

Mobile App Interface Development for Tourism

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Abstract

This article aims to present the development of the interface creation process for a tourism application that works from a map, presenting several routes. Based on the usability principles, a scientific investigation was developed about the idea, the target audience to be served and the flow of screens. As a result, we obtained simple screens that were designed so that the user took as few steps as possible to reach his goal, making it easier to use and understand with the application. In conclusion, it was possible, putting into practice principles of usability and user experience, to obtain a satisfactory interface that fulfills its function.

Keywords: Interface; Usability; Accessibility; Mobile.

1. Introduction

This article is about developing an interaction design project for a mobile app. Preece (2005) says that

“interaction design is the design of interactive products that support people's daily activities, whether at home or at work. Specifically, interaction design is the area that seeks to create experiences that enhance and extend the way people work, communicate, or interact. There are ways to support people, that is, users.” This follows the theme of tourism facing Brazil, where it provides destinations and how to get to the place, which was previously chosen by the user. The target audience of the project is between 19 and 40 years old. They are adventurous and practical, and are always looking for something new. The elaborative processes were performed based on the principles of interface-man machine interaction and follow the responsive model, since the Android system has numerous screen sizes and this model allows the optimization of the arranged elements.

2. Materials and Methods - Experiences

In the development of the project were used fundamental tools for a good progress. Among them the first one used was the way of research about which situations we could help people who travel around Brazil in search of knowing historical places and other places of a certain city.

A brief survey was conducted with ten known people. They were asked the following questions. From these questions, graphs were prepared containing their answers, as shown below.

3. Application Development

For the development of the application, was initially made a research on the main form of decision of tourists regarding the choice of destinations and all stages of a trip.

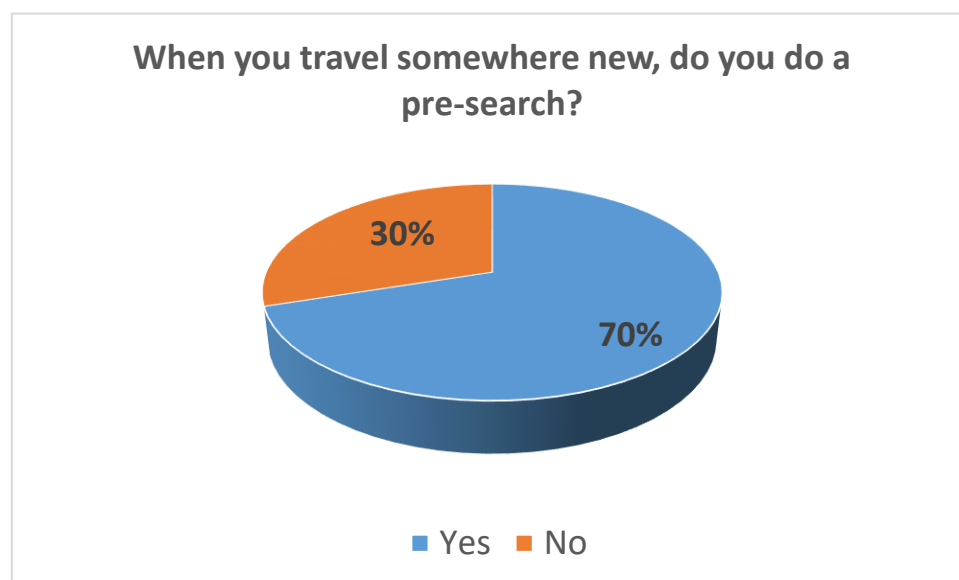


Figure 1 – Question about new destinations

Source: Own author

The question about new destinations in the chart in Figure 1 was asked why some people like to know the place and be surprised, or simply do not have time to search. Meanwhile, for safety, other people seek to know and know where they are going, familiarizing themselves with the destination even before being

there.

