2020/2021

Final Design Report

Usability & User Experience design project

TPER APPLICATION

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NEXT →

Final Design

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Introduction

This report is the result of a user experience design project conducted for Tper (Emilia-Romagna Passenger Transport), the main public company overseeing public transportation in the Metropolitan City of Bologna, in the province of Ferrara and in parts of the provinces of Modena and Ravenna, Italy. The goal of this project is to simplify the life of modern-day individuals in accomplishing well identified and useful goals by radically simplifying some tasks they need to complete in order to reach them.

Accordingly, we decided to focus on the tasks that are the core of the proposed application, whose elements and analysis you can find attached on the main management report of the project. We did not implement all the possible paths that a user might want to explore for them being just a graphical impression of the final application. We decided to implement the tasks that better represent the final goal of the general user, which is finding information about prices, bus lines and stops; and consequentially planning a route. Therefore, this documentation takes into consideration only the main features implemented in the wireframes and does not consider other ancillary tasks. However, the behavior of this less complex and satellite tasks would reuse all the usability features used for the main pages of the application interface.

Therefore, this final design report covers all the graphical references used in the project, which include blueprint, wireframes, mockups, and prototypes. Mockups and prototypes have been designed using Figma, a web-based graphics editing and user interface design app. This tool provided us a collaborative platform for creating fascinating web designs in a fast and cost-effective way, which allowed us to constantly re-design and update interfaces according to user tests and research results.

Blueprints

Blueprints are very useful instruments that allow us to understand which components make up our application and how they are organized. We decided to start from the graphical representation of the entities that characterize our scenario and the relations among them, providing a more articulated relational context to the content of our application. This entity-relationship model follows a top-down approach, and it uses natural language to name its elements.

Interfaces are represented by big rectangles, which graphically differ from one another for their intrinsic meaning. This is a symbolic representation that helps us to express abstract concepts and relationships easily, using minimal words from natural language. It provides a point of focus for attacking the unknown in a specific area and it establishes the vision to which the project is directed, restricting the attention on specific points of interest. Items have different levels of specificity and may act like containers of other entities.

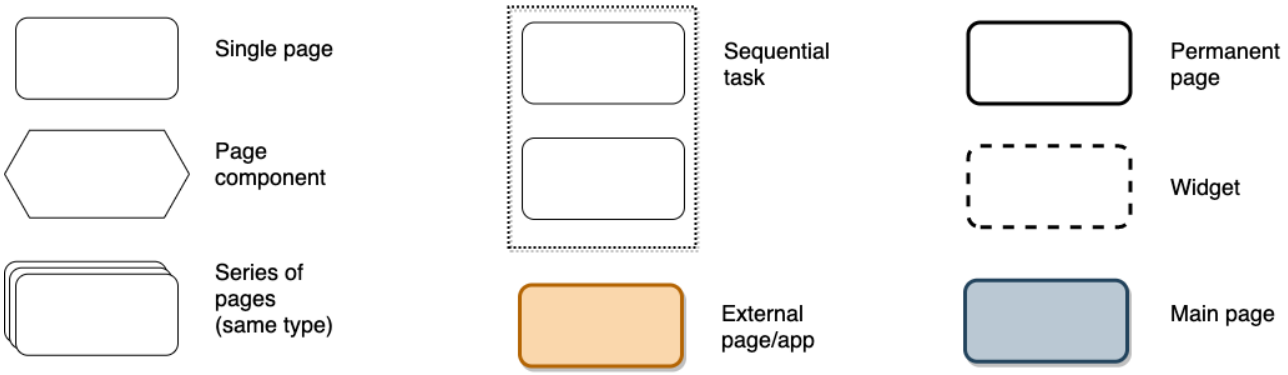

Figure 1 – Entities' legend

Relationships are identified by different types of arrows and links. Different colors also help the identification of sequential and generative patterns.

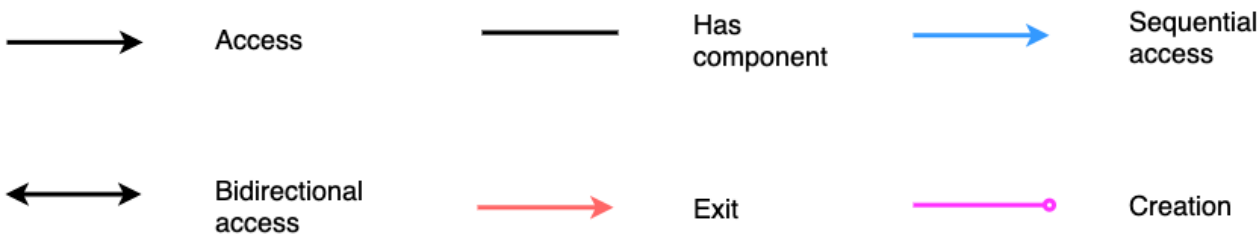

Figure 2 - Relationship's legend

The final blueprint shows the clear internal structure of the application, which spreads like a tree starting from the home page. There is one preliminary path, with its internal ramifications, which allows the access to the home page, and seven other alternative paths, which are directly reachable from the same page. The homepage is reachable at any given moment or position. The subscription page and the news page are not implemented in the prototype and are here displayed for the sake of completeness. For this reason, they are here represented as leaf nodes of this graphical tree-like structure. On the contrary, all the other paths are somehow interconnected and allow a more interactive exploration of the contents of the application.

