

Deliverable 3

1. Prototype creation

1.1. Scenarios covered by the prototype

For testing our prototype, we have chosen scenario 2, 3 and 4 presented in deliverable 2. Also, as we created a tutorial for making the use of our application easier, we incorporated this feature in one of the usability tests as well. After running two tests on our prototype, we decided to make some changes in its functionality. The first two tests were run on the first prototype, while the third one on the updated version.

Usability tests:

- The first usability test was run for a user who already had an account and logged in to our application. He wanted to know more about recycling, without checking the map, and he read some information about recycling paper. → Scenarios 2 and 3
- The second usability test was run, as well, by someone who has an account. The user knew how to recycle paper and wanted to find a company for dropping out the recyclables and gaining points. → Scenario 4
- The third usability test was mainly trying to test how the user interacts with the tutorial. Also, we retested on the updated version how it would be for someone to recycle paper (check for the steps) and to drop those recyclables on a container (interaction with the map). → Scenario 2

1.2. Interactive prototype

First version: <https://www.figma.com/proto/LN2iDR1OCh753zGbQGue09/R-ECO?node-id=9%3A64&scaling=scale-down&page-id=0%3A1&starting-point-node-id=9%3A64>

Documentation:

The first version incorporates the issues stated in the scenario. Therefore, the user could login or sign up (and follow a tutorial) and then use the features provided by our recycling application. The first screen would be the one with materials. After the user selects a specific material, a screen with two buttons appears (information and map). The first button will show him the steps for recycling and 2 more links for more information on that material. The second one will take him directly to the map.

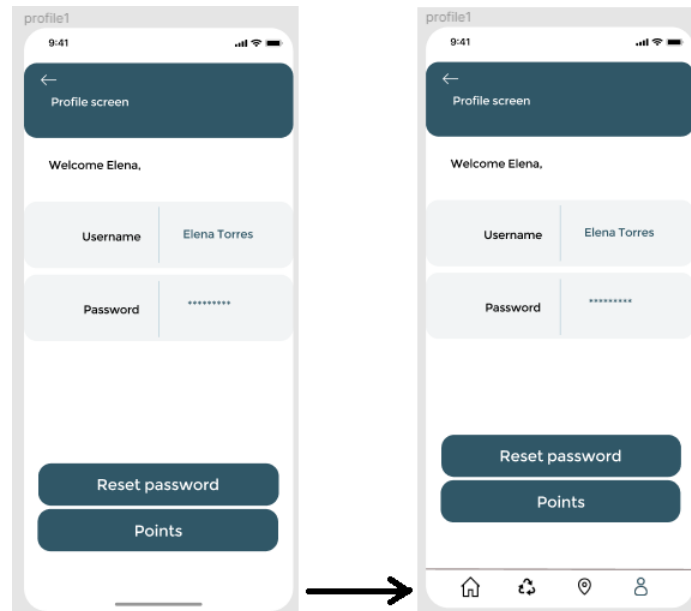
For the map we used different filters for finding containers or companies where you can drop the recyclables.

Updated version: <https://www.figma.com/proto/04KMI7fCW61wouCuYoTnSS/R-ECO-Updated?node-id=9%3A64&scaling=scale-down&page-id=0%3A1&starting-point-node-id=9%3A64&show-proto-sidebar=1>

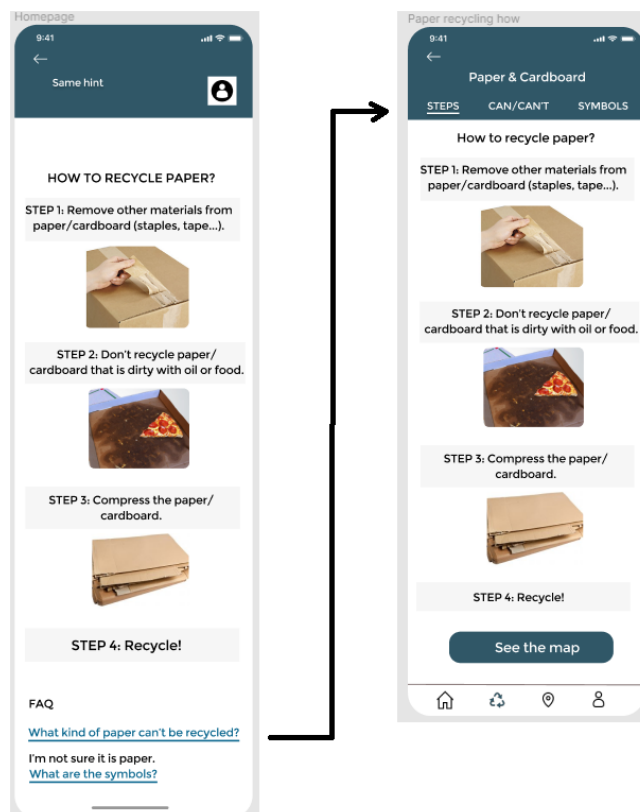
Documentation:

The need for an updated version came mostly because it was hard to find your way back to the main menu and the user could not know exactly where he found himself in the application. Therefore, we added a sticky navigation on the bottom of the application for homepage,

recycling process, map and account. Because the homepage is not taking part in the current usability tests, it is not yet developed for this iteration.



The second thing that was updated was for the information about recycling. In the first version, users should navigate through all the steps about recycling a material and then find two more links at the end of the page. Now, he can navigate through 3 tabs to get the needed information.



We also updated the tutorial. We provided more images and we made changes according to our new design.



2. Evaluation

2.1. Usability test 1 (Francisco)

Goal of evaluation

The aim of this usability test was to put into practice the situations described in scenarios 2 and 3 of deliverable 2, which consisted of evaluating the user's experience when trying to find out about "how to recycle" and "which materials can and cannot be recycled" and how the user perceives the information in the application for the first time, drawing conclusions from the user's reaction and leading to possible future improvements for the application.

Test setup

After making the prototype of the R-ECO application using the Figma tool, we had to make a configuration for the usability test with certain characteristics so that the information transmitted by the user would be useful for carrying out research work to find areas for improvement in the field of user usability with the application, adapting the design of the application to the user's experience and creating a familiar environment in which the user feels comfortable.

Thus, the test setup was carried out as follows:

A random person was chosen by the residence who had no knowledge of the project idea or its subject matter, and a mobile phone with the application loaded on it (via a link to run the application on the mobile phone) was handed over, and the user was expected to interact and find the area that showed how to recycle and what materials could be recycled.

Test execution

The user succeeded in getting through the screens quite fast. The first parts of the application (login and first menu) were simple to manage. When the user arrived to the information screen, there was a tendency to click on the images due to bad details design. He managed to see all the information about recycling (including the symbols and the screen with "not allowed" recyclables).