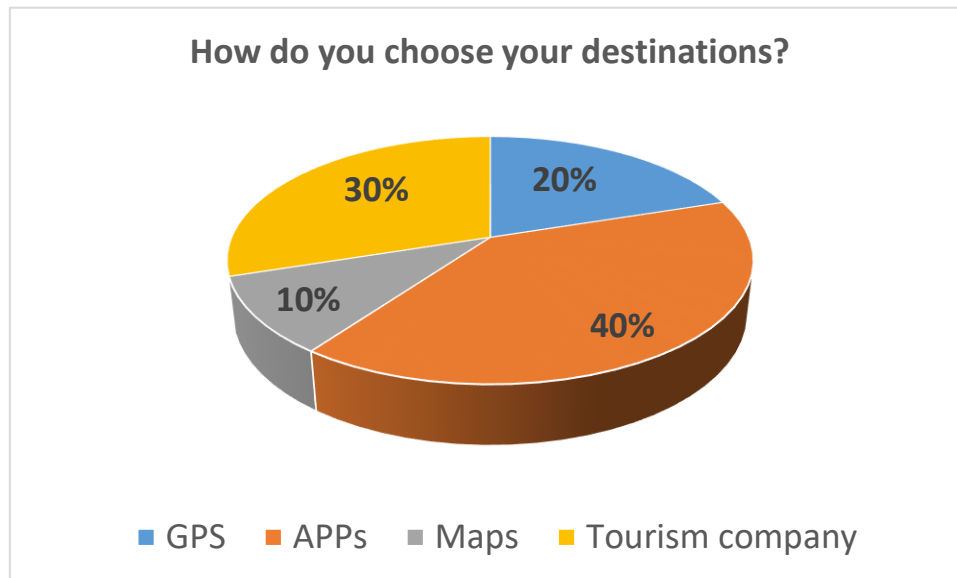


Figure 2 – Destination Choice Question

Source: Own author

With increasing technology, the number of people traveling alone is increasing as people are increasingly connected, especially through their mobile phones. This then facilitates the preference for using apps to search for locations. The graph in figure 2 shows the search results on how to choose the destination.

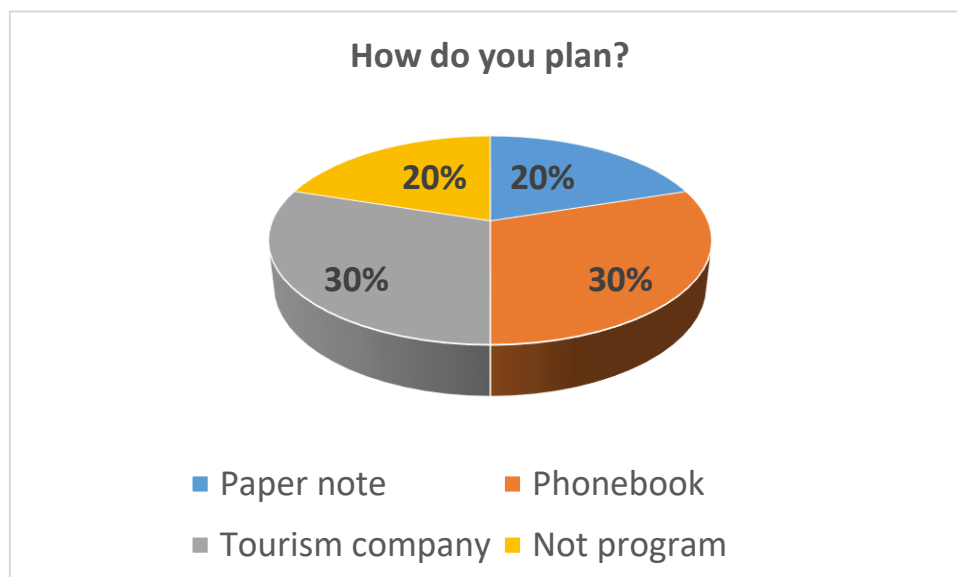


Figure 3 – Travel Planning Question

Source: Own author

Figure 3 shows the results graph of the question about forms of travel planning. Because the schedule for visiting the chosen places is often important for some, yet there are those who write down on paper, others prefer the practicality of a cell phone, which is always in your pocket. Tourism companies also usually already plan a scheme for visiting places. Other people don't really program themselves, preferring to think about what to do when they reach a new location in the comfort of a hotel.