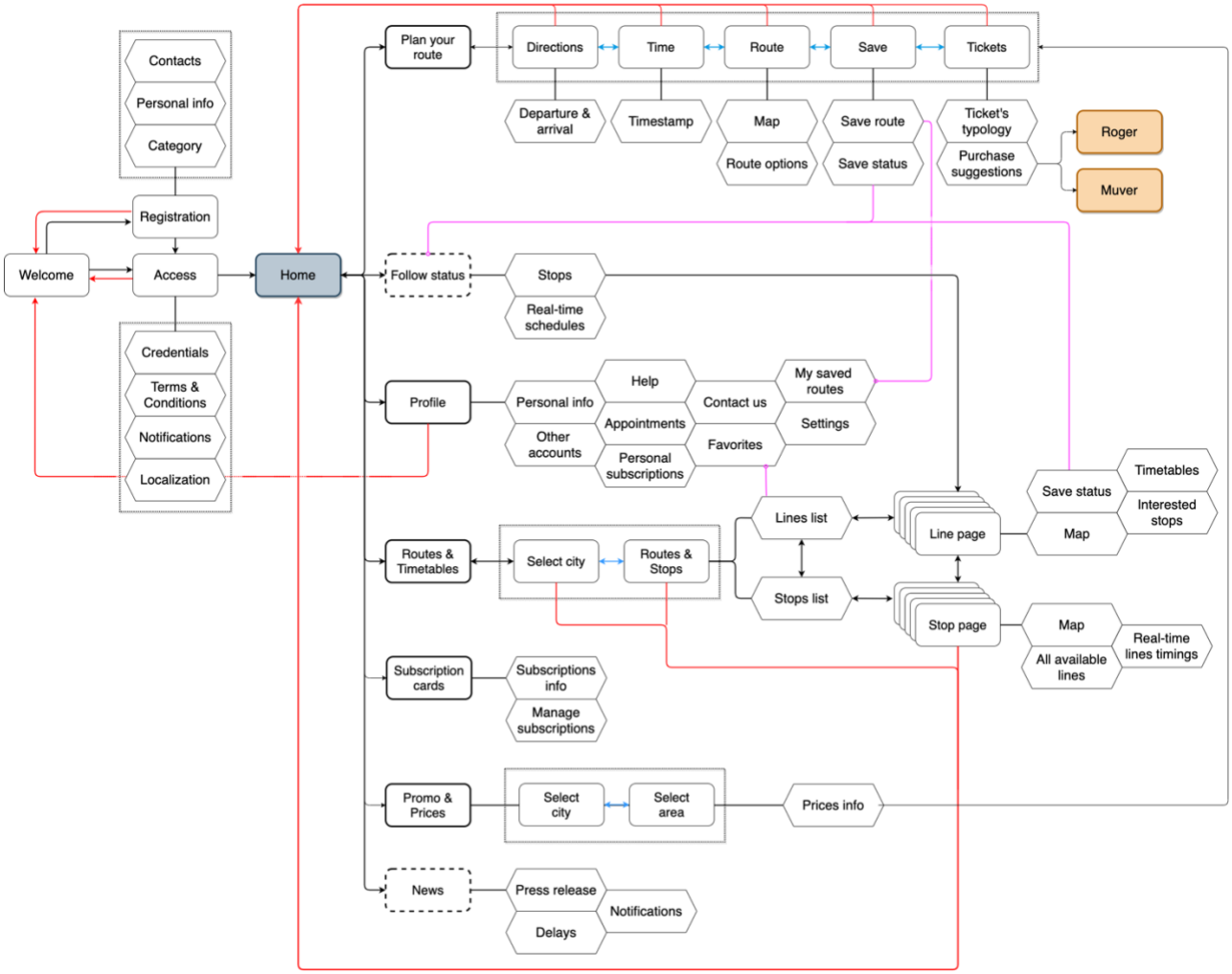

Figure 3 - Blueprint

We tried to respect as much as possible the blueprint schema when creating the prototype. As you can see from the following picture, the prototype interaction's view matches almost perfectly the structure of the blueprint, with the exception of the abovementioned news and subscription sections.

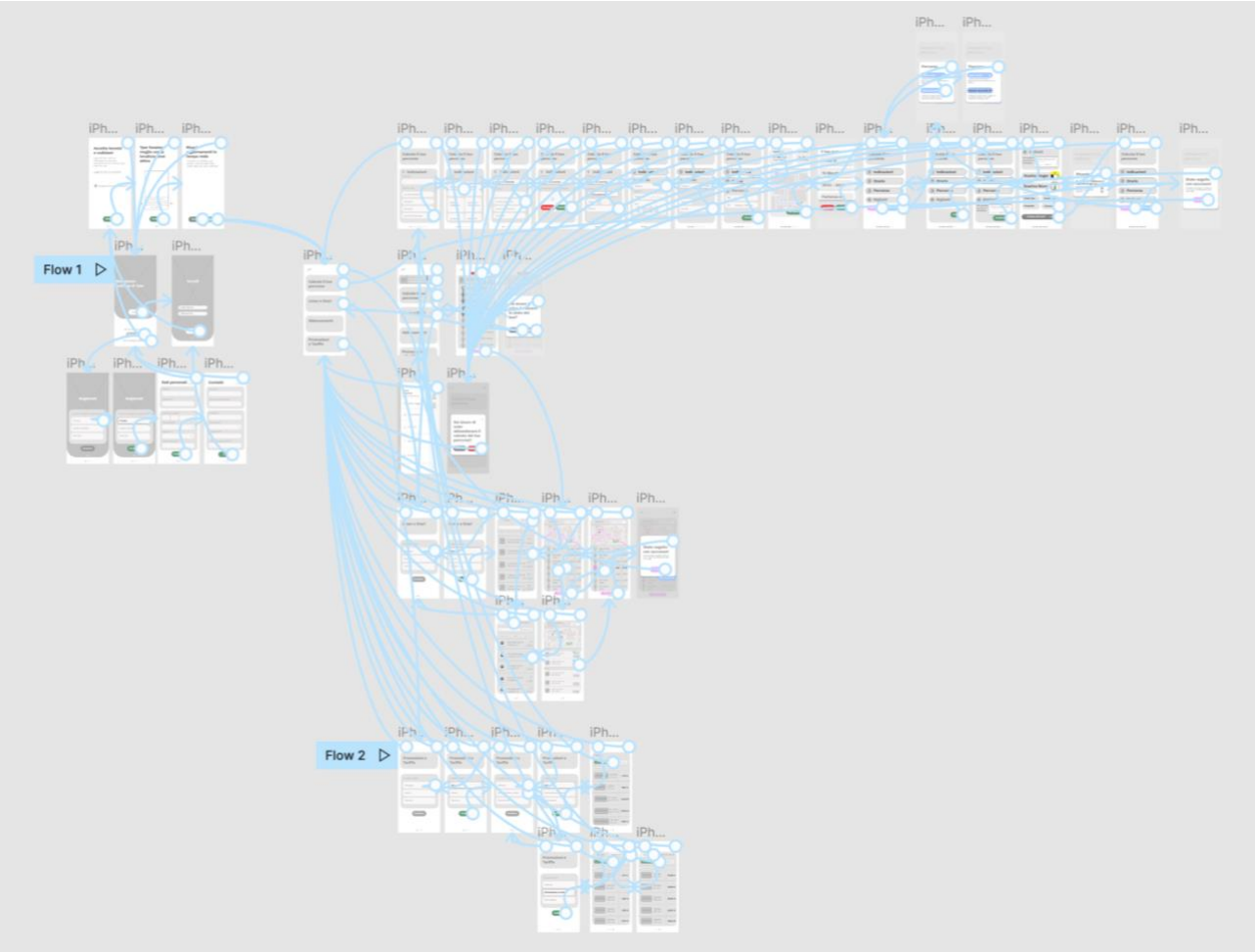

Figure 4 - Prototype interaction's view

Mockups

Mockups are a very useful instrument for designers. They reflect the design choices for color schemes, layouts, typography, iconography, the visuals of navigation, and the overall atmosphere of the product. Thanks to their higher fidelity, mockups require less context than lo-fi documents like wireframes and stakeholders can more easily see the final product.

For this reason, we decided to create a few mockups reproducing a real-life scenario which has not been taken into consideration in the creation of the wireframes and into the analysis of the steps leading to the use of the application. For it being an external service, we needed a way for seeing, and make clear to our client, the download process from a realistic perspective.

We imagined three paths for the user. The first one starts from a computer and a browser. The user reaches the website of Tper as he is used to. Before accessing the page, an overlay message will appear. An overlay is a content box that appears on top of a page and obscures the background content, making the user focus on the actual message before going on. In this way users are somehow forced to realize that Tper now has an application and that it faster and easier to use.

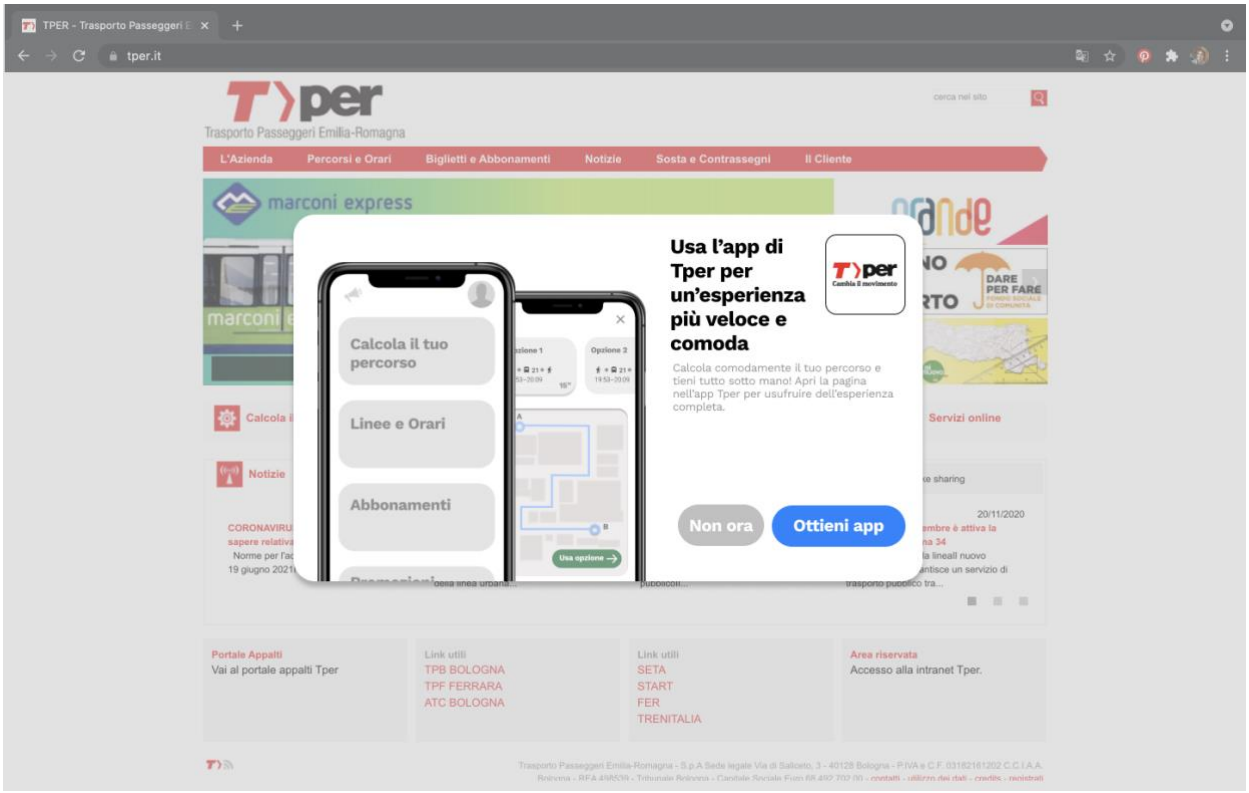

Figure 5 – Website's overlay mockup

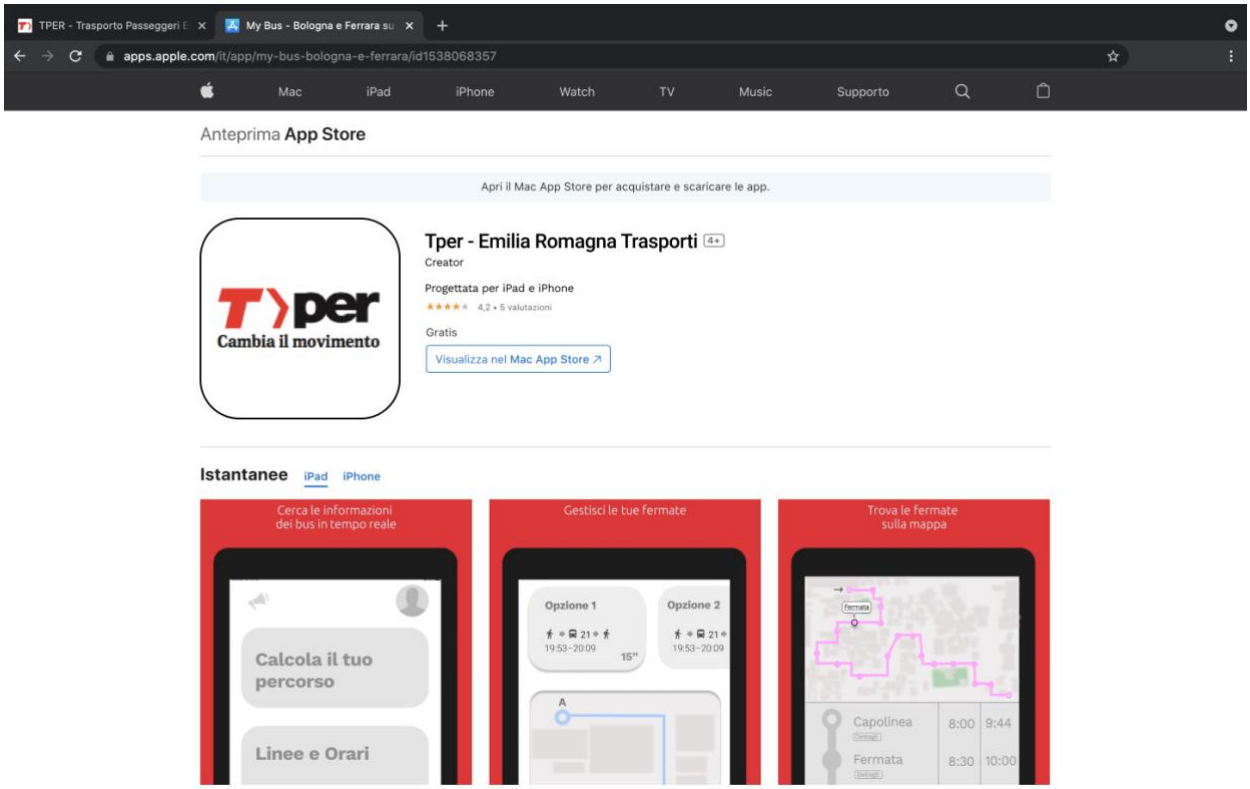

Figure 6 - Website download mockup

The same approach is proposed for the second approach, which concerns a user that access the website from the browser app on his smartphone. The third path concerns a user who looks for the Tper app on the application store on his phone. Figure 7 shows the overlay message on a web

browser. Figure 8 and Figure 9 are valid for both paths and show the download page and the app downloaded on the phone.

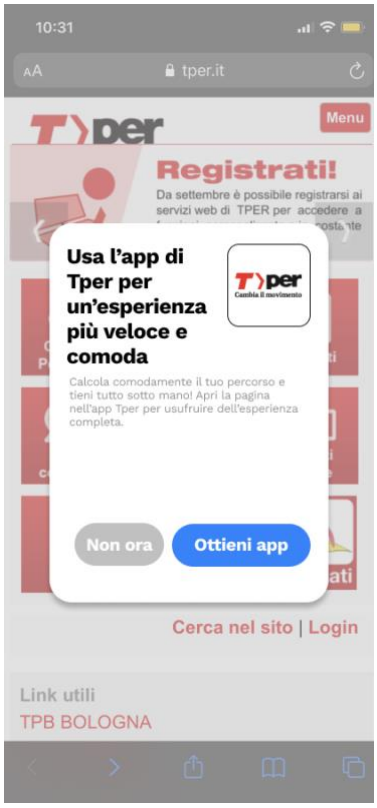

Figure 7- Smartphone's overlay mockup

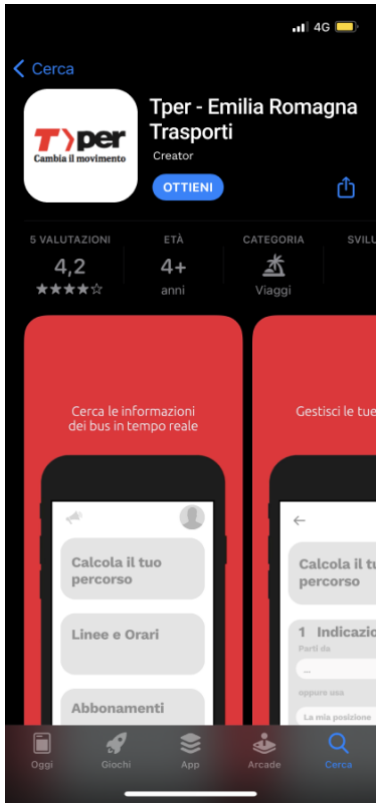

Figure 8 – Download page

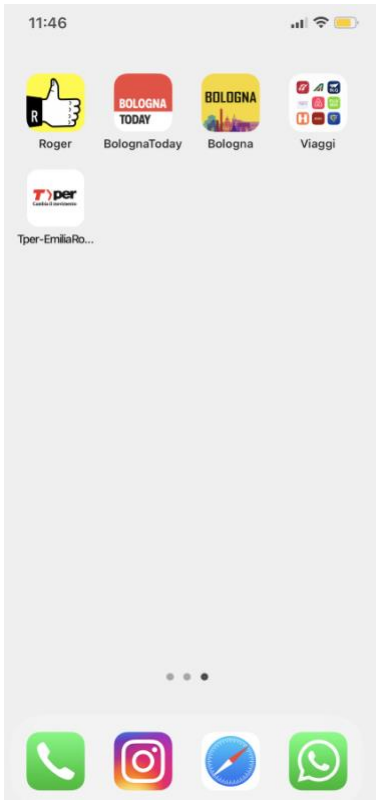

Figure 9- Downloaded app

Wireframes

For accomplishing our design purposes, we decided to create a wide range of wireframes of the application, which will help us display the functional elements of the system. In order to do that we used Figma, a web-based graphics editing and user interface design app. We not only designed the mobile app interfaces, but we also produced a small and quite limited prototype for planning the app's functionality and for testing the usability of relational patterns between elements.

Wireframes do not include all the possible paths that a user might want to explore. We decided to implement the tasks that better represent the final goal of the general user, which is finding information about prices, bus lines and stops; and accordingly planning a route. Therefore, the result takes in consideration only the main features structured in the blueprint and does not consider other ancillary tasks. However, the behavior of this less complex and satellite tasks would reuse all the usability choices made for the main functions of the design.

We can divide the wireframes in five groups:

- Access
- Home & Profile
- Route planning
- Lines & Timetables

- Promo & Prices
- Follow status

The purpose of the following wireframes is to communicate the order, structure, layout, navigation, and organization of content. It's not to communicate visual design aspects such as imagery, color, and typography. For that reason, we decided to use different tones of greys of the general layout and white for creating contrast. The emphasis of wireframes is more on content than form. For this reason, we used colors in a functional way, in order to express meaningful value of buttons, arrows, text and messages. With the aim of making the blueprint intelligible, we provide a legend for colors and symbols.

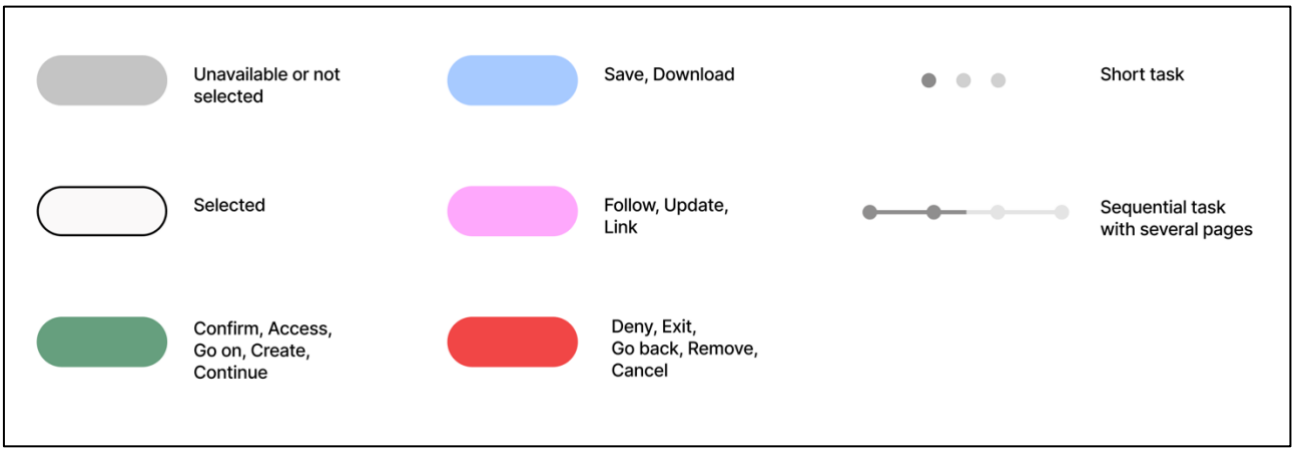

Figure 8 - Wireframe Color Legend

Access

The first set of wireframes completely redesigns the registration and access procedure of the website by bringing it upfront as the first thing the user sees when he opens the application. This modality fulfills the commonly used standard for applications connections.

We identified three main modalities:
- Log in.
- Log on.
- Sign in.

When you log on to something, you are simply accessing digital material, without necessarily needing to provide credentials. So basically, you don't need a password. Instead, if you need a username and password, or other credentials, to access something, you are logging in. If you want to use credentials but you do not have them already, you need to sign in. Sign in is a sequential task that requires multiple steps. These tasks were already present in the app. Now we aggregated them in a unique set of actions that must be performed in advance.

In addition, we needed to translate authorizations required in the webpage (i.e., cookies authorization) into a set of authorizations that the user must agree on to use the app in the most efficient possible way. The authorization steps are: Agree on terms and conditions; Give authorization for localization; Accept updates or notifications.

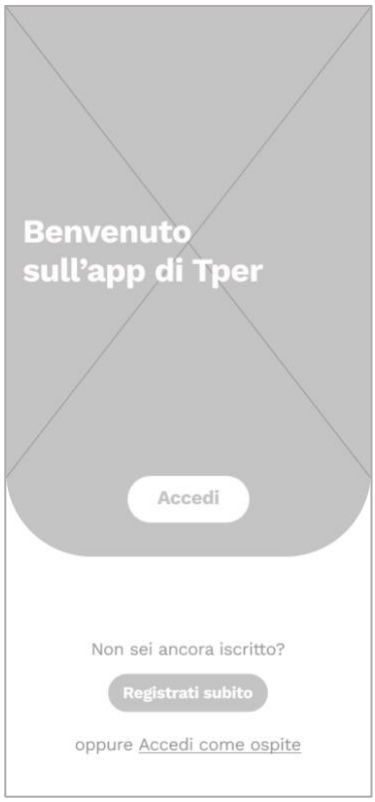

Figure 11 - Welcome page

Figure 12 – Log in

Figure 13 - Terms & Conditions

Figure 14 - Authorize localization

Figure 15 - Authorize notifications

The registration process is modeled on the one already used on the website. The user experience and navigation has been completely changed in a task oriented sequential procedure.

Figure 16 - Registration

Figure 17 - Category selection

Figure 18 - Personal data

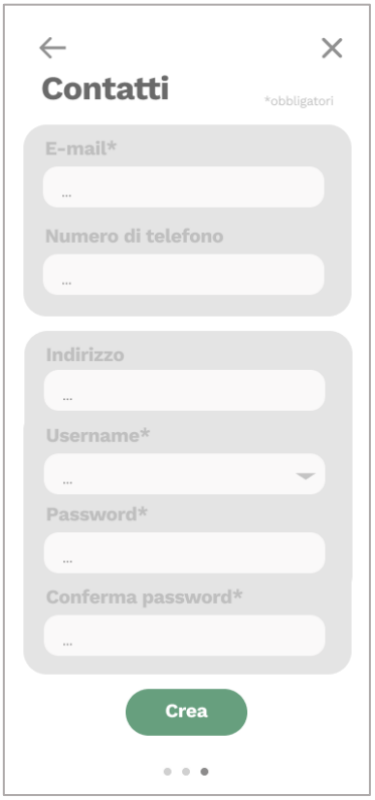

Figure 19 - Contact information

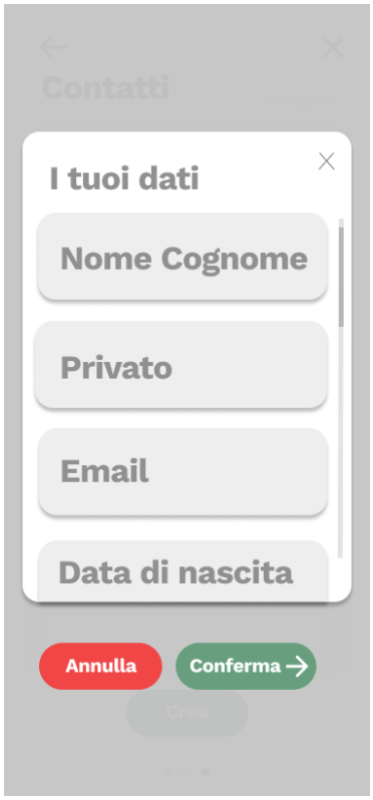

Figure 20 - Recap registration

Figure 21 - Log with new profile

Home & Profile

The homepage is the core of the application. From this page the use can not only access every section, but he can also stay updated about level of completion of tasks and many other information. As shown later, the homepage is designed not to remain static, but it constantly changes according to the needs of the user. Four big blocks allow the access to as many different services. On the top right the user can find the access point to its profile, where all the other ancillary information and options can be found. On the top left the user can find the updates, which could be highlighted by small notifications.

Figure 22 - Homepage

Figure 23 – Homepage with task halfway completed

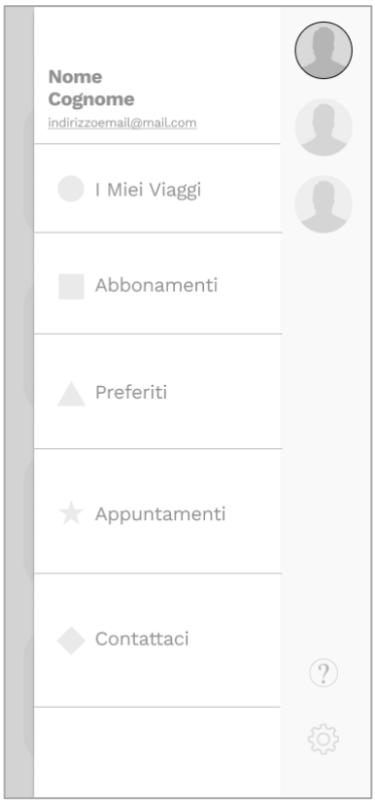

Figure 24 – Profile

Route Planning

This is the most complex and articulated section of the application. It combines multiple tasks in one service, allowing the user to calculate his path in the most expressive and complete way possible. In features multiple internal chapters identified by numbers. Each chapter represents a step forward towards the completion of the task.

Graphics, buttons, and options are big and bold. Interfaces are never overpopulated with too much text or too many options. The procedure has been designed to be clear, functional, and not misunderstandable. The user can control the tool in every possible way. In every page is given the possibility of going back and the possibility of interrupting the whole operation and going back to the main page. In this case, the user can choose to save the status of advancement, and the entered data, or to cancel every input. In addition, at almost every stage of the procedure the user must confirm his decision or change it in order to avoid a mistake.

Finally, a recap of the route must also be confirmed. Done that, the user can choose to save the route among his favorites, to save the screen of the recap in his gallery or to follow the status of the line of interest.

This brings the user to the final section, which displays all the way and the places where he can buy tickets. The design of tickets reproduces the shape of the actual paper cards used by Tper. Skeuomorphic choices have been taken into consideration, without compromising the minimalist aesthetic of the application. Overlay messages or requests have been chosen as a way of getting user's attentions and prevent errors.

Figure 25 – Planning: step one, chose departure option

Figure 26 – Planning: step one, enter departure info

Figure 27 – Planning: step one, enter arrival info

Figure 28 – Planning: step one, confirm arrival info

Figure 29 – Planning: step one, confirm all info

Figure 30 – Planning: step two, enter time

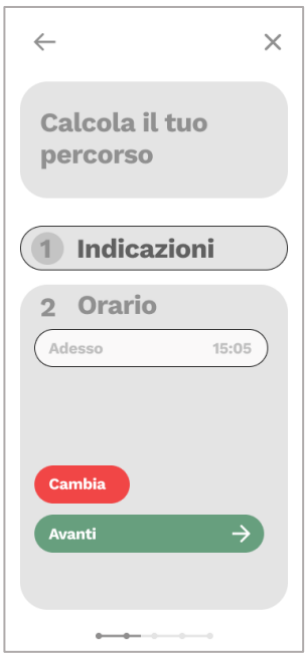

Figure 31 – Planning: step two, confirm entered info

Figure 32 – Planning: step three, chose ways

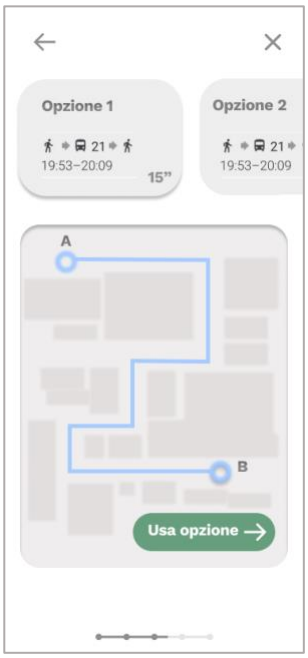

Figure 33 – Planning: step three, chose travel option

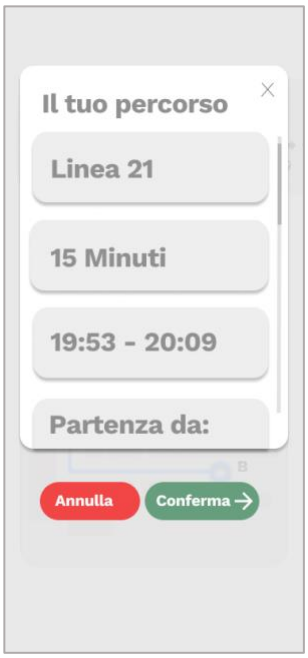

Figure 34 – Planning: recap view

Figure 35 – Planning: step four, multiple options

Figure 36 – Planning: saving options

Figure 37 – Planning: saving options, checked

Figure 38 – Planning: step four, enter n. passengers

Figure 39 – Planning: step four, needed ticket shown

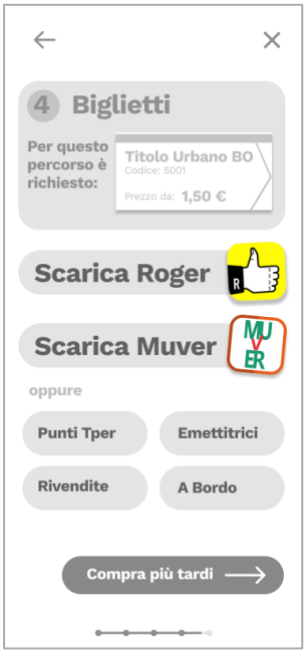

Figure 40 – Planning: step four, purchase options

Figure 41 – Planning: purchase option informative overlay

Figure 42 – Planning: all steps completed

Figure 43 – Planning: followed status overlay

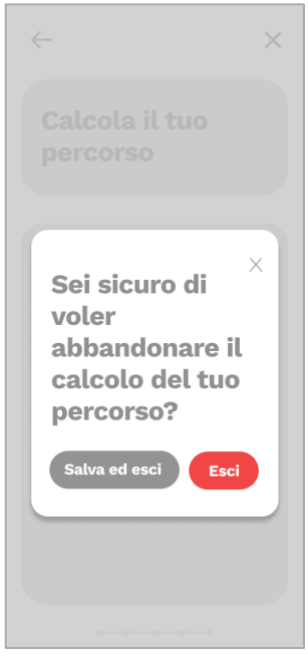

Figure 44 – Planning: exit option overlay

Lines & Timetables

One of our main usability goals was to completely redesign the way in which users access and get information about lines, bus stops and timetables. Starting from the website layout, we wanted to create an interface that was able to be clean and to select only the most important information, that was responsive and interactive. At the same time, we wanted to design a space where the user might feel in touch and in control of all this high number of different information.

Figure 45 - Timetables: homepage accessing point

Figure 46 – Timetables: step one, select city

Figure 47 – Timetables: step one, selected city

As a result, we came up with the idea of creating a very simple two steps model which allows the user to firstly filter the information for city of interest and then to have in one hand two switchable pages with orderable lists of lines and bus stops. These lists can be easily filtered and the level of manipulation that they allow is very high. Also, the elements of these lists (which can be bus stops or bus lines), are linked to specific and parallel single pages, containing all the available information about the lines. In these pages we managed to transform the unusable pdfs of the old website into interactive interfaces containing a map, a graphical representation of the stops that makes sense with a day-by-day use of public transportation and of common iconography standards, and horizontally scrollable timetable. We also decided to integrate the feature called “Hello Bus” into this section. This option will be also reused for the Follow Status section.

Figure 48 - Timetables: lines

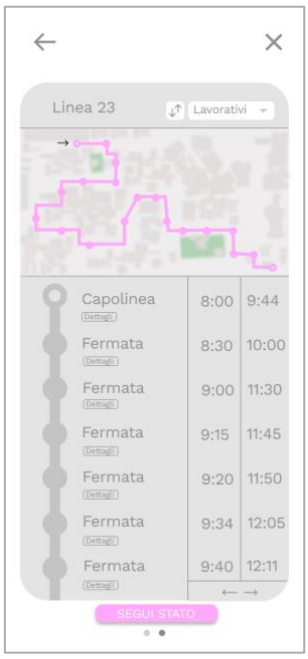

Figure 49 – Timetables: line page

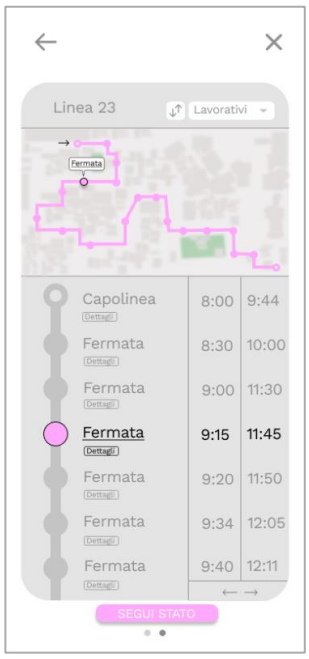

Figure 50 – Timetables: line page, selected stop

Figure 51 - Timetables: stops

Figure 52 – Timetables: bus stop page

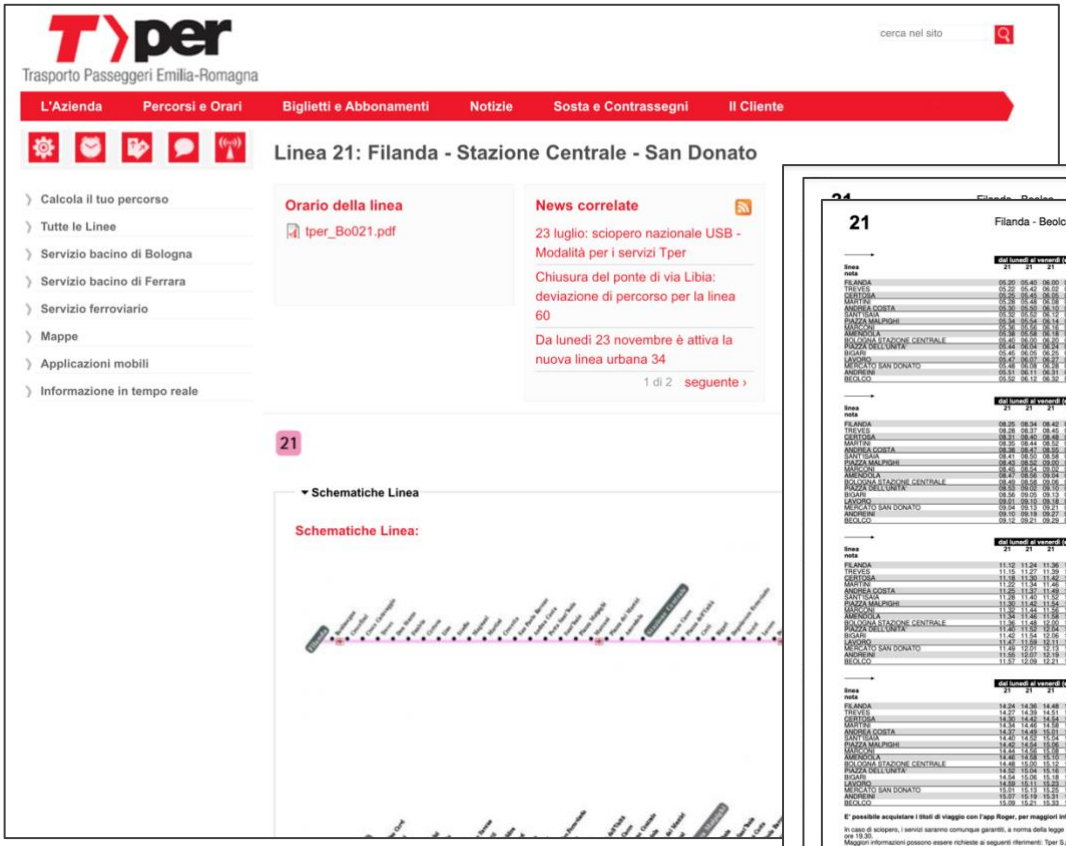

Figure 53 – Line page on Tper Website

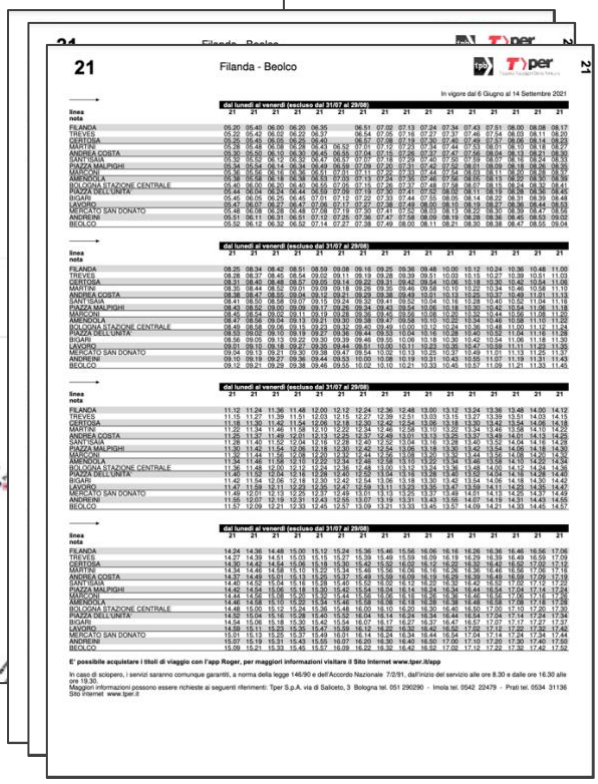

Figure 54 – Pdfs timetables on Tper website

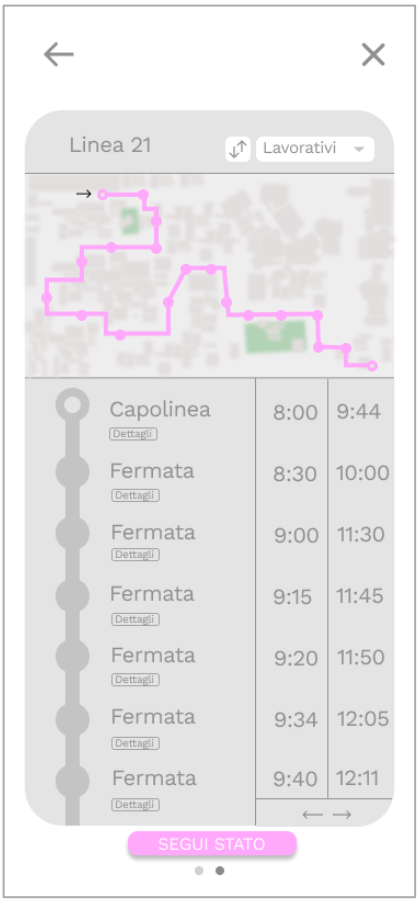

Figure 55 – Timetables on Tper application

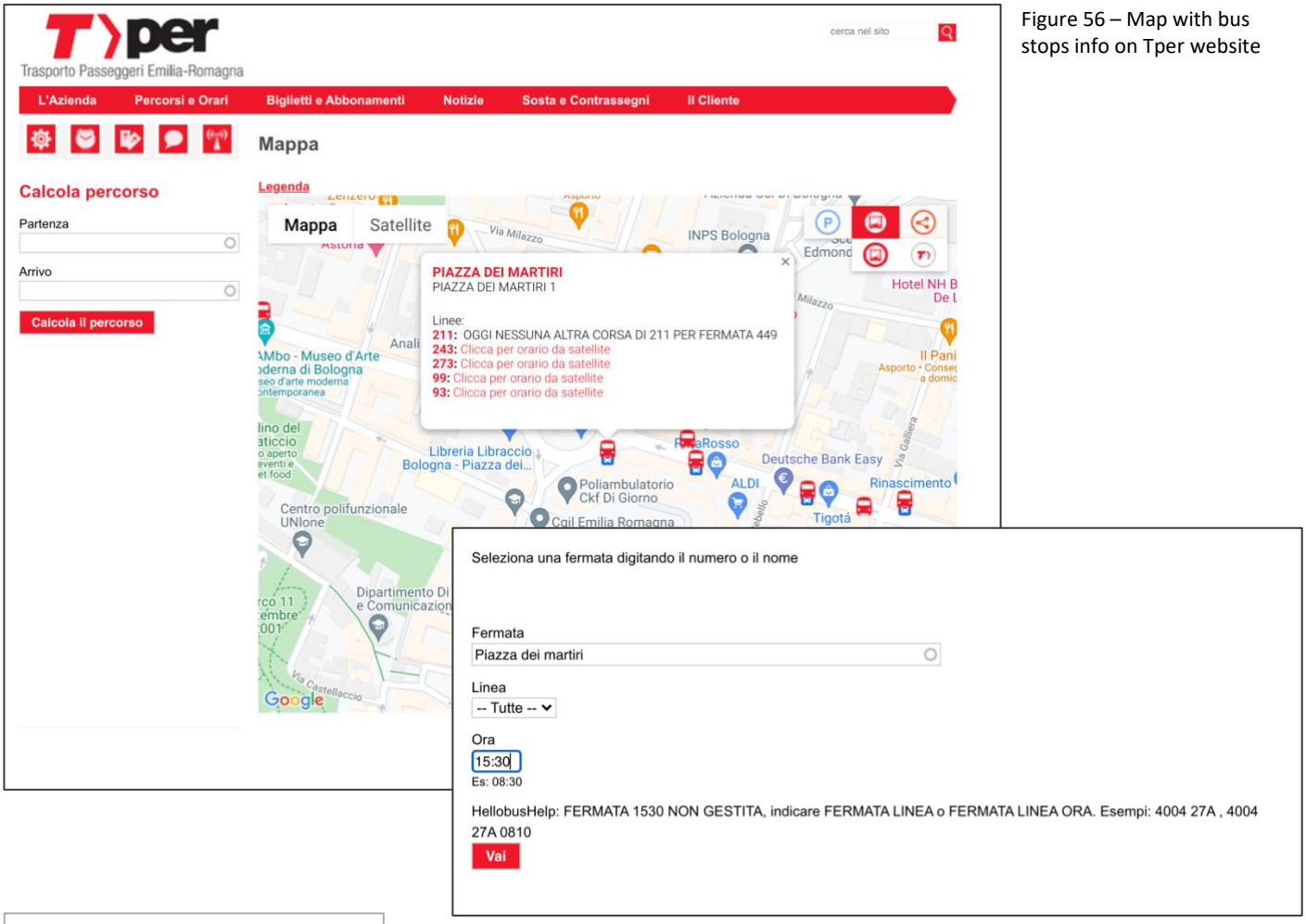

Figure 56 – Map with bus stops info on Tper website

Figure 57 – Hello Bus on Tper website

Figure 58 – Bus stop page on Tper application

Promo & Prices

For this section we applied the same criteria used for Lines & Timetables, for them being both containers of rich and variegate informative content. In this case, we created a very simple three steps model which allows the user to firstly filter the information for city and for transportation areas. The tickets lists follow the same usability choices applied before. Particularly noteworthy is the link between this section and the planification feature. It allows users to check information and test them personally.

Figure 59 – Prices: city selection

Figure 60 – Prices: selected city

Figure 61 – Prices: select area of interest

Figure 62 – Prices: area selected, urban

Figure 63 – Prices: tickets for urban selection

Figure 64 – Prices: selected area, suburban

Figure 65 – Prices: single tickets for suburban selection

Figure 66 – Prices: cards for suburban selection

Follow Status

