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@LLAKI: SOFTWARE PRODUCTION BASED ON FRONTIER GEOMATIC DATA

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Abstract: The @llaki work consists of a geographic information system for promoting tourism on the border between Ponta Porã and Pedro Juan Caballero. Using visual information such as a photograph of the place, textual information containing descriptive data and geographic location of the establishments registered in the system. Search categories are offered to the user: food, shopping, hotels, public services, transport, leisure and tourism. Subcategories of each topic, allowing the choice of region. After selecting the region, category and establishment, the location information is provided to the tourist. Providing a reliable and secure source of all registered locations, promoting the visibility of regions that are not included in search engines, providing a greater alternative for the tourist and regional population.
Keywords: Software, Georeferencing, Tourism, Border.

INTRODUCTION

The present is the result of the course conclusion work and had as a proposal the production of the Hallaki software [1], the purpose of its creation is to facilitate the location of establishments on the border between Ponta Porã and Pedro Juan Caballero. It consists of a geographic information system to publicize tourism, informing about the place, with photographs, descriptive texts and geographic location of establishments registered in the system, providing social contribution to public services, location of hospitals, pharmacies, city hall, federal revenue and others. public agencies.

The municipality of Ponta Porã, made official on July 18, 1912, located in the state of Mato Grosso do Sul, completes its symbolic delimitation, entitled "Fronteira Seca" with the Paraguayan municipality of Pedro Juan Caballero. (REGISTS, 2017). The municipality of Pedro Juan Caballero, made official in 1956, appointed as the first Municipal Intendant by Decree No. 18,387, Don Carlos Domínguez. Designated capital of the department of Amambay, by the decree of July 10, 1945. (CARDONA, 2017).

In 1911, the primary definition of Tourism appears, through the economist Hermann von Schullern zu Schattenhofen:

> It is the concept that encompasses all processes, especially economic ones, that are manifested in the arrival, stay, and departure of tourists from a given municipality, country or state. (BARRETO, 2008, p. 9).

Its definition is associated with people, the individual who is involved in a visit and their environment is outside their residence, its cause is driven by several factors, such as: health, education, leisure, among others. According to Moesch (2012) in recent definitions of the WTO – World Tourism Organization, it is understood that:

> Tourism comprises the activities carried out by people during their travels and stays in places other than their usual surroundings, for a consecutive period of less than one year, for leisure, business or other purposes. (WTO, 1998, p. 47, our translation).

Sampaio (2013) mentions the European sociologists Giuli Liebman Parrinello and Graham Dann, who, supported by the international tourism research committee, engaged in the production of several studies in the area of tourism, in response to the hegemony of the transatlantic and continental European anglophone tradition, which, in their words, monopolized the especially academic area, this way sociologists were motivated to present counterpoints and new perspectives to view tourism not only

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1. Hallaki (search here - Neologism of Spanish words Halla = Search; Aki = Here), later changed to @llaki, adapting a cyberspace grammar.

as a niche science, but in an integral and practical way in society. This commitment also motivated the development of the @ LLAKI software, for the production of scientific material in the area of tourism in a region of international impact with an in loco perspective of the border.

The border presents the geographic phenomenon of conurbation, it occurs when different regions expand in such a way that they start to share the same space, commonly in urban centers; promoting a series of peculiarities and reverberations. (CURY, 2017). Expressed in figure 1.

Maintaining intense social and cultural tourist interaction, Ponta Porã and Pedro Juan Caballero, provide a rich experience for tourists, provided by the conurbation between the municipalities, contemplating aspects such as Adventure Tourism, which comprises tourist movements for the practice of adventure activities of a recreational nature. and non-competitive, Tourism (2017a). Contemplation Tourism focused on experiences in the natural environment, Tourism (2017b). Historic Tourism promotes contact with historic and cultural heritage, Tourism (2017c). Shopping Tourism, on the other hand, has commercial experimentation as its main objective, Tourism (2017d).

Despite the great tourist potential of the Frontier, there are factors that influence performance, preventing the achievement of its full potential. The media, advertisements and means of communication that limit the exploration and knowledge of tourists during their stay at the border, due to the dubious content linked or lack thereof, in addition to owners of establishments that do not position themselves in the virtual environment. In contrast to what Vilela and Costa (2020) mention, public policies and national tourism plans (PNT) in the period 2018-2022, encouraging innovation and for the first time included in the plans, the intentional definition of Brazil's strategic positioning as tourism product, for that you need smart tourist destinations.
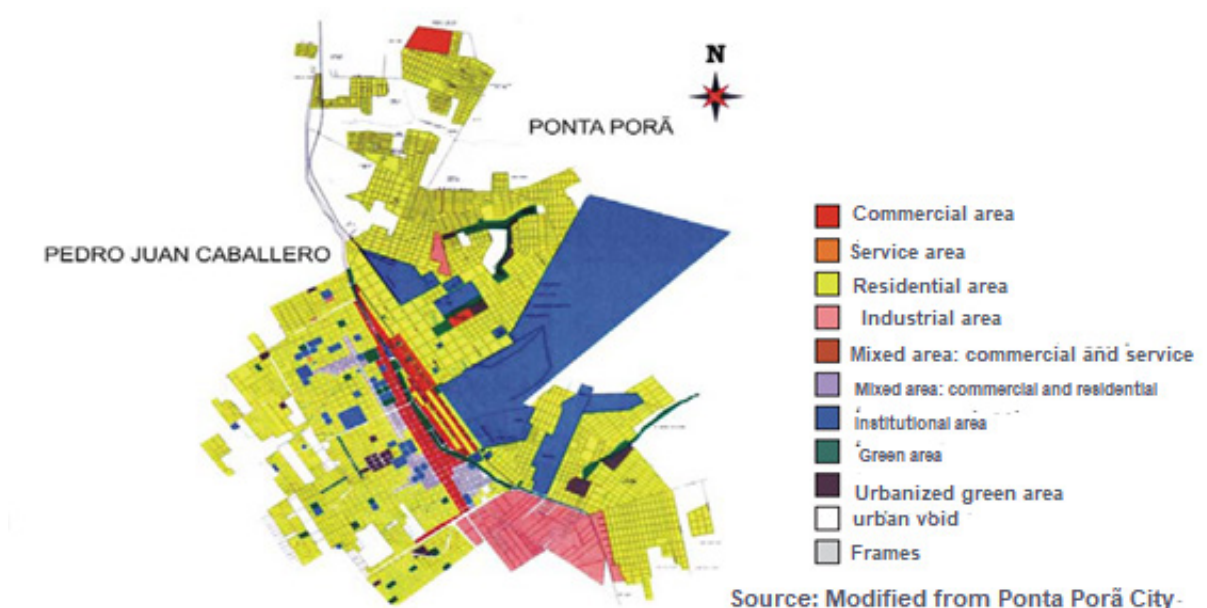

Figure 1 The Conurbation of Ponta Porã with Pedro Juan Caballero.

Source: ALOVISI; ANDRADE; MATOSO (2010, p. 34).

In response to these needs, a cross-platform Border Georeferencing software was developed, integrating the WordPress content management system and the Google Maps geographic information system. The choice of points to be located was based on sampling, locating and providing visual, textual and geographic information. The capture of images of the locations is due to Google Street View. Along with an application that works together with the system, developed on the MIT App Inventor platform. Soon the @llaki system intends to act in the georeferencing of the Border.

THEORETICAL REFERENCE

PROBLEM

When observing the tourist reality of the Border between Ponta Porã and Pedro Juan Caballero, it is possible to see itineraries of visits apparently pre-established, by the media, advertisements and means of communication, limiting the exploration and broad knowledge of the tourist during his stay at the border.

> In fact, the media exerts influence on the tourism sector and plays a fundamental role in the development of this sector. By modifying our agenda according to the media agenda, conveyed through news, advertisements, campaigns, etc.; its influence is implied, sometimes directly, sometimes indirectly, in the short, medium or long term. (PERETTI; MEGIOLARO, 2011, p. 13).

The dissemination of Fake News harms the performance of tourism in general. Mainly in border cities, Kukiel and Silveira (2020) emphasize the importance of this topic because the border is a place of diverse exchanges, commercial, cultural and even gastronomic, a place of meeting and diversity, more than a territorial limit and commerce, it is a her farm integration a special and meaningful place.

Use technology and social media to allow visitors to search from home and gather basic information. However, many hotels and transport companies seem to hide phone numbers on their websites. Combine the basic information that can be provided by the computer with the human side of the information. Remember that if the tourist never reaches you, you may think your customer has found a nicer place. (TOURISM, 2017).

It is common locations, addresses and descriptions present in search engines, to be lacking in the truth and to differ from reality, when such information is put to the test, they present discrepant results, this fact is characterized as empirical and part of the author's experiences, in the trajectory this work. It must be noted that several researchers view this scenario as an obstacle to the development of tourism.

> There are so many lies to take people's money that a little skepticism is good for those who want to give a little more priority to spending their money in choosing to buy sensible tourist attractions than to be carried away by the lack of character of certain travel agents and tour guides who, in order to sell a product, pay them a high commission, encourage the customer to be deceived by illusions and hoaxes. (WIRES, 2017).

Such examples point out that owners of establishments, who do not invest in the use of technologies, not positioning themselves virtually, affect not only their establishment, but the border. Araújo, Pereira and Oliveira (2020), mention that the developed indices of the frontier, also called twin cities, were analyzed by the Institute for Economic and Social Development of Fronteias (IDESF), it was found that there was a need for more public policies to reverse the omission There is a certain discrepancy in the development of the border compared to other cities, as it provides basic services that expand across the

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conurbation. It is also associated with crime, but no significant difference was observed in the homicide rate compared to the average of Brazilian cities. Ponta Porã is halfway in the Municipal Human Development Index (IDHM). Therefore, the border reality needs care to maintain its vitality.

SOLUTIONS

Being aware of this problem, the need for quality information and intelligent tourism, a system containing reliable and secure sources of information is suggested, inserting places that are not present in search engines, providing a greater alternative for the tourist and regional population, assisting in tourist operations and contributing significantly to society, as evidenced by:

> Technology touches almost every aspect of the tourism industry. If we're smart enough to use the benefits of technology, such as convenience, speed, and accuracy, and avoid some of the pitfalls, ease of use, font size, and lack of human contact, technology can be a great time-saving tool. and money. (TOURISM, 2017).

When analyzing the moment of use of the system, the user interaction experience is of vital importance, supporting the development of an interactive, dynamic and responsive system, facilitating handling. Point out the visual experiences:

> When composing a layout, whenever possible, we try to work with elements that represent the company and that show the concern we have with details. Thus, we insert textures, icons, symbols, illustrations and graphics that facilitate the understanding of the message by the end customer and favor their formation of opinion in favor of the company. (CONCEPT, 2017).

As a result, the system layout seeks to be intuitive, with self-explanatory images and mechanisms that facilitate the use of the system.

METHODOLOGY

The following tools were used for the development of @llaki. The WordPress content management platform makes up its structure. Google Maps, works in the production of the virtual map, where the places are inserted. Google Street View, a tool used to capture photographs of locations. So MIT App Inventor, produces the application after the system is online, the application contains the same functionality.

WordPress consists of a Content Management System or CMS - Content Management System, a software that facilitates the creation, editing, organization and publication of content on the internet. (WORDPRESS, 2017). Geographic Information Systems (GIS) act in capturing, storing and processing data based on the location of the Earth's surface, having a wide range of data, analytical potential, thus giving the viewer new perspectives when analyzing a given Earth area with such geographic technology. . (GIS, 2017).

Google Maps comprises a geographic information system, provided by Google, used for georeferencing and virtual mapping at a global level. (GOOGLE, 2017a). Street View is a Google Maps feature that provides 360° horizontally and 290° vertically panoramic images in specific regions of the world. (GOOGLE, 2017b). Street View acted in the process of capturing images and others by the author.

MIT App Inventor consists of a visual programming environment, dedicated to the development of functional applications for smartphones and tablets, based on block programming, being the tool responsible for generating the @llaki application. (MIT, 2017).

DEVELOPMENT METHOD

For the development of the Software, the geographic information system Google Maps, the WordPress content management system, together with the MIT App Inventor mobile software development platform, were used, adopting the following steps below.

1º Border Mapping: Using the geographic information system Google Maps, made available by Google, the tool is responsible for generating the virtual map of the Border between Ponta Porã and Pedro Juan Caballero. **2º Pinout of Locations:** Through the WordPress content management system, the user accesses the panel and registers the locations. After registration, the geographic information system Google Maps, included what was registered in the virtual map.

3° Cross-platform Integration: The virtual map (Google Maps) is inserted in the web system, over which the content management system (WordPress) manages, so both act mutually. **4° Availability:** Because it is online with the possibility of locating both localhost and the World Wide Web, and has characteristics of responsibility, adapting to variable screen models, accessible to Desktops, Laptops, Tablets, Smartphones and other devices that have an internet connection and a compatible Operating System. To create the application, the MIT App Inventor platform was used, connecting the generated application to WordPress.

METHOD OF USE

When the system's initial screen is displayed, the administrator's name or e-mail and password are informed for access. The user chooses the desired region, receiving a broad view of the system's operation as shown in figure 3. **1º Step:** The System Administrator registers locations, categories, regions, pages and ensures the correct functioning of the system. Access the administration screen, select the "Login" button, enter your name or email and password.

Presenting the category insertion screen, the administrator registers the desired categories, as shown in figure 4. **2º Step:** On the system administration screen, the category registration screen is displayed on the menu, the administrator informs the category name, description, images and it is added.

Presenting the screen for entering locations, the administrator registers the desired locations, as shown in figure 5. **3º Step:** On the system administration screen, there is the Places registration screen, the administrator informs the name of the place, which category it belongs to, description, images, address, geolocation, times and the place is added.

Presenting the region insertion screen, the administrator registers the desired regions, as shown in figure 6. **4th Step**: On the system administration screen, the regions register is performed, the administrator informs the name of the region and which category it belongs, description, images and region is added.

Figure Methodological Diagram.
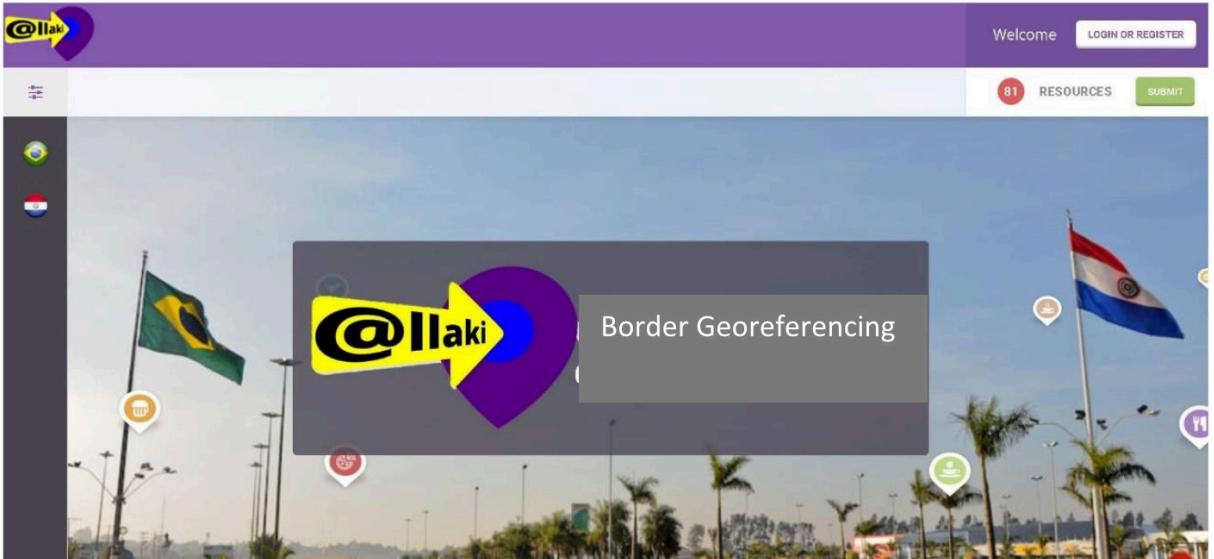Source: Prepared by the author (2017).

Figure 3. System splash screen.

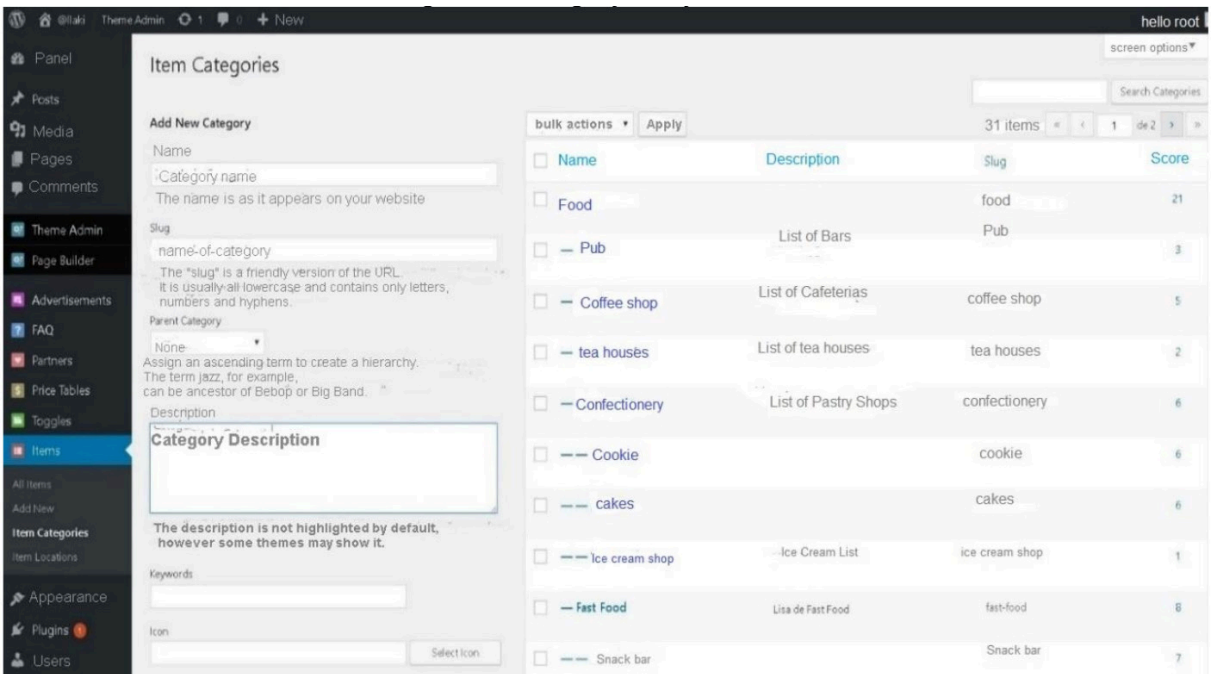Source: Prepared by the author (2017).

Figure 4 Category entry screen.
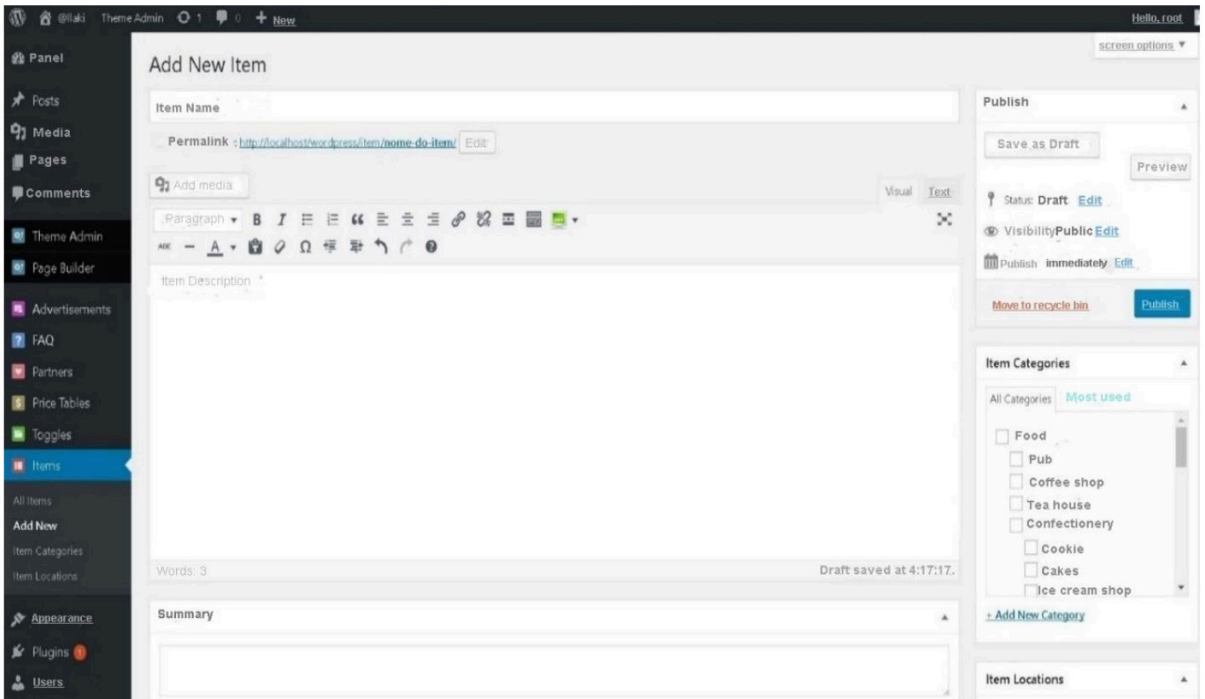
Source: Prepared by the author (2017).

Figure 5. Location input screen.
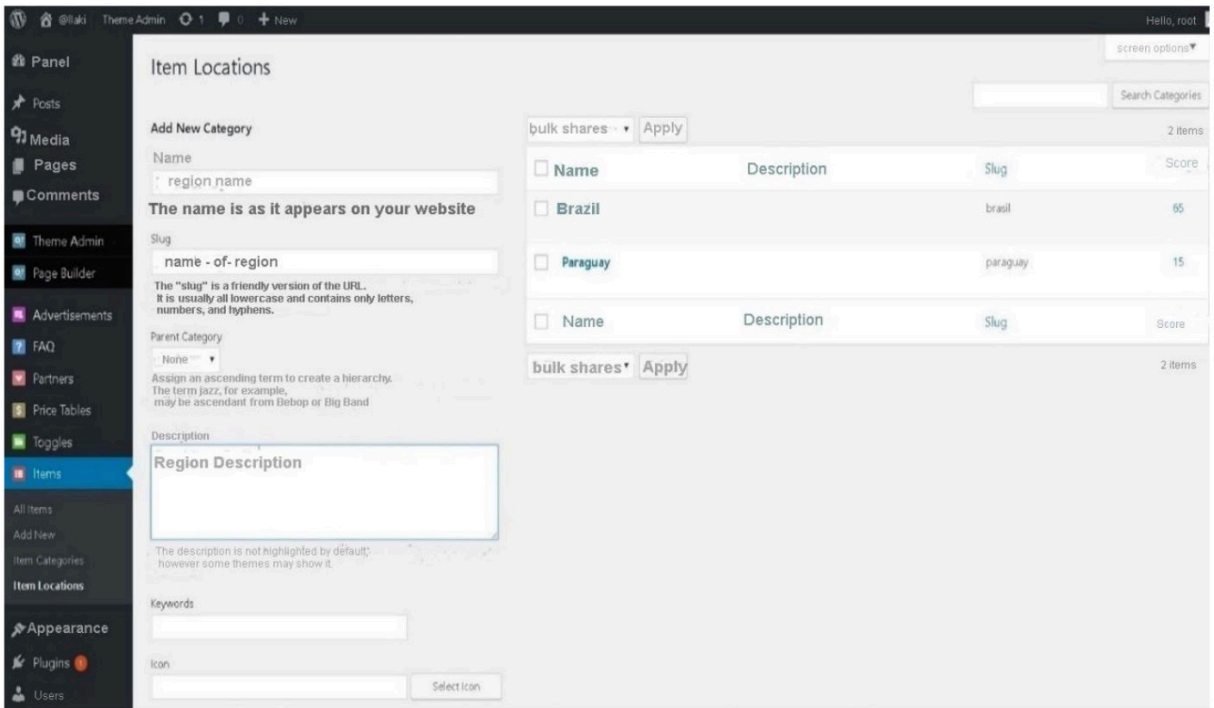
Source: Prepared by the author (2017).

Figure 6 Region input screen.

Source: Prepared by the author (2017).

5º Step: The user in the left side menu selects the region, Brazil refers to Ponta Porã, Paraguay refers to Pedro Juan Caballero, as shown in figure 7. Users who do not have administrative privileges on the system, access the screens viewed from this moment on.

On the search screen, the user searches for the desired locations, using search resources, as shown in figure 8. 6th Step: The menu of categories that were registered, food, shopping, hotels, public services is displayed on the left side, transport, tourism. In the center, all registered locations in the chosen region are listed. On the right there is the virtual map that shows all the marked points of the chosen region.

The category search screen allows the user to choose between the existing subcategories of the previously selected category, as shown in figure 9. 7th Step: After selecting a category in the left side menu, subcategories are displayed in the upper center to select them, in the lower center all locations of the selected category are listed. On the right there is the virtual map identifying the locations, using the subcategory icon.

The subcategory screen exclusively exposes the subcategory of the selected category and its respective locations, as shown in figure 10. Step 8: After selecting the subcategory, only the locations belonging to it are listed in the lower center, together on the virtual map on the right.

On the location screen, the selected item is detailed, providing visual, textual and geographic information about the establishment, as shown in figure 11. 9th Step: After selecting the location, the page of the same is displayed with visual information, with a photograph of the location, for the user to visually identify textual information, containing the description of the location, opening hours, address, telephone, social networks and geographic information, present in the virtual map on the right.

Using the mobile app as shown in figure 12. All the above steps apply when accessing the system in a mobile environment.

Soon the application helps the user as an interactive, portable, versatile and free map, making the tourist journey smarter and more meaningful.

FINAL CONSIDERATIONS

The development of the present work enabled the integration of a geographic information system, together with a content management system and the creation of a mobile application capable of viewing the aforementioned systems, also present in social networks. Aiming at the implementation of technology in the tourist field, to increase the contact of the resident and visitor population with the region for the meeting of the localities.

Further increments are suggested, with new technological projects on other borders between Brazilian and foreign territory for smart tourism on a larger scale. Emphasizing the need and importance of carrying out georeferencing of the region where we live, in which the process is usually carried out by the person in charge of the establishment, or by an individual who is willing to georeference most of these establishments.

The work concludes its objective of developing the elaboration of the system, in order to facilitate the location of establishments on the border between Ponta Porã and Pedro Juan Caballero, having a reliable and secure source of all registered places, thus promoting the visibility of regions that do not are inserted in search engines, providing a greater alternative for the tourist and regional population.
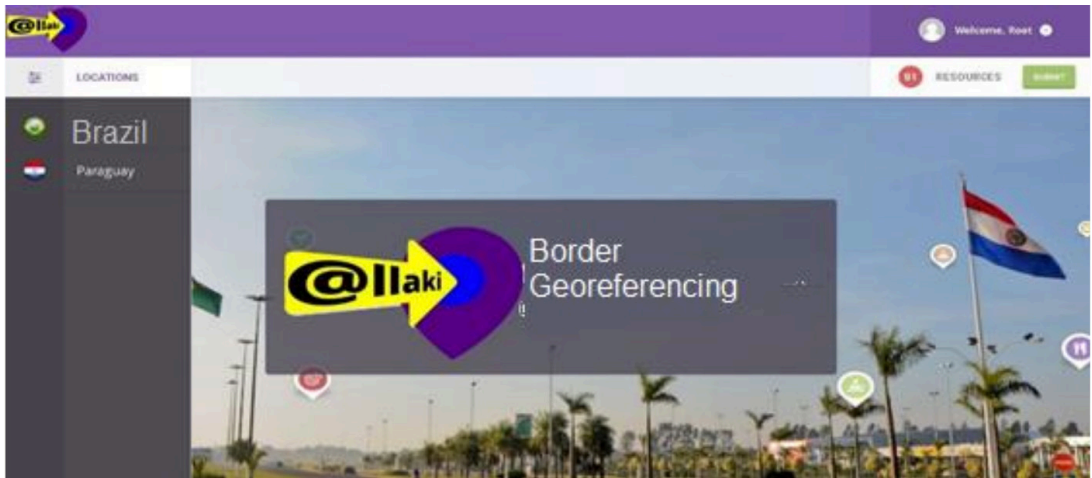
Figure 7. System splash screen.
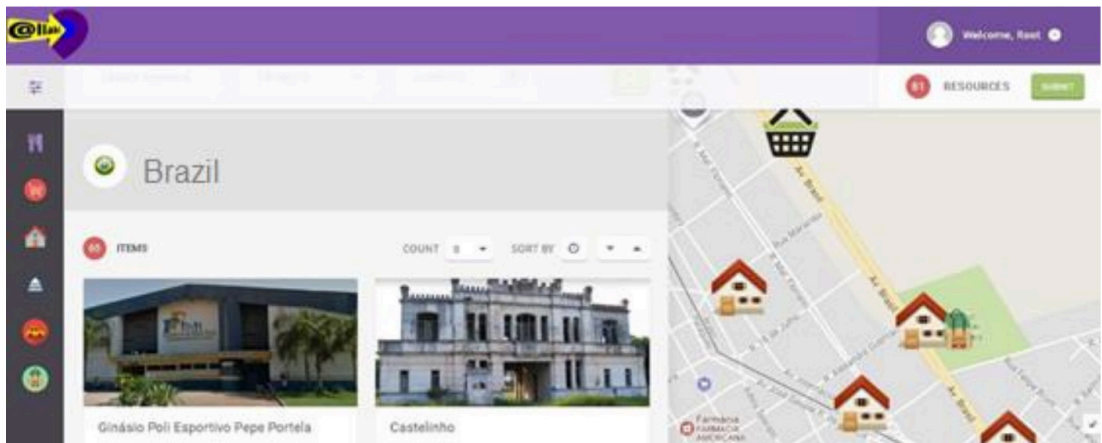
Source: Prepared by the author (2017).

Figure 8. Search screen.
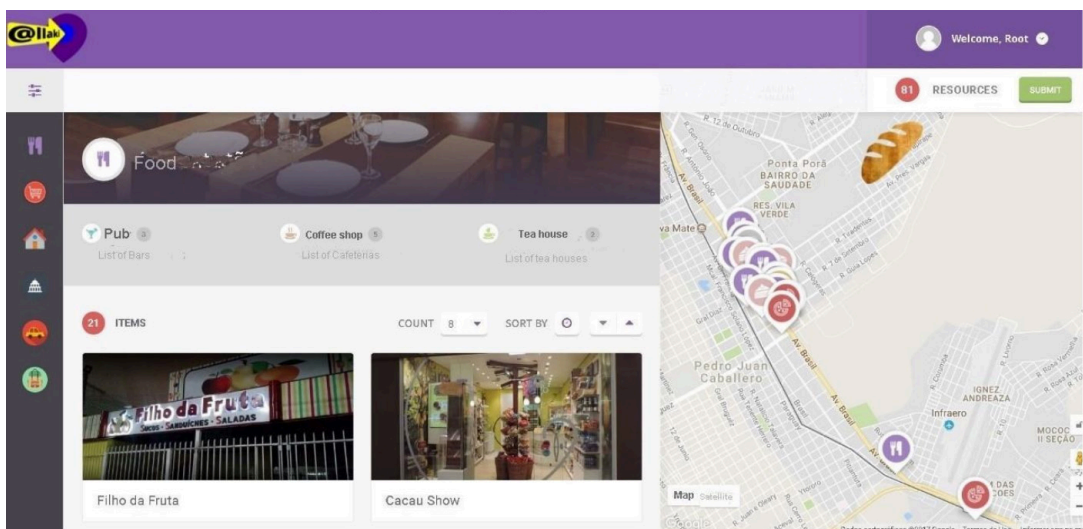
Source: Prepared by the author (2017).

Figure 9 .Category search screen.
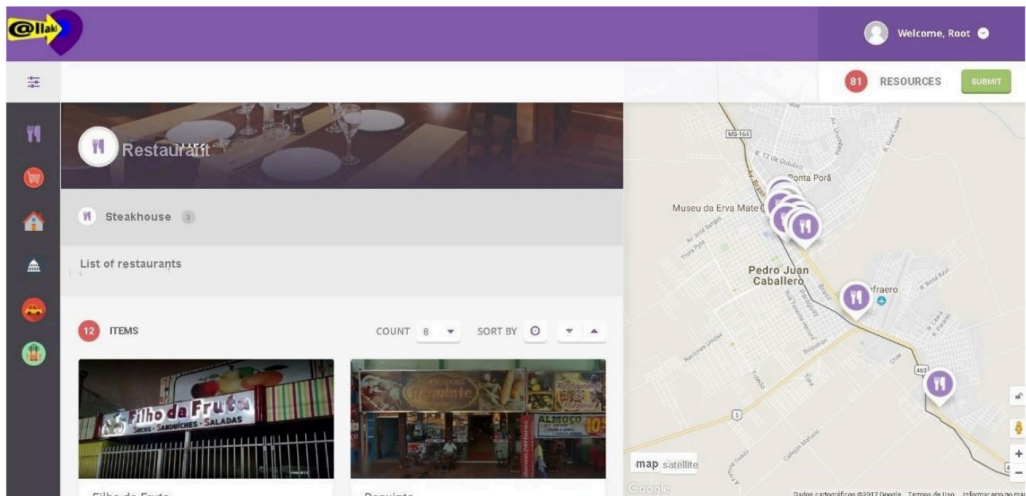
Source: Prepared by the author (2017).

Figure 10. Subcategory screen.
