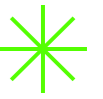


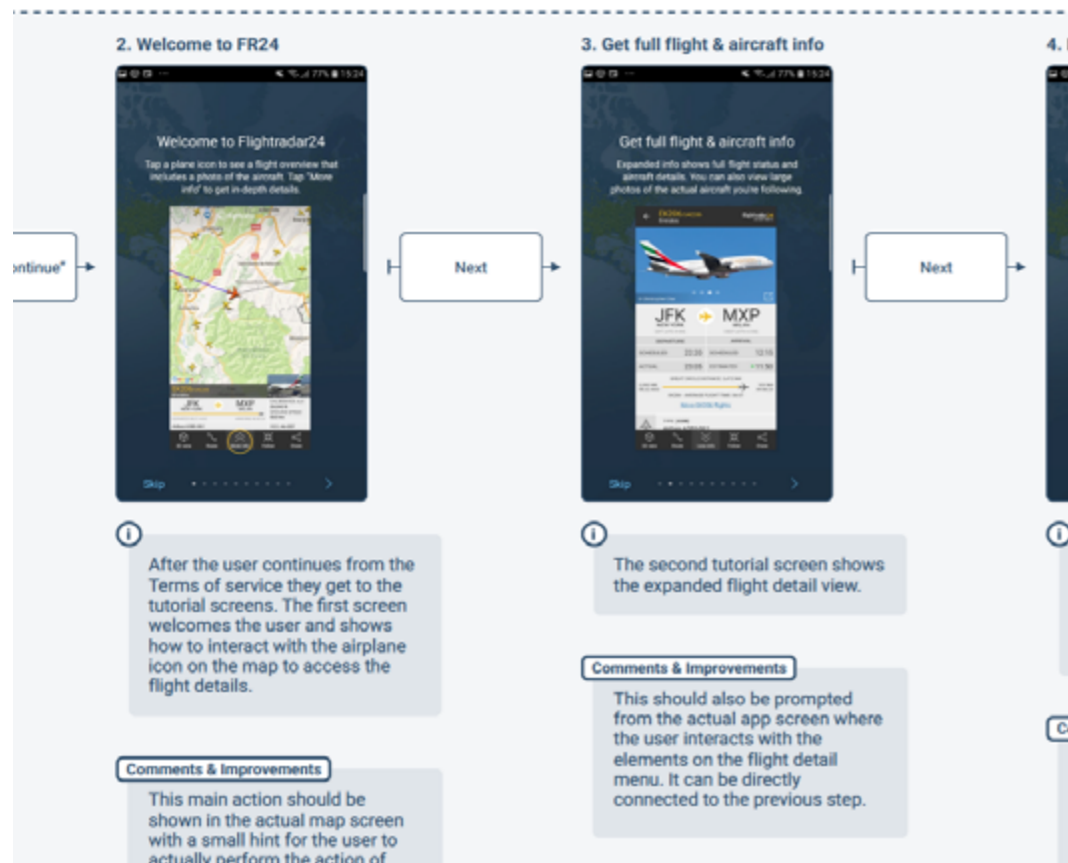
* Flightradar24 Onboarding *

The process: wireframes, prototypes, user testing,
hand-off, implementation and A/B testing.

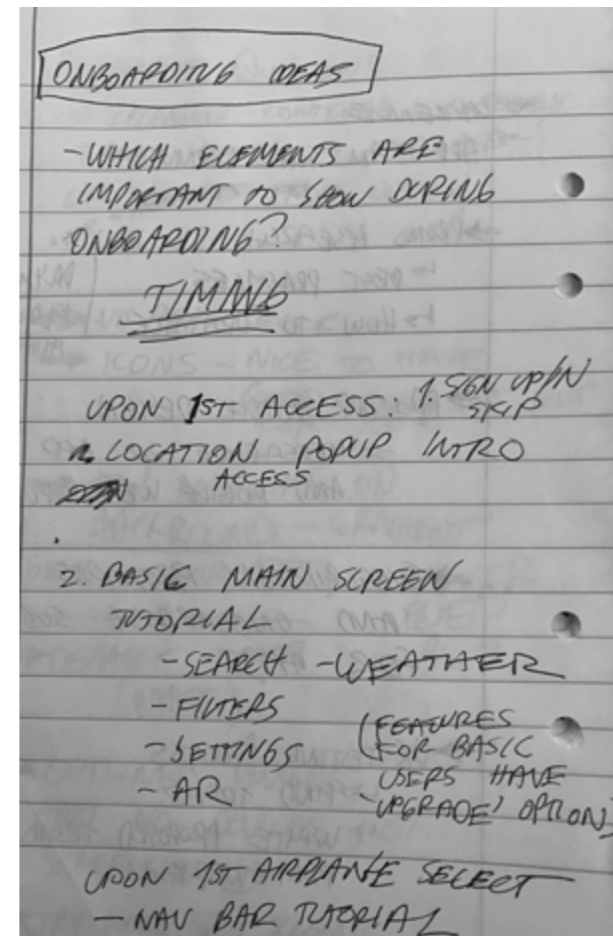
1.0_Analysis, Initial Flows and Wireframes



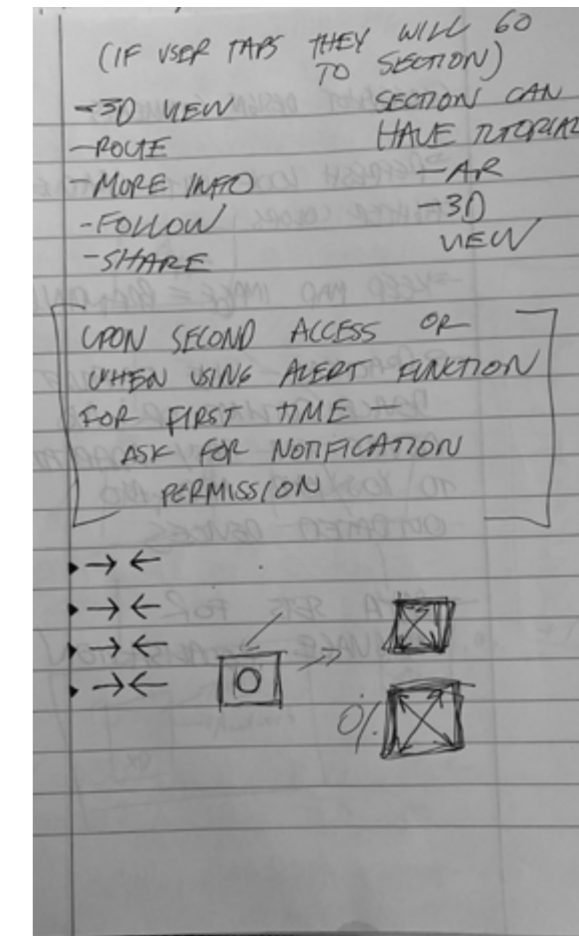
This project started with a small brief from the company boss: "We need to make the overall onboarding experience better in the apps." I started by analyzing the onboarding experience we had at the time - which was based on an image carousel with all the features right after opening the app for the first time. Next, I started taking notes of some ideas I had about how we could start making a better flow.



I made an initial analysis of the onboarding experience we had before. You can find the complete document on the link posted on the project page.

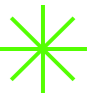


I started taking notes of my first thoughts of the onboarding process in a notebook. I still like to mix pen and paper and digital tools in the initial stages of a project.

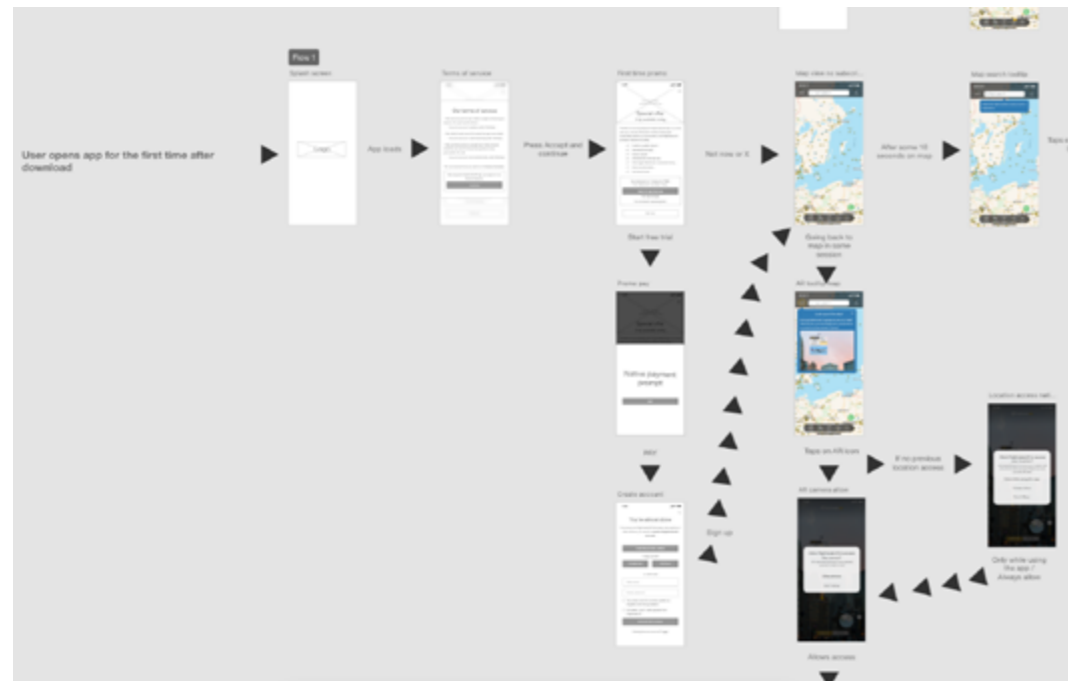


Separating the onboarding flow in different steps was crucial in understanding how a user interacts with the app. From this list we decided which elements we wanted to introduce first to create that "Aha! Moment" to the user.

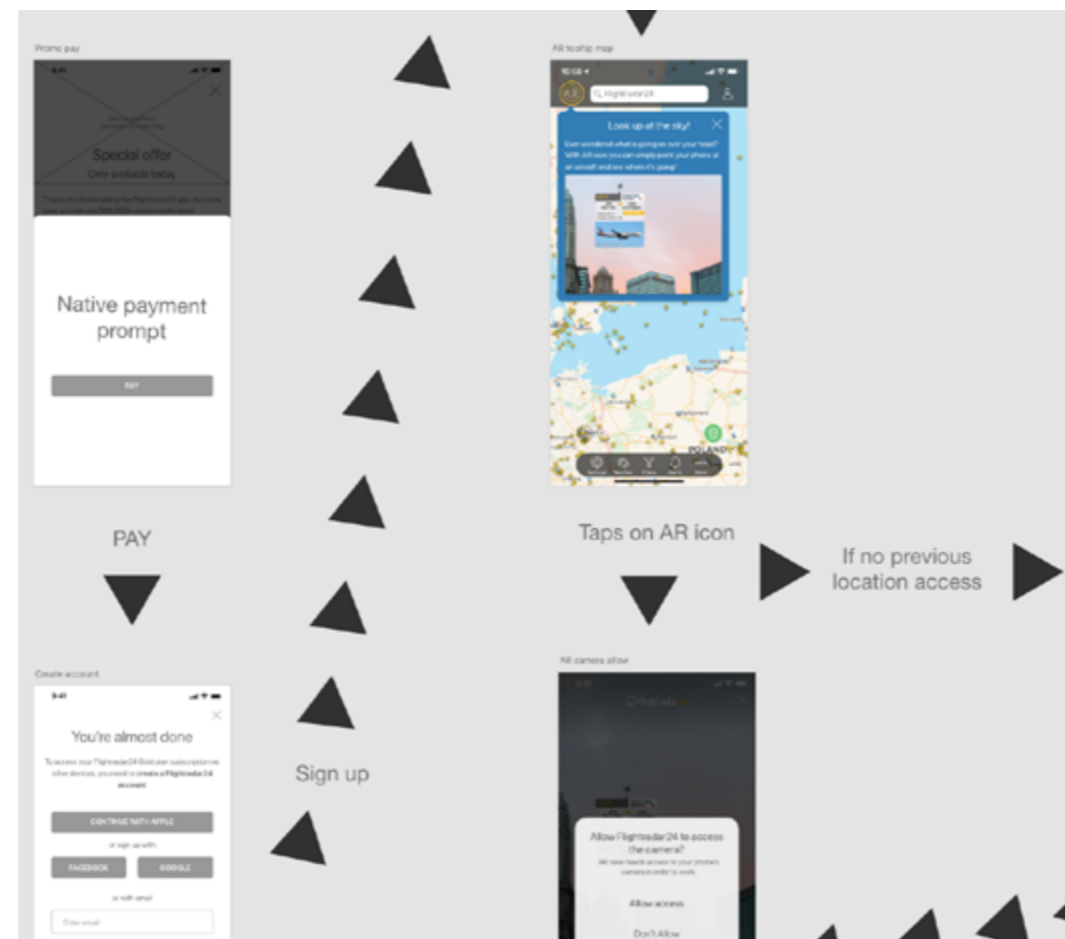
1.0_Analysis, Initial Flows and Wireframes



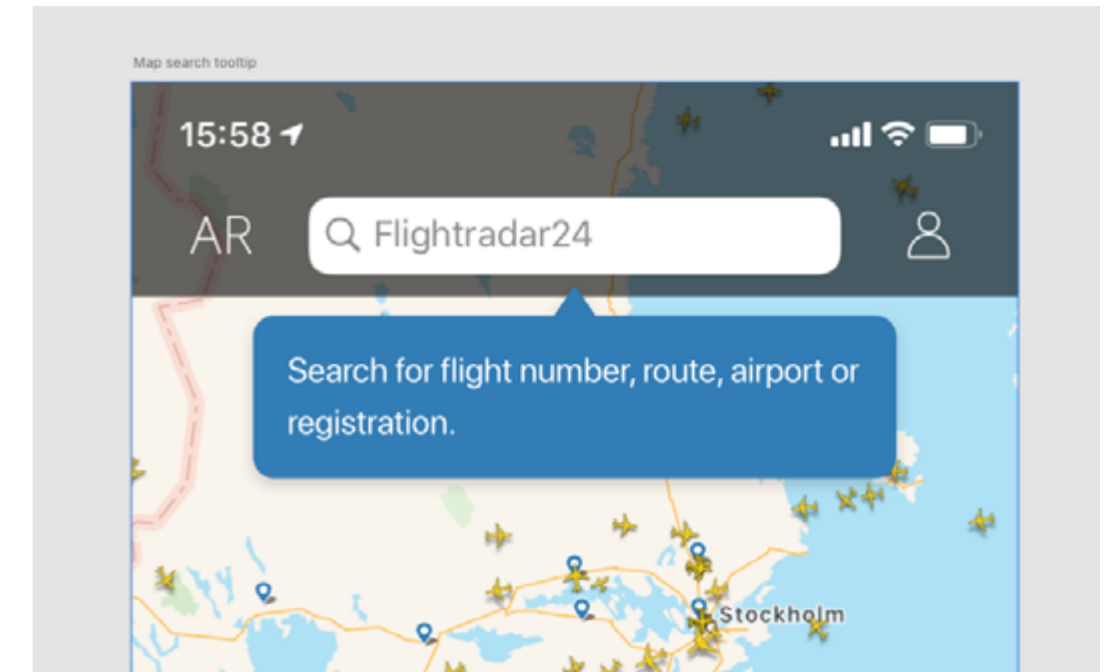
My main focus was on making the flow more interactive and less intrusive. Tooltips were the chosen element to use for the onboarding flow as they are a subtle element that grabs the user's attention and educates them without interrupting the overall app experience. We wanted to introduce two things for the user to reach the Aha! Moment: search and AR view. We would also offer a first time promotion with an extended free trial.



The first rough digital flow I created was a mix of wireframed screens and screenshots of parts of the app that would be affected by the onboarding.

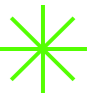


At this stage I already saw different variants and paths that users could follow depending on their interaction with the onboarding elements.

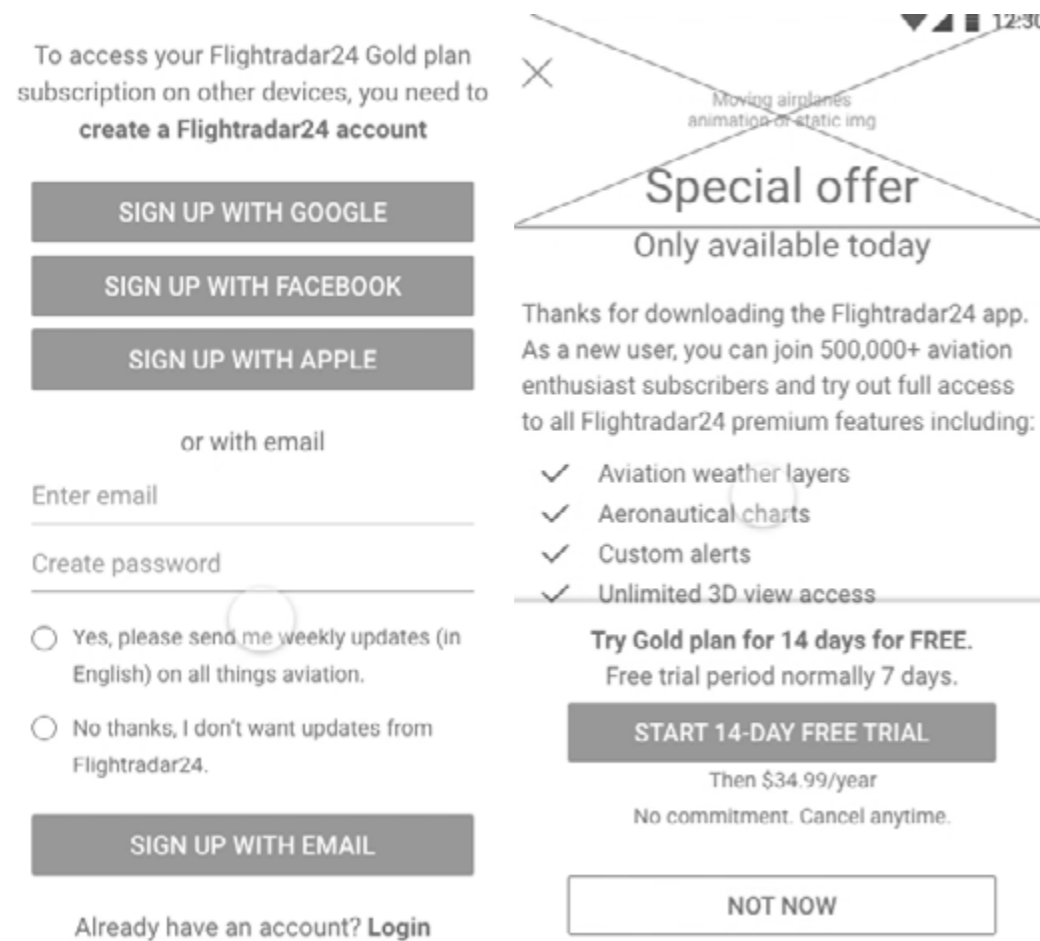


Tooltips were the chosen element to create the onboarding. They are subtle yet informative, and point the user to a specific direction without interrupting what they're doing.

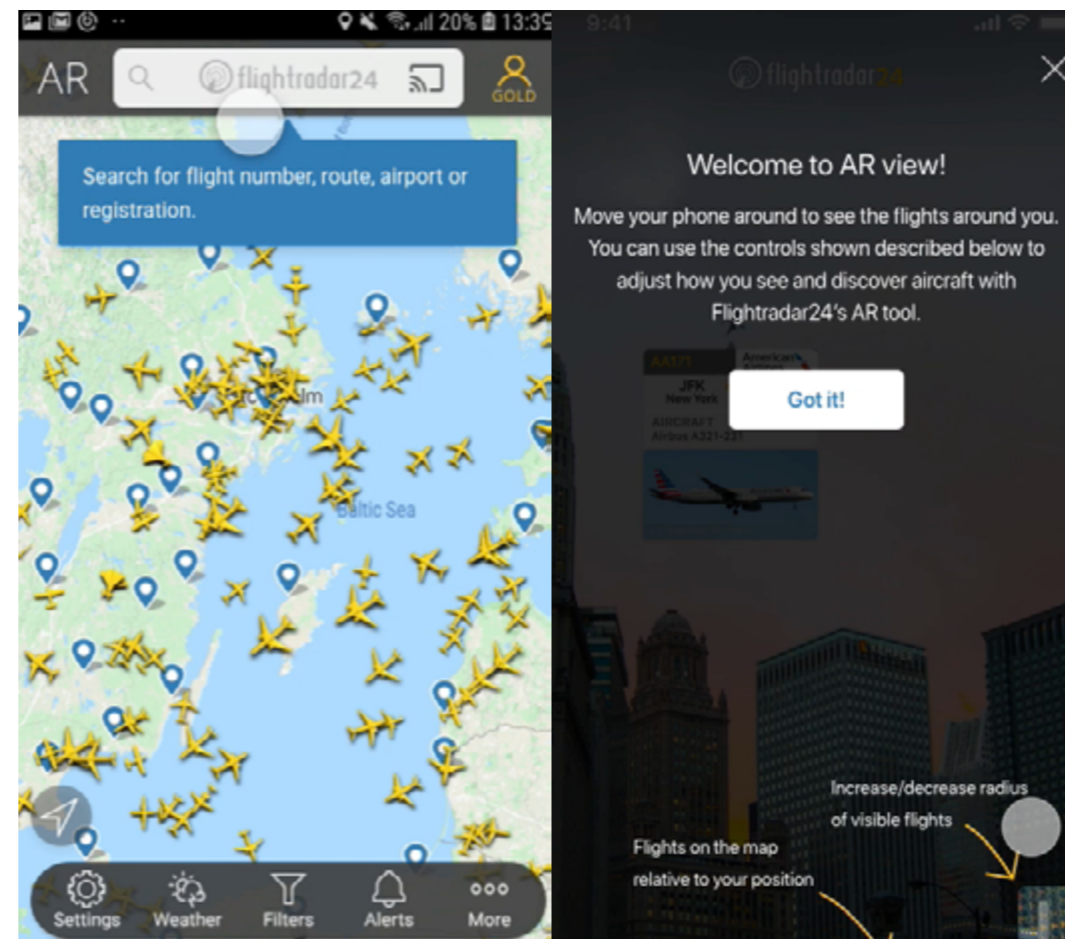
2.0_Initial Iterations



The best way I found to communicate my ideas to the people involved in the project was through prototyping. The prototypes were created based on the initial wireframes and had really basic linear interactions. They were really useful to show how a user would go from the initial screen right until the last tooltip interaction. Every time I shared a prototype I got useful feedback which led me to create an iteration.



The first prototypes I shared with stakeholders to show the proposed flows were a mix of wireframes and screenshots. The prototypes were created directly on Adobe XD with limited interactions and rough linear flows.

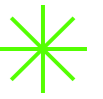


Some more refined designs were part of this stage especially on the things that were completely new to this onboarding such as the tooltips and some other layouts like the AR intro. Most of these elements' designs changed dramatically throughout the whole process.

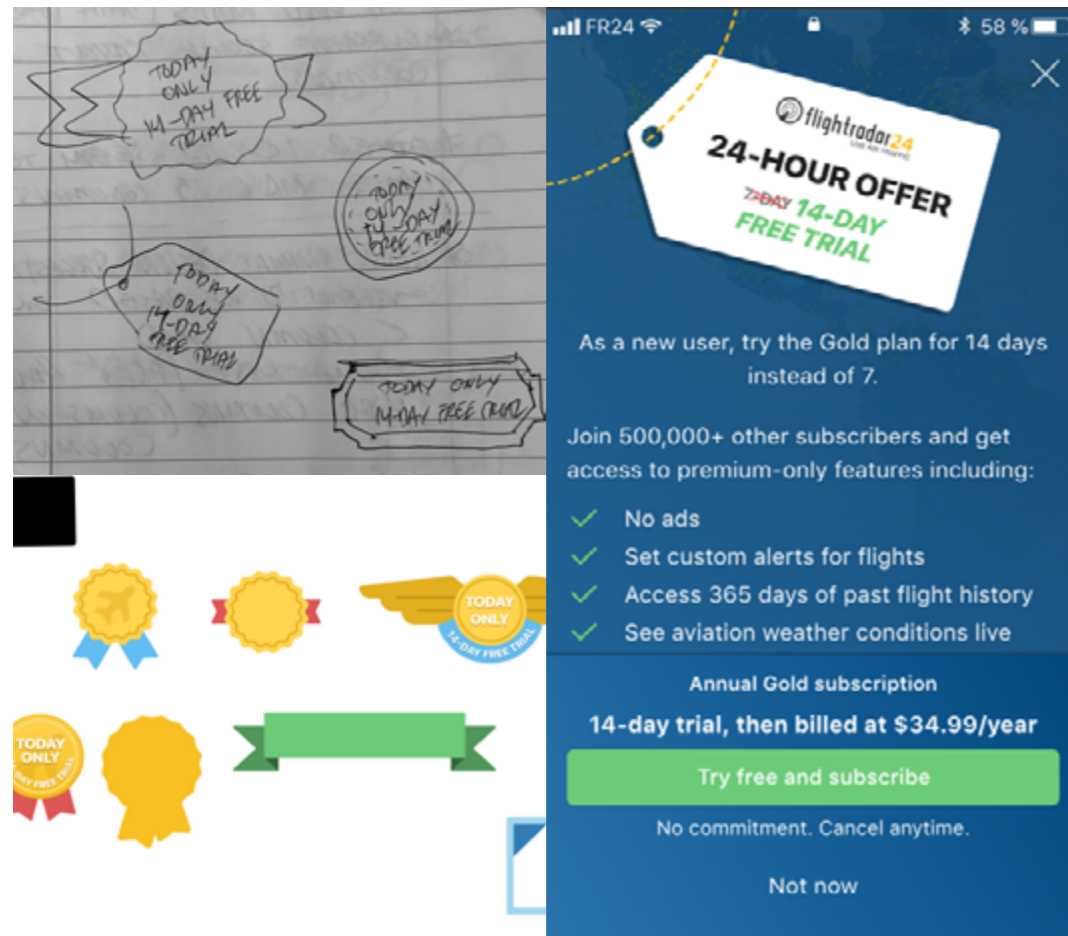
- Add X close icon to all tooltips
 - Explore more layouts for Create account screen to show multi-platform more clearly.
 - AR look up at the sky tooltip with animated GIF or looping video (see iOS dropdown)
- > iOS
- > Android
- 4th round of feedback iterations**
- Small design changes to font in iOS
 - Created Hi-Fi prototype and demo for Android
- > iOS
- > Android
- 3rd round of feedback iterations (hi-fi designs prototype)**
- Social proof in the promo screen
 - Newsletter options appear when choosing email sign-up method
 - Gradient being used in the background of tooltips and promo
 - Changed size of some elements (font and tooltips) to fit more information
- > iOS
- 2nd round of feedback iterations:**
- Android location services pre-native prompt popup. (We can't control what the native message contains)
 - Airport PIN interaction more hands-on
- > Android

For every round of feedback in the initial stage of the project I created a modified prototype that included the latest modifications for both Android and iOS. Differences between platforms were small but still required separate prototypes. All of this was documented in a Confluence page.

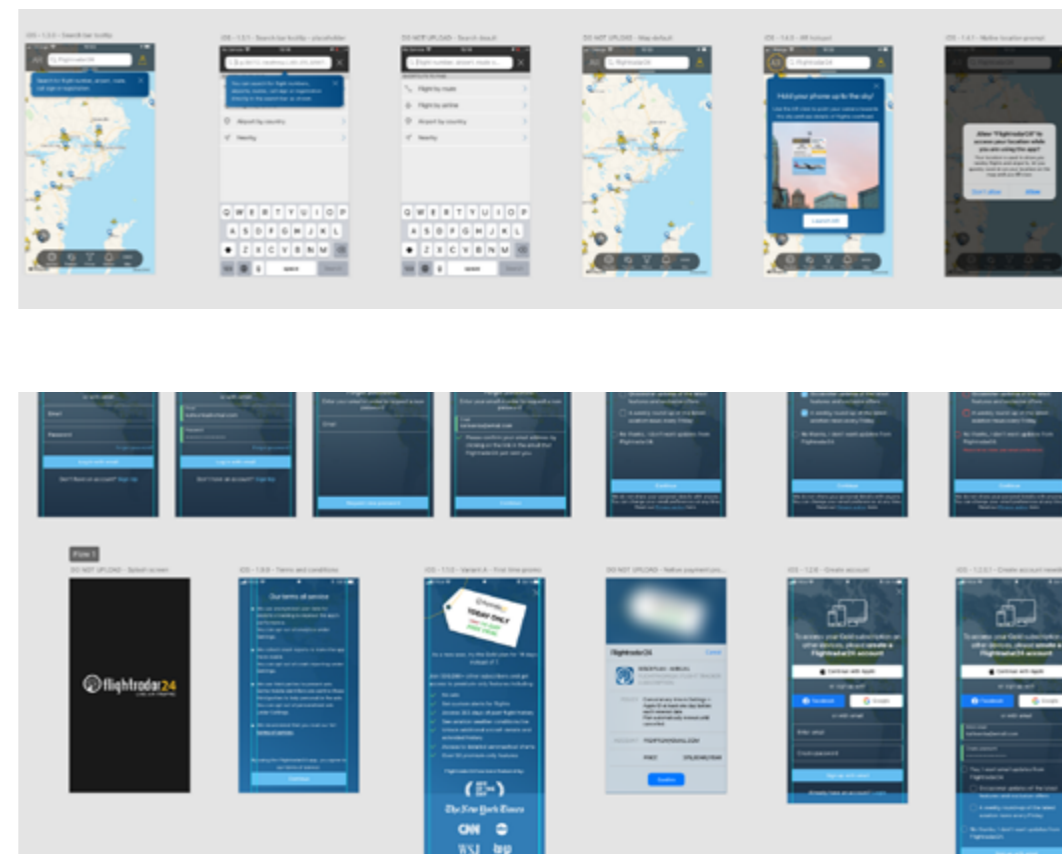
3.0_Designs



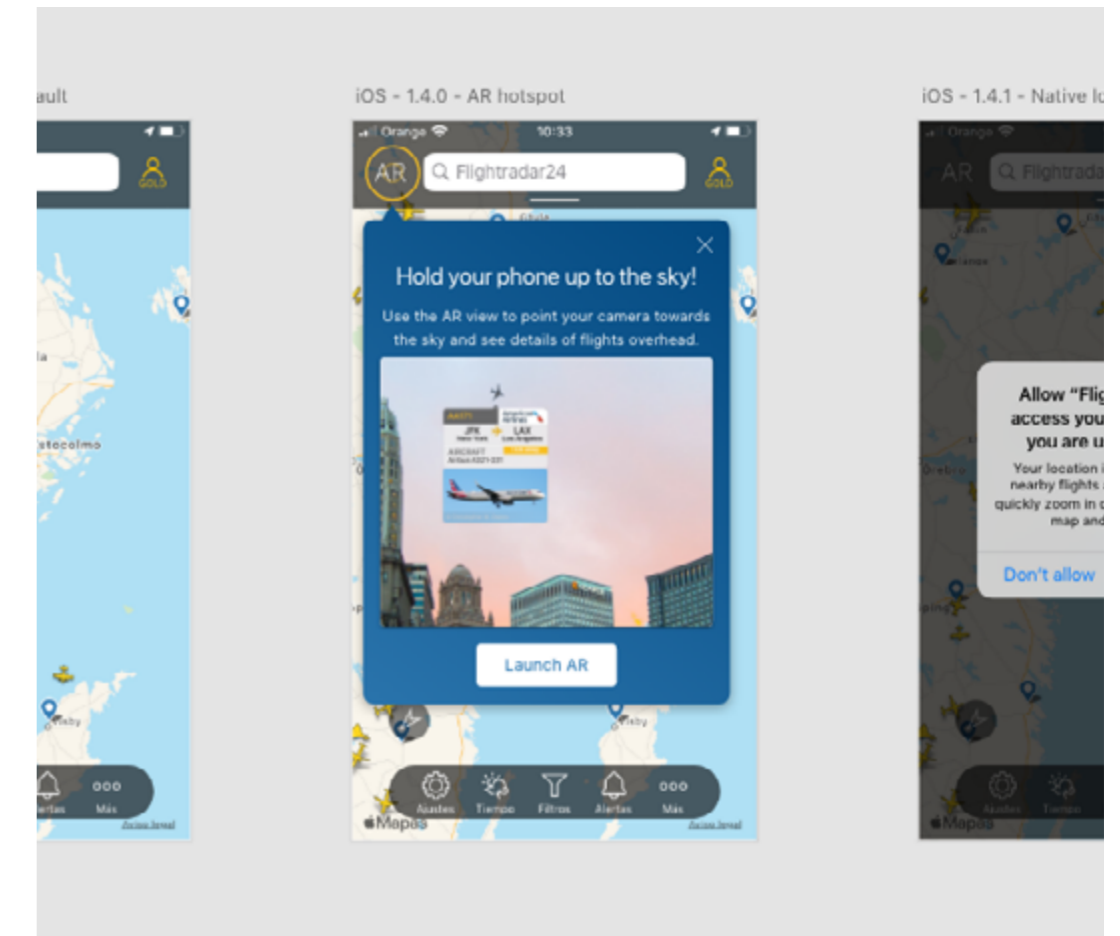
After many rounds of internal feedback it was time to leave the wireframe phase behind and start working on the final look of the onboarding elements. The main things affected would be the initial onboarding promo screen - which was a brand new addition to the app - and the tooltips. I also re-worked the sign-up and log-in screens and some other screens that were a bit outdated.



How certain elements from the onboarding flow evolved: the promo screen tag graphic started as a sketch on a piece of paper and went through a process of refinement until the final version was added to the promo screen.

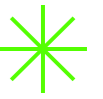


Adobe XD is our main design tool. I designed all onboarding screens before creating the prototype that we were going to test on real users.



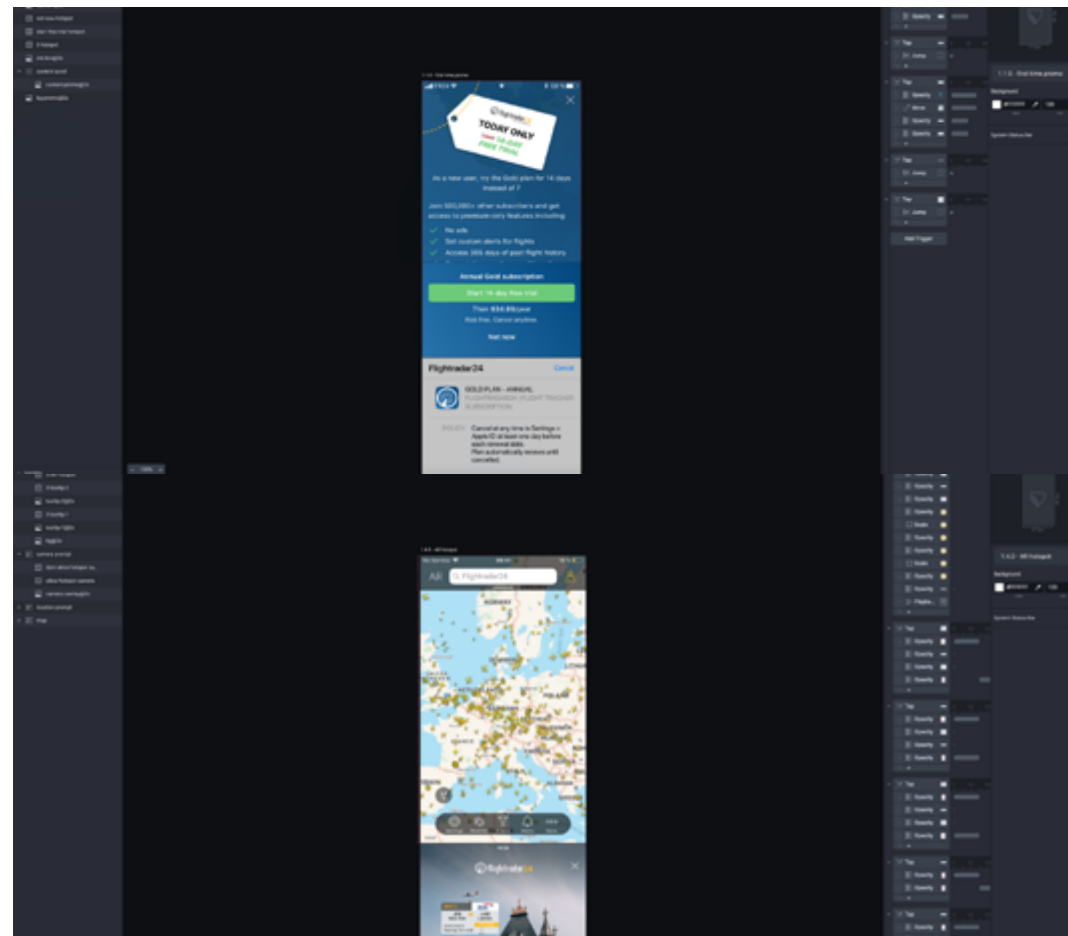
Tooltips were never used before as an element of onboarding in the apps. I tried to make them consistent but also easy to discard with an "X" icon. The AR tooltip was more prominent as this was the one feature we thought would create the Aha! Moment to the users.

4.0_Hi-Fi Prototype and User Testing

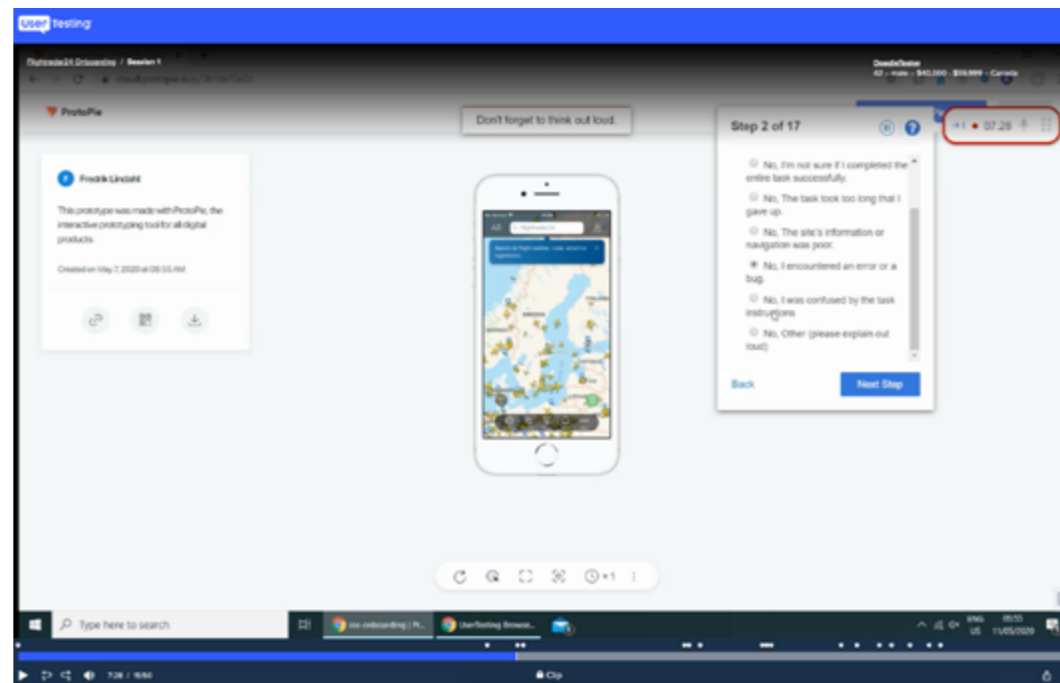


Having the designs ready and the flow defined (with the help of a product map) it was time to create a high fidelity prototype to test on users. The tool I used to create the prototype was Protopie. It is a powerful software that allowed me to add detailed interactions and animations. It is also very easy to share online.

We conducted the test using the UserTesting.com platform.



Protopie is our chosen software for creating high fidelity prototypes. It is very complete and allows us to create an almost real experience that helps in user testing and as a reference for developers.



The user testing sessions were set up in collaboration with the user acquisition department. Creating the questions and the flows for the users to follow was a key step in the process.

Summary of test and findings

- 3 participants tested the iOS prototype of the onboarding user userTesting.com (limitation of test having so few but we had 3 credits)
- Full video recordings taken of each session, with set tasks and follow-up questions around the onboarding experience.
- Details of testing and [here](#) This was added to the user testing console as an interactive task using the prototype.
- Users all found the tooltips simple and easy to understand and close ✓
- None found them intrusive ✓
- Sign-up process simple and no friction ✓
- Promotion page wording needs some work and will warrant regular testing of

What information would you like to see in the promotion screen that would encourage you to want to subscribe to the premium trial?

Some more details of what I would gain over someone who hasn't got the Gold. Maybe trial period would help.

I would like to see the remaining time of arrival, number of passengers

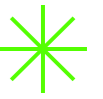
I think getting alerts on incoming/outgoing flights would be useful and would encourage me to subscribe to a premium trial.

Maybe for people who have little to no knowledge about plains they could click on each feature for a more in depth view of what that means.

I don't think there is any information missing and I don't see any ways in which it could be presented better.

The prototype was tested on various users and, based on the results, we came up with a number of conclusions. Analyzing the videos fully and the comments of the users is always a great experience. One of the best parts of testing with real users is to discover things you never thought of.

5.0_Refining and Event Tracking



The results of the tests showed us many things we had to change. Mainly related to the initial promo screen and the AR view tooltip experience. Many things were fixed by changing the words we were using or by giving more prominence to certain visual elements. While I worked on the feedback we got from the tests, the development team and the user acquisition team started working on the event tracking plan for the project.

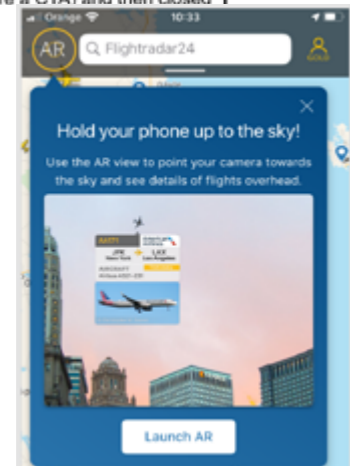
Tooltips

How clear was the AR tooltip? Did you feel like trying it out?

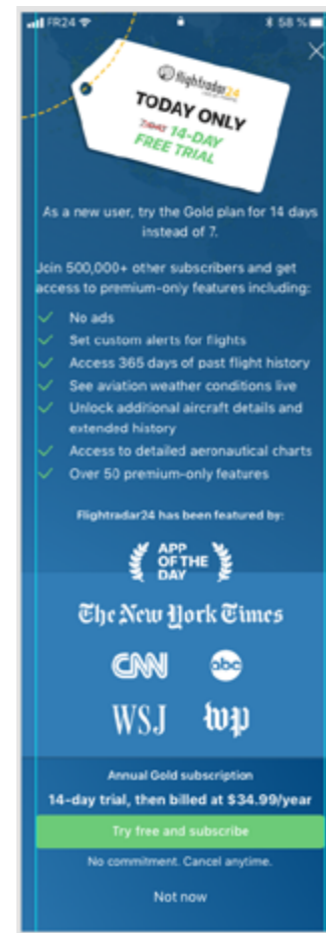
- AR was pretty good explanation because pictures illustrate what you would be doing I definitely think I would try it out.
- I didn't understand what AR meant in this context so I didn't feel encouraged to try it out.
- It was clear, yes I did



- One participant went to search and then the AR popup appeared and interrupted – maybe wait a little longer
- Participant guessed AR was augmented reality but wasn't sure how that connected to looking up at the sky to see the plane
- When the AR popup appeared he clicked on the plane on the AR popup (as though that were a CTA) and then closed



On the top image: some user comments regarding the tooltips. On the bottom: the iteration based on those comments of the AR tooltip. We changed the title wording, the body copy and made the elements clearer.



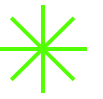
The (in)famous onboarding promo. One of the most changed screens of the whole project. I was not in favor of presenting this promo right from the start but in the end we decided it would increase sign-ups and conversion. We're measuring the results of this decision through data.

See sign-up flow page for screenshot creation events

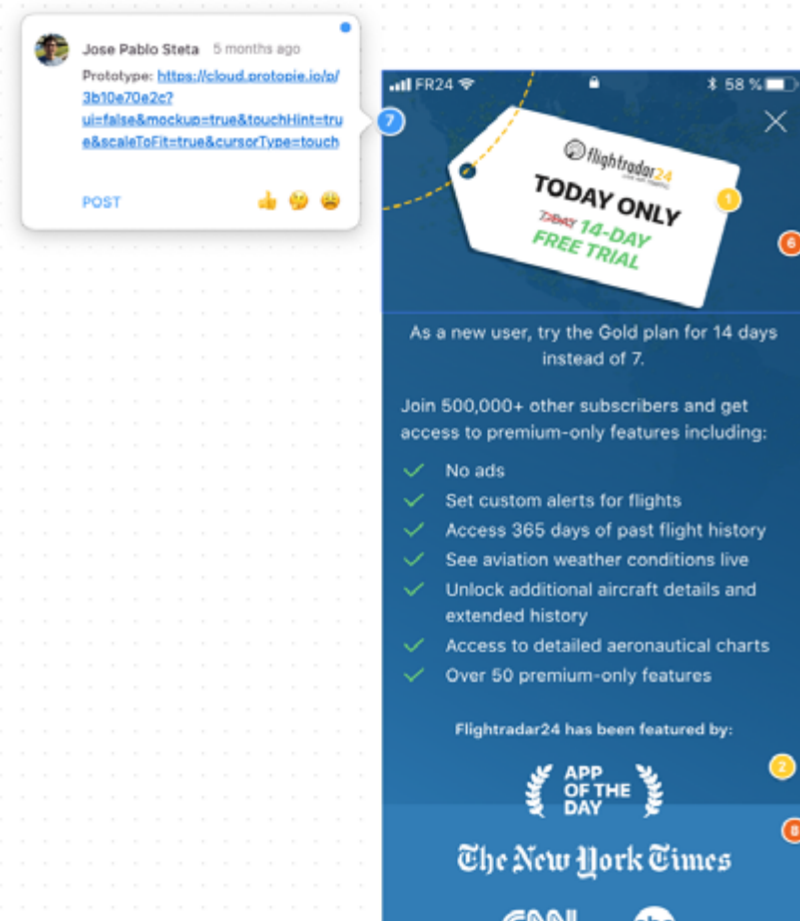
| Screen name | Onboarding intro | Onboarding promo popup | Total confirmation | Onboarding map | Onboarding search results | Onboarding AR view | Location permission notice | Camera permission notice | Onboarding AR view close |
|------------------|--|---|--|--|--|---|---|---|---|
| Actions | 1. User abandons app 2. User clicks continue | 1. User abandons app 2. User clicks "Not now" 3. User clicks "Launch" 4. User clicks "Not now" | 1. User abandons app 2. User clicks "Launch" 3. User clicks "Launch" | 1. User abandons app 2. User dismisses search 3. User clicks search bar | 1. User abandons app 2. User dismisses results 3. User clicks flight card | 1. User abandons app 2. User dismisses AR view 3. User clicks "Launch AR" 4. User clicks "Launch AR" | 1. User abandons app 2. User clicks "Deny" 3. User clicks "Allow AR" | 1. User abandons app 2. User clicks "Deny" 3. User clicks "Allow AR" | 1. User abandons app 2. User dismisses screen 3. User dismisses screen |
| View events | intro_popup | intro_popup intro_popup intro_popup | complete_purchase complete_purchase | intro_search intro_search complete_search | select_flight_to_view select_flight_to_view select_flight_to_view select_flight_to_view | select_ar select_ar | enable_location enable_location | enable_location enable_location | dismiss_popup dismiss_popup dismiss_popup |
| Event parameters | 1. 001: onboarding code 2. 001: onboarding code 3. app version 4. launch name | 1. 001: onboarding code 2. 001: onboarding code 3. app version 4. launch name | 1. 001: onboarding code 2. 001: onboarding code 3. currency 4. app version 5. app version 6. Experiment | 1. 001: onboarding code 2. 001: onboarding code 3. app version 4. context: search_bar | 1. 001: onboarding code 2. 001: onboarding code 3. app version 4. context: search_bar | 1. 001: onboarding code 2. 001: onboarding code 3. app version 4. context: AR view | 1. 001: onboarding code 2. 001: onboarding code 3. app version 4. context: AR view | 1. 001: onboarding code 2. 001: onboarding code 3. app version 4. context: AR view | 1. 001: onboarding code 2. 001: onboarding code 3. app version 4. context: AR view |

Tracking events throughout the onboarding flow was crucial for both the user acquisition team and the product team. This list was created for the developers to see which events we wanted to track in each screen.

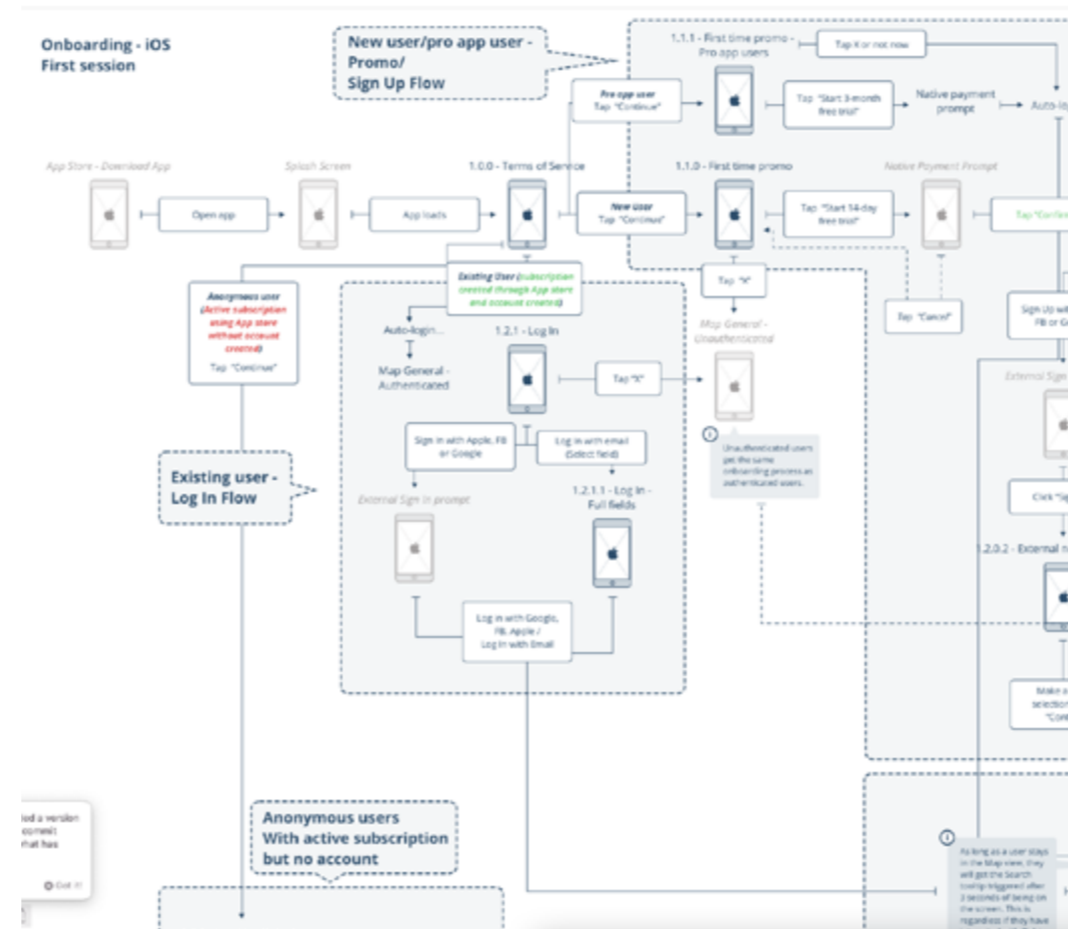
6.0_Hand-off



When we were satisfied with the designs and applied all the feedback we got from the user tests, it was time to hand the project over to developers. We had the full app team working on the project (3 iOS and 3 Android devs). The main hand-over tools we used were Zeplin and Confluence. I made sure that the developers found all the relevant complimentary elements from each screen linked directly to the Zeplin designs, including links to the prototypes and the animations.



Zeplin is our preferred hand-off tool for developers. It is clear, easy to use and has great compatibility with XD. I use comment bubbles of different colors to link to different things on the designs such as animations, prototypes and specs.



The product map was something developers were very happy about. This was a clear way for them to see how the onboarding experience would be like. It accounted for all possible scenarios and was adapted to the small changes between iOS and Android.



Zeplin Designs

Android: <https://app.zeplin.io/project/5e7c94634af623857825ac98/dashboard?seid=5ea95e297b8f7726d33bd96c>

iOS: <https://app.zeplin.io/project/5e7c94634af623857825ac98/dashboard?seid=5ea2dfce829c95abd602efb6>

Mockups & Demos

Prototypes (always updated, feel free to comment directly):

iOS (complete set of interactions for user testing): <https://cloud.protopie.io/p/3b10e70e2c>

Android (reduced to main onboarding flow interactions): <https://xd.adobe.com/view/e3568982-9245-478c-6c09-4d8e04f82b10-9567/>

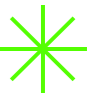
Suggested animations for AR tooltip and the tap indicator

AR iOS

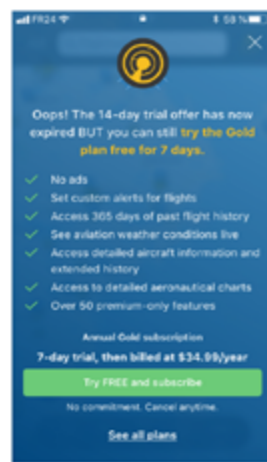


All of the documentation of the project was kept in a Confluence page that had links to all the important elements. Developers could also come here to download the relevant animations for the AR tooltip and for the touch hint.

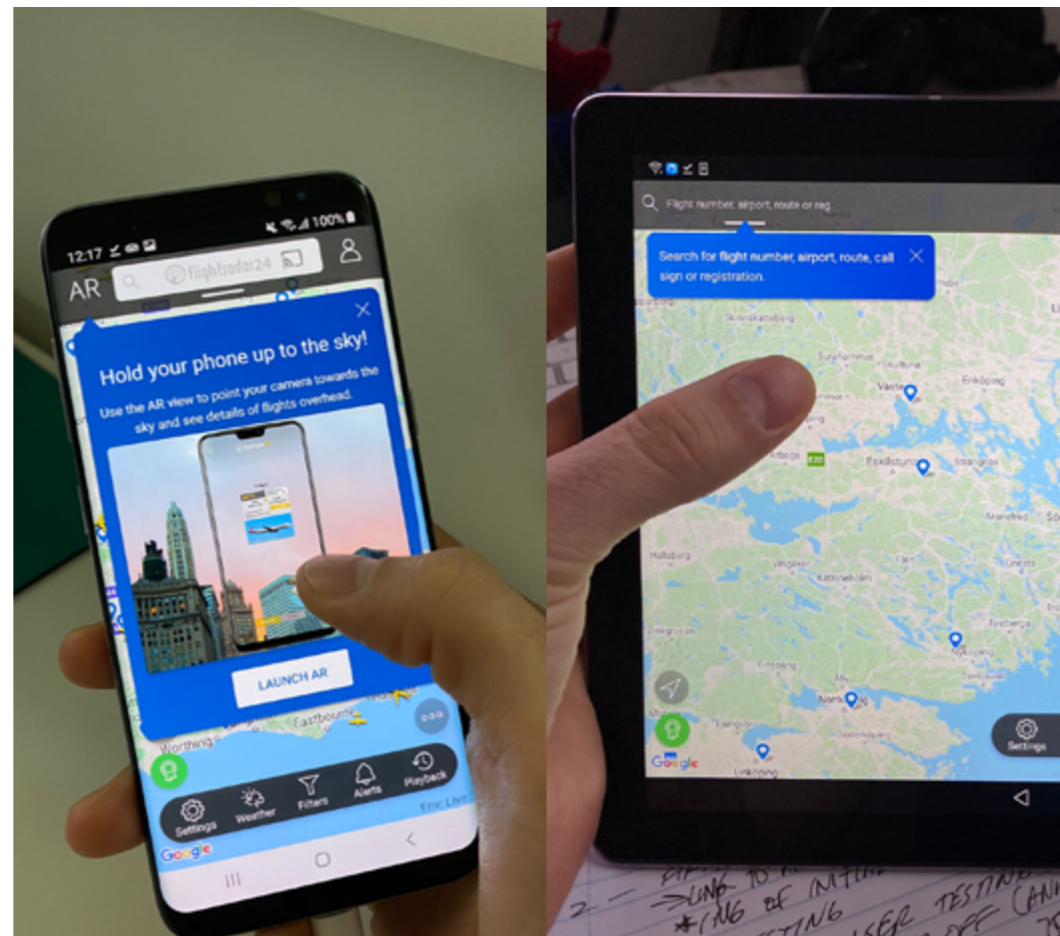
7.0_Release and Future Steps



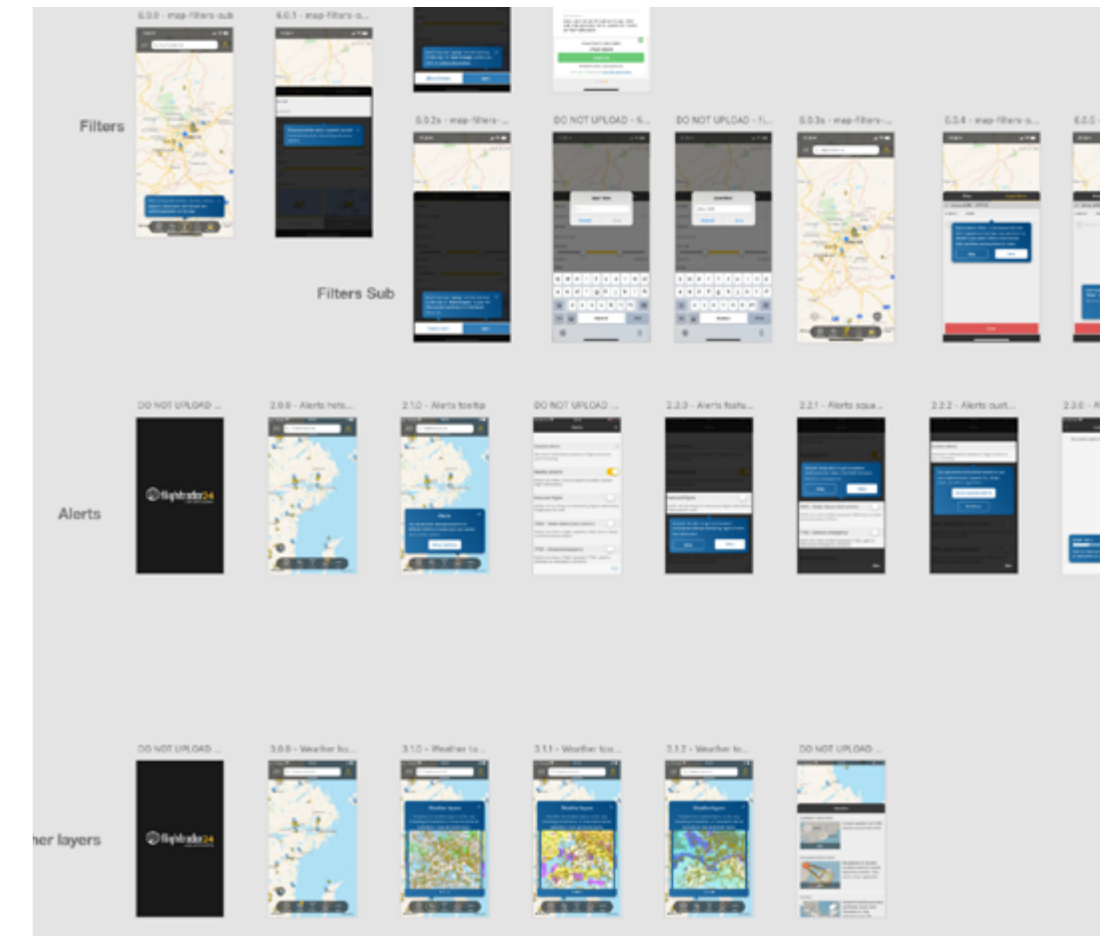
Development took around one month to be completed. Both platforms worked on parallel but Android was quicker to be released. After a gradual release to some users the apps were released to App Store and Google Play. It was time to see how this new onboarding would perform. The next step was to introduce secondary elements such as an “offer expired” screen and variations of the promo screen to A/B test.



After the release of the first onboarding iteration we still had some work to do. We wanted to test different variations of the onboarding promo screens. We also introduced a screen to let users know that the promo had expired but still informed them about the subscription benefits.



It is always a great satisfaction to see a project of this importance come to life. Visually and functionally we achieved something outstanding. There's still room for improvement and we'll let the data guide us. For now, we are already seeing better numbers.



Next steps include introducing more tooltips for different parts of the app, measuring the existing onboarding experience and making necessary modifications to make it even better.