This section is the only one that is not immediately accessible from the homepage. In order to see it the user needs to add the status of a bus line from another section. It can be added from *Lines & Timetables* or from *Plan route.* Once added, a small widget will appear in the homepage of the application. The widget summarizes easy to understand and useful information about the line: number of the bus, direction, real-time arrival time, accessibility information and a small visual representation of the line.

The information gathered in this section sums up multiple features already available on the website of Tper, such as the *Hello Bus* service, lines, and timetables. We decided to re-arrange them in order to make them more accessible and useable, allowing the user to check this information without having to enter again data or complete a new task. If clicked, the widget opens up in a specific page in which the aforementioned contents are rearranged in full page mode. Here the user can decide to reach the informative page of the line or to remove the status from the homepage. If removed, the widget will completely disappear, leaving space to the standard four section buttons. User can decide to add and follow more than one status. They will be all shown in the homepage, highlighted with little dots under the widget and scrollable, in order to avoid occupying more space.

Figure 67 – Homepage with follow status widget

Figure 68 – Status page

Figure 69 – Remove status overlay message

Figure 70 – Follow status button inside planning

Figure 71 – Status followed message, inside planning

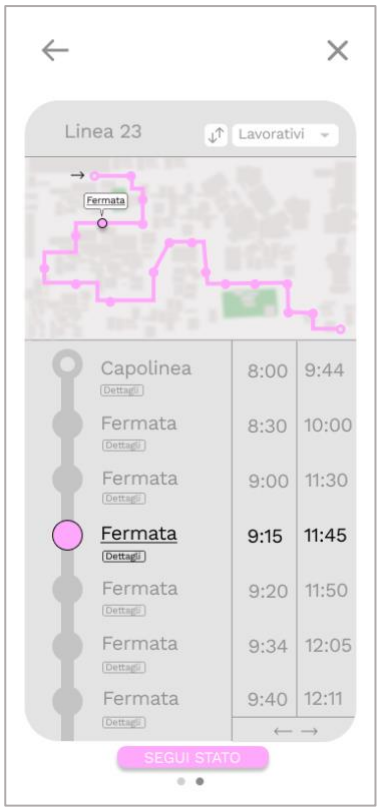

Figure 72 – Follow status button inside line page

Figure 73 – Status followed message, inside line page

Figure 74 – Homepage with two statuses inside the widget

Figure 75 – New status page

Usability & User Experience design project

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