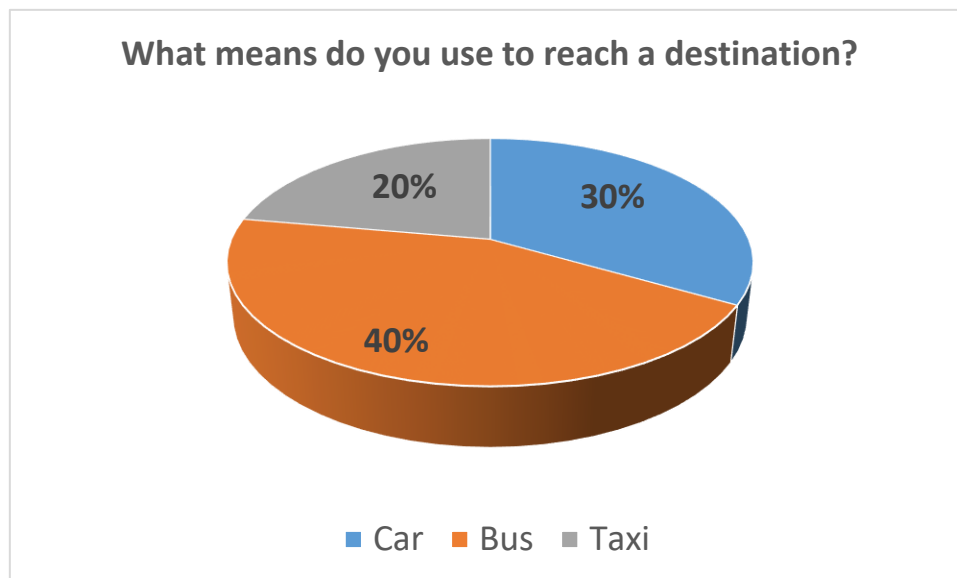


Figure 4 – Question about Travel Means

Source: Own author

Figure 4 shows that while traveling, some people choose to rent a car, while others go by bus (on their own or by the tour company) and others prefer the comfort of a taxi.



Figure 5 – Question about travel acquisition modes

Source: Own author

Figure 5 shows the preference of tourists as to how to travel, while some prefer to travel on their own, most prefer to travel through a tourism company, in the same proportion that defines according to destination. With this data, you can have the audience profile to which the application is directed. Most people, although preferring to travel alone, enjoy safety and planning before doing so. They are also people who use smartphone technology to plan themselves. In addition to the questions, some people agreed that some information from certain locations is scattered on the internet, making it difficult to find it in one place. In the next step, we use the brainstorm technique, which consists in exploring ideas for better solutions

from a group of people. Using this group dynamics technique, we were able to explore the creative potential of the group and come up with a problem proposal to be solved. Then, a mind map was set up, which according to Pazmino (2015) is a tool for organizing ideas that radiate from a main idea, concept or content. In the mind map we put the main points that involve the users and so we could see minimal things that for some time we could not identify. Where a diagram was used to enable better understanding, memorization, learning and problem solving.

For interface was developed from a flowchart and wireframes where we put the proper tasks that the user will have and to test if the functions are in accordance with the plans so that there will not be so many revisions in the future.

And serving as a reference for developmental requirements, the flowchart comes to define, evaluate and visualize interactive sequences, possible deviations and offsets, and whether the sequence makes sense to the user. A flowchart can show more than one task, but its time is short and a more elaborate project that tends to contain more tasks is better to make a flowchart for each task.

An analysis of the tasks contained in the flowchart was also made, according to Pazmino (2015), this analysis serves to avoid problems and facilitate the development of functional products. The result of this analysis should generate needs that are listed and mention possible solutions to improve product comfort and use, making it simpler, operational and emotional.

The following is the flowchart with the following screens to display:

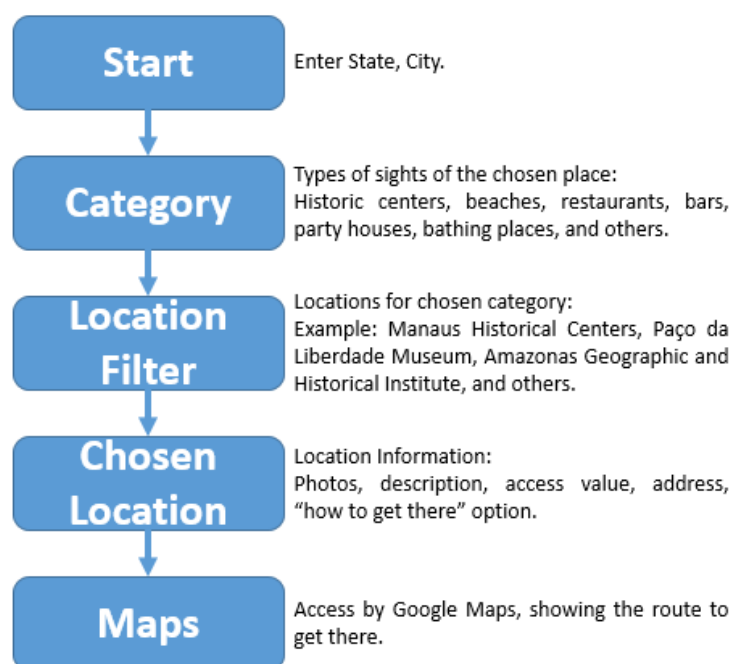


Figure 6 – Project Flowchart

Source: Own author

Another feature that is very important for the process of creating and completing the interaction design project is the so-called wireframe, which according to Treder (2016), "a wireframe is a low fidelity

representation of a design. Consider them as the skeleton of your design and remember that wireframes must contain the representation of all important parts of the final product. ”

Below are wireframes containing the following screens to be displayed to the user:

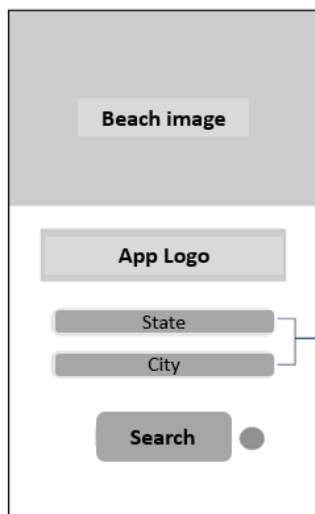


Figure 7 – Wireframe Entry Screen

Source: Own author



Figure 8 – Wireframe Category Screen

Source: Own author

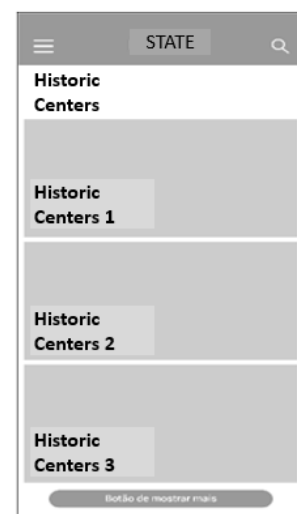


Figure 9 – Wireframe Screen with Seats

Source: Own author

Figure 7 shows the space to select the state and city where the user is located. He can type the name of the place, a menu appears showing cities with similar names. Figure 8 shows a Mosaic containing the categories presented by the app, and a brief description of the previously chosen city. And Figure 9 presents a category filter, this time showing only the locations related to the selected category.



Figure 10 Wireframe Location Info Screen

Source: Own author

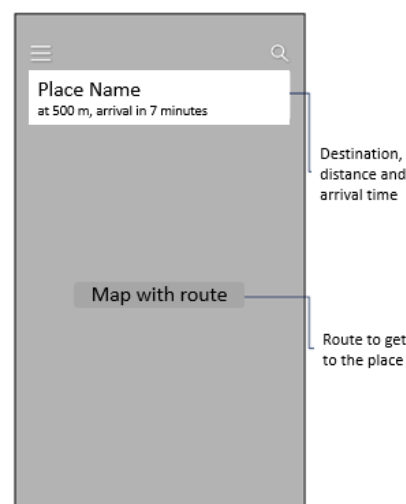


Figure 11 Wireframe Location Route Screen

Source: Own author

Figures 10 and 11 show the choice of destination, where the destination, distance and a predicted arrival time are informed, also shows the initial acquisition value.

In order to develop the application interface we used tools to design visually shown in figure 12, as would

be its aesthetics through vectorization software (Illustrator CC 2015, version 19.0.0 - 64 bit).

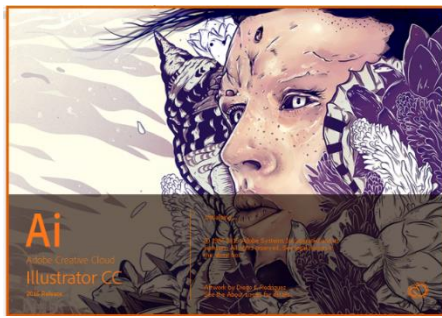


Figure 12 – Adobe Illustrator CC 2015

Source: Own author

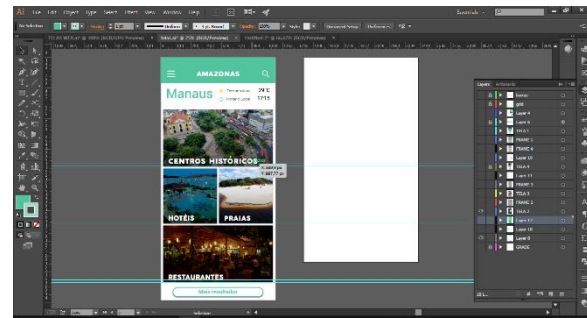


Figure 13 – Grids para a construção das telas

Source: Own author

In this tool, as shown in figure 13, grids were placed for the construction of the screens with their correct measurements and the entire interface look. In order to reach the result, knowledge of Gestalt and also Theory of Color were applied.

Gestalt, in short, seeks to study how we perceive form, explaining why some ways please more and others not. Dondis (2007) says that Gestalt psychology has contributed valuable studies and experiments in the field of perception, collecting data, seeking to know the importance of visual patterns, which may vary according to the culture of the subject.

One of the Gestalt principles that we attached importance to in this paper is alignment. With the alignment it was possible to organize the elements so that they connected in the layout, creating visual harmony for the user.

The study of colors is also very important in the development of any project, as they can generate feelings. According to Heller (2012), “no color is meaningless. The effect of each color is determined by its context, that is, by the linking of meanings in which we understand the color.”

Following figures 14 to 18 are shown the results achieved, the clean and simple interface is presented, as it focuses on making the user comfortable and satisfied, the green water refers to the sky, sea and the most common landscapes to all places of Brazil.

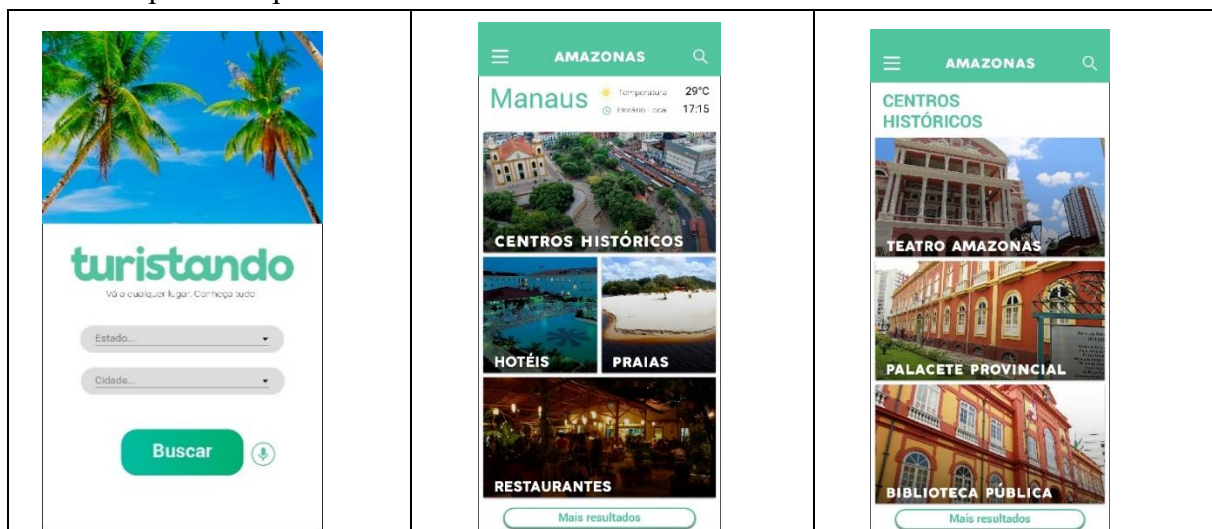

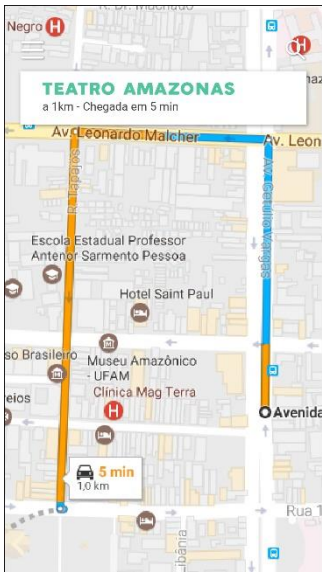
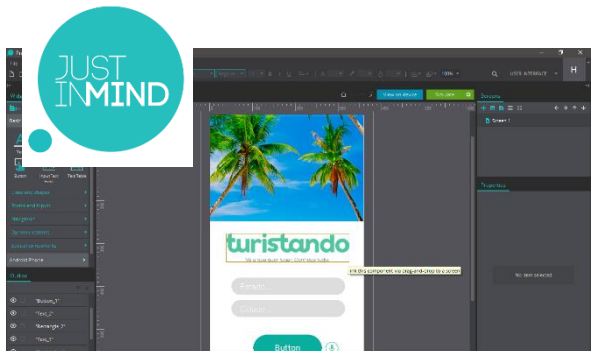
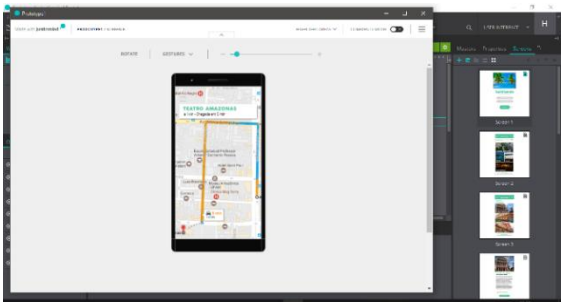


Figure 14 – Login screen Source: Own author	Figure 15 – Category Filter Source: Own author	Figure 16 – Location Filter Source: Own author
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Figure 14 shows the home screen, where you enter the desired city and state search input information, the screen has a presentation with an image that represents the sensation of travel and tourism. Figure 15 shows the category filter, where you have the choice of historic centers, hotels, beaches and restaurants, and other attractions, also provides illustrations in each option, with representation of each item. Figure 16 presents the local visits location filter that are highlighted in each chosen destination, the application contains images in this area that shows the context of each choice.

	
Figure 17 – Chosen Location Source: Own author	Figure 18 – Location Route Source: Own author

Figures 17 and 18 show the choice of location and location route, give a brief description of the chosen location, and show the map with the aid of GPS.

	
Figure 19 – Justinmind (version 7.9.2) Source: Own author	Figure 20 – Development example Source: Own author

To simulate how the user would use the application we use the Justinmind Prototyper program which is a prototype simulator where we tested all usability of the application. It is designed to make it easy to create websites and applications for web and mobile platforms. His role within the development process is to provide tools for those involved to make prototypes and wireframes without major complications.

After all interfaces were developed, it was applied as an image, shown in figures 19 and 20, in Justinmind to have a prototype closer to the real for the user to find the places.

These were the presentations and bases of application development, demonstrating all the steps and foundation for construction.

4. Results Obtained

From the development of this project we had the opportunity to once again find a problem to be solved. We succeeded in planning the interfaces from a survey with real people, who always seek comfort when performing tasks. Each of the screens was designed for the user to use as few steps as possible.

It was also thought, at the moment the application is launched, that it is possible to know what it is easily. Who, even if it is layman, can make use of it in the first attempt. For this, we applied our knowledge about usability, Preece (2005) points out that usability will be responsible for ensuring that the products are user-friendly, pleasant and efficient from the users' point of view.

However we achieved our goal, shown in Table 1 that was to develop something with good accessibility, thinking of the public that has little contact with technology, but out of necessity uses it.

Table 01 - Statement of objectives achieved

MAIN GOAL	-Elaborate a simplified interface with a maximum of five steps to be taken;
What has been achieved	-An app with five steps to reach the main function of the app; - From an audience survey, everyone highlighted the cleanliness and simplicity of the app.

The application can become one of the best known in the market, helping tourists from all over the country to know and reach their destinations with ease.

The time taken to design the application was about four weeks, as shown in Table 2, one for the idea, another for the wireframe, one for creating the screens, and one for organizing the results in a scientific paper. Below is an explanatory table that shows the time taken and what was accomplished during it. The project was developed in a month, with exactly one week dedicated for each step to be completed.

Table 2 - application development time.

ELAPSED TIME	WHAT WAS DONE
Week 1	Choice of theme, application name, objectives and conceptualization;
Week 2	Audience research; Elaboration of wireframes;
Week 3	Completion of ready screen layouts;

Week 4	Application simulation to check usability errors.
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4.1. Discussion Of Results

In the future, the app could be adapted to an iOS version, increasing the range of the audience. It could also be a social network, including other functions such as user profile and sharing of usability and accessibility information.

5. Conclusion

In conclusion, it was possible to develop the practice of wireframing, audience research and mainly user experience. It was possible to study how he behaves before a screen and the decisions to be made by him. Taking into consideration all the points for the development of this project, we analyzed that all the steps of conception of the interface design, addressing the concepts of usability and IHC (Human and Computer Interaction) were of paramount importance to develop the solution hypothesis.

Thus, this project allowed us to understand the concepts of interaction design and its tools as a support tool for the way people communicate and interact in their daily lives, whether at home or at work.

6. Acknowledgments

We express our sincere thanks to our family and friends who contributed to the research done for the project; to the people who expressed their opinions and ideas about the problem to be solved. Our thanks also go to the institution FAMETRO - Metropolitan College of Manaus, NoPE and the director Sueli.

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