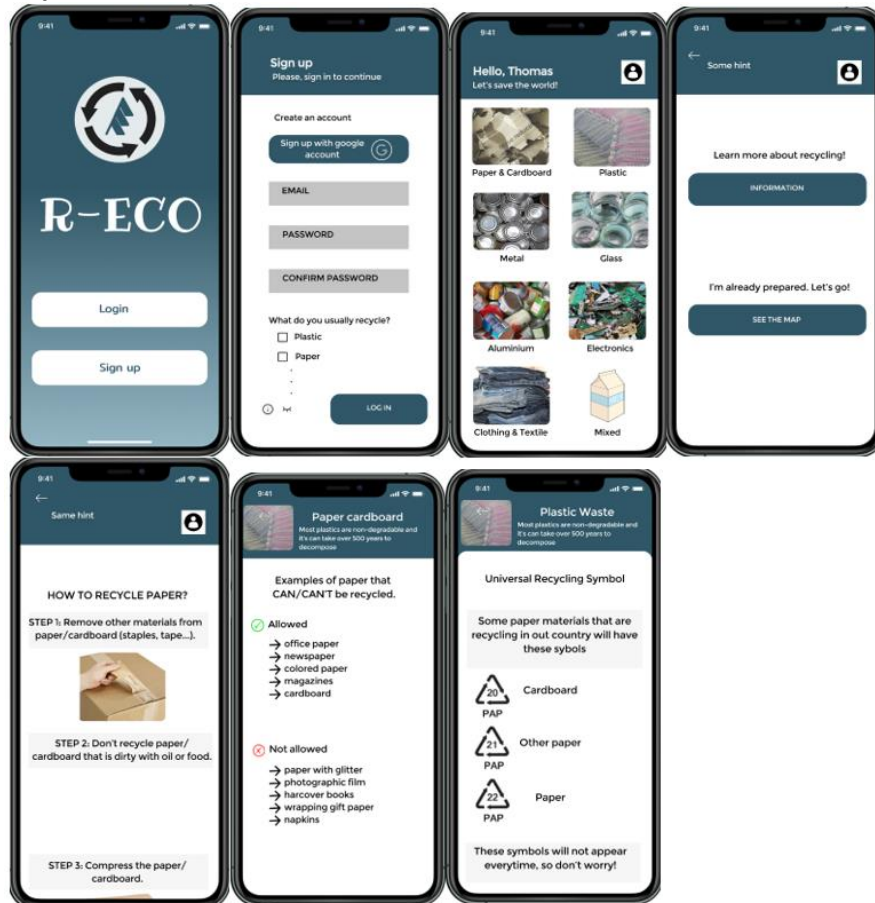
Findings and recommendation

In the video you can see how the user interacts with the application for the first time, and we can see that it takes 40 seconds to perceive and find the sections on how to recycle and what materials can be recycled, it is an acceptable time, as the user has no knowledge of the application and has to read/play with the elements of the application.

In the video you can see how the user tries to go back but the button does not work properly, it could be that the connection was slow at that moment, or that the user did not press the button properly, in any case it could be an interesting proposal to increase the size of the button.

The user's proposal for improvement consisted of making some improvements to the icons and typography (improvements that we will take into account for a future version of the application).

Sequence tested:



2.2. Usability test 2 (Clement)

Goal of evaluation

The goal of this evaluation is to verify the usability of the map, and whether or not it's easy to make a choice with all the map options

Test setup

I asked the people if they could help me with a school project. I explained them that I was working on a prototype for a recycling app with 2 other people, and that we wanted to check if everything in the app was easy to understand for someone who had never used the app. Then I told them that they didn't have to participate if they didn't want to. I told them that if they did it, I would give them a scenario that they should try to follow while navigating in the prototype.

For the first test, I gave him the following scenario: "You are already a user of the app. So, you want to log into the app, not register. Then you want to learn how to recycle paper and to find the closest company where you can bring your paper waste. And then you want to collect your points for bringing your waste".

For the second test I added some explanations, and I explained a bit more precisely the concept of the app. I said that we created an app that aims at learning people how to properly recycle their waste, and

that they can also find the facilities of some partner companies on the map. They can bring their waste and get points in exchange. I did not say this the first time.

I also changed the scenario a little: "You are already a user of the app. So, you want to log in the app, not register. Then you want to learn how to recycle paper and to find the closest company, not a public container, where you can bring your paper waste. Then you go there, and ask an employee to give you your code, and then you enter this code in the app to get your points."

Test execution

In both cases, I asked them if I could film. They both said yes, so I ran the Figma prototype on my laptop, and I filmed them using it with my phone.

For the first one, the video is cut in 2 parts, because after successfully running the beginning of the scenario, once the person chose its destination on the map, he stopped there thinking that it was the end of the scenario. So, I had to explain him the part with the points with more details. Then, we ran the scenario again.

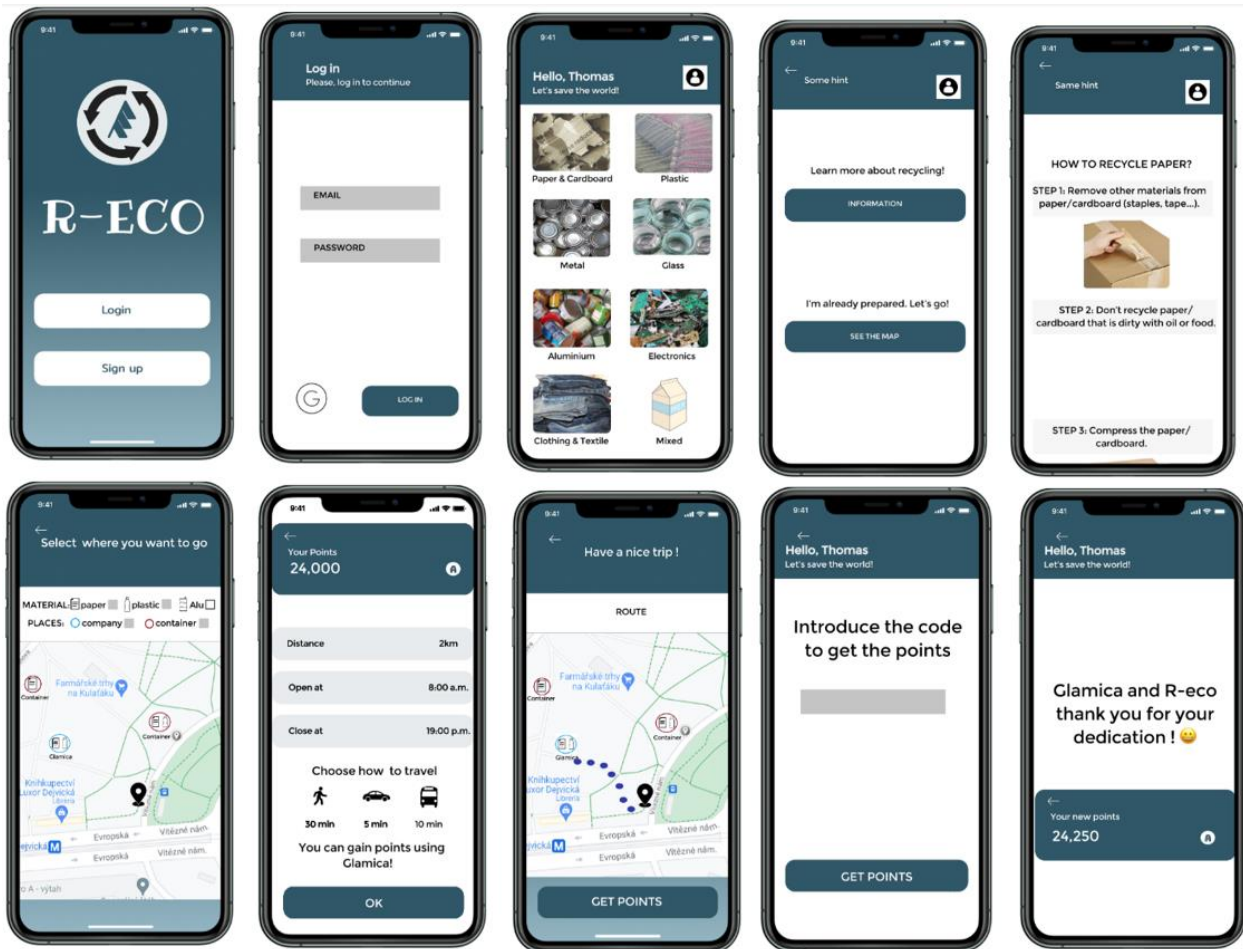
For the second one, he ran the scenario in its entirety in one go, but when he was facing the map, he had some troubles understanding what to do. I had to give him a little help. Afterwards, he told me that the logo we chose to indicate where the person is on the map is confusing, and he thought it was the destination, not where he was. He understood the meaning of the other logos, but he had trouble distinguishing the one he needed to click on. And I felt the distinction between a company facility and a public container was not that clear.

Findings and recommendations

From the first test, it appears that some more information about the map was needed, and it was added before the second test. We added a legend on the map, explaining what the colors and the shapes on the map meant.

After running the second test, I think we need to explain the aim of the app. Someone discovering the app does not understand what it's meant for. We also need to change the logo of where we are on the map.

Sequence tested:



2.3. Usability test (Andreia)

Goal of evaluation

The goal of this evaluation is to test a part of the second scenario presented in deliverable 2. The user should be able to pass through the tutorial and sign up successfully. Afterwards, she should try to read the steps for recycling paper and then go to a container to drop the recyclables.

Test setup

My user was beforehand very interested in recycling, and it was easier to engage her in using my prototype. I explained the main ideas of the scenario but not adding too many details in order to see if the tutorial is self-explanatory. The functioning of the buttons was explained briefly, mainly because some intuitive features found in usual apps (such as sliding) were not put together for this lo-fi prototyping.

Test execution

I let my user interact with the application while I was paying attention on her gestures and intuition. I didn't take notes at that moment, but only afterwards.

From what I've seen in the beginning, there was a tendency to press on the images from the tutorials (the ones showing the icons for the navigation). That was simply because some more designing details (such as shadows) should be added into a future prototype. The user found it easy to press on the recycling icon to access the materials screen. Paper was the first option, so it was not hard to find. After reading the steps, the user pressed on "see the map" button. As the filters were already selected, it was not that intuitive to understand the map and the "popping up" of places. A bit more time was needed to understand the places which were on the map but finding the container and visualizing the route worked smoother.

When the user finished her scenario and kindly asked for feedback.

Findings and recommendations

- The user found it easy and intuitive to use the application after checking the tutorial.
- The user tended to press on the images from the tutorial, so we should make a change of design in some image's details.
- The map was somehow complicated; the filters should have a more recognizable place on the screen. A change of symbols for places and companies will be required for making the two concepts more differentiable.
- The user found it easy to follow the information since there were images and little writing.

Sequence tested:

