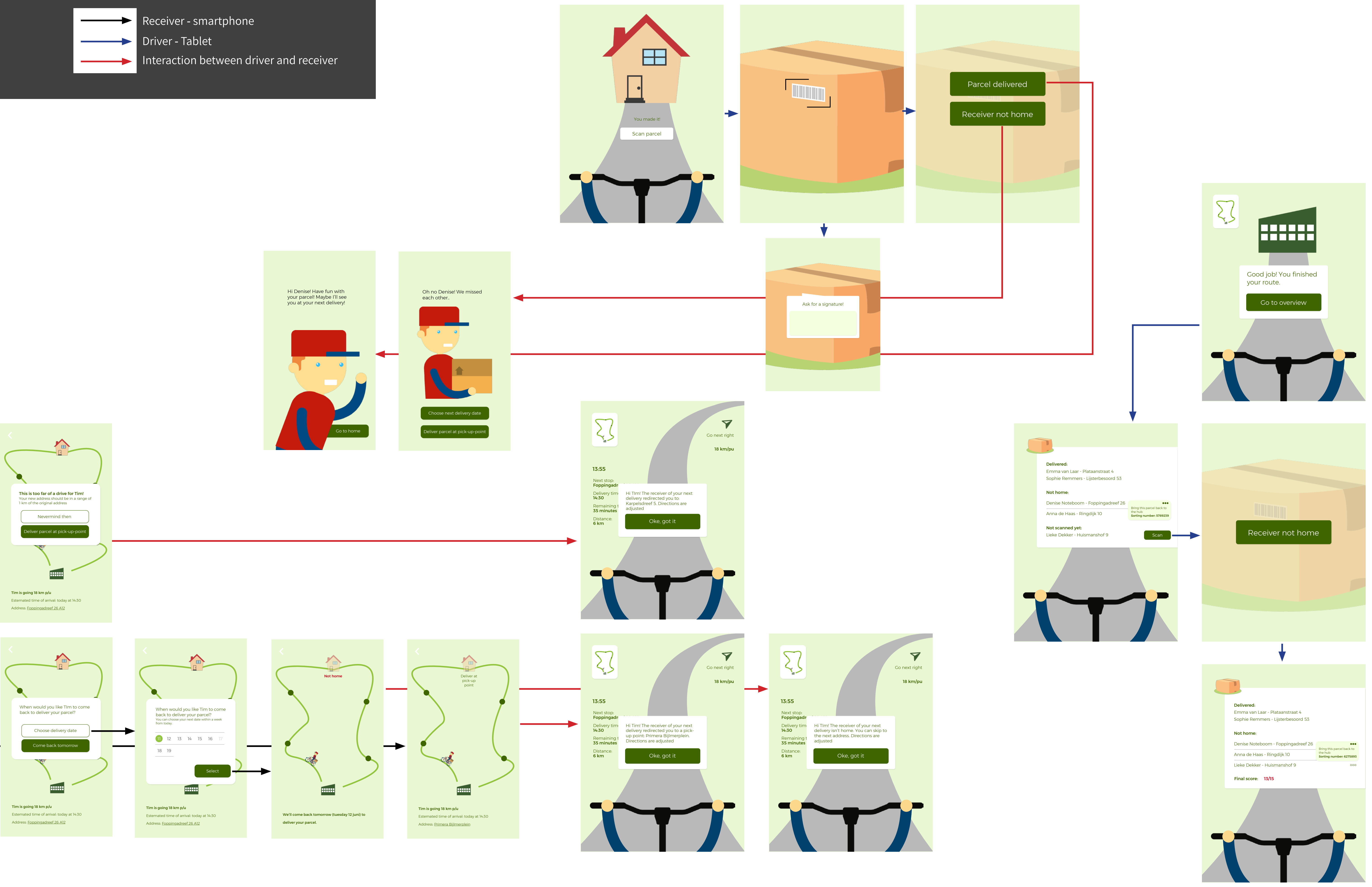
13:55
Next stop: Foppingadreef 26 A12
Delivery time: 14:30 +3
Remaining time: 35 minutes
Distance: 6 km
Go next right
18 km/pu

13:55
Next stop: Foppingadreef 26 A12
Delivery time: ~~14:30~~ 14:35 -1
Remaining time: 35 minutes
Distance: 6 km
Go next right
17 km/pu

13:55
Next stop: Foppingadreef 26 A12
Delivery time: ~~14:30~~ 14:40 -2
Remaining time: 35 minutes
Distance: 6 km
Go next right
16 km/pu

13:55
Next stop: Foppingadreef 26 A12
Delivery time: ~~14:30~~ 14:50 -3
Remaining time: 35 minutes
Distance: 6 km
Go next right
15 km/pu

→ Receiver - smartphone
→ Driver - Tablet
→ Interaction between driver and receiver


You made it!

Hi Tlm! The receiver of your next delivery redirected you to: Karpelsdreef 5. Directions are adjusted

Hi Tim! The receiver of your next delivery redirected you to a pick-up point: Primera Bijlmerplein. Directions are adjusted

Hi Tlm! The receiver of your next delivery isn't home. You can skip to the next address. Directions are adjusted

Good job! You finished your route.

Hi Denise! Have fun with your parcel! Maybe I'll see you at your next delivery!

Oh no Denise! We missed each other..

This is too far of a drive for Tim!
Your new address should be in a range of 1 km of the original address

When would you like TIm to come back to deliver your parcel?

When would you like Tim to come back to deliver your parcel?
You can choose your next date within a week from today.

We'll come back tomorrow (tuesday 12 juni) to deliver your parcel.

Tim is going 18 km p/u
Estemated time of arrival: today at 14:30
Address: Foppingadreef 26 A12

Tim is going 18 km p/u
Estemated time of arrival: today at 14:30
Address: Primera Bijlmerplein

13:55
Next stop: Foppingadr
Delivery tim 14:30
Remaining t 35 minutes
Distance: 6 km

Delivered:
Emma van Laar - Plataanstraat 4
Sophie Remmers - Lijsterbesoord 53

Not home:
Denise Noteboom - Foppingadreef 26
Anna de Haas - Ringdijk 10

Bring this parcel back to the hub
Sorting number: 5789239

Not scanned yet:
Lieke Dekker - Huismanshof 9

Delivered:
Emma van Laar - Plataanstraat 4
Sophie Remmers - Lijsterbesoord 53

Not home:
Denise Noteboom - Foppingadreef 26
Anna de Haas - Ringdijk 10
Lieke Dekker - Huismanshof 9

Bring this parcel back to the hub
Sorting number: 6275893

Final score: 13/15

Conclusion

The concept of showing the tracking flow like this is a fun and easy to use way. The devices work together in a good way, although this could be improved by implementing some of the functionalities from one device into another.

One of the functionalities that could be improved a lot, is the rating system for the driver. This could be more expanded. For example by making an overview of all his routes. It could also have an influence on his working contract, with an overview of that. When a receiver meets their driver, maybe they should also see these results.

Also I think the overview when the driver finishes his route could be improved by doing more research on how the hubs work and how this would work together with the system at the hub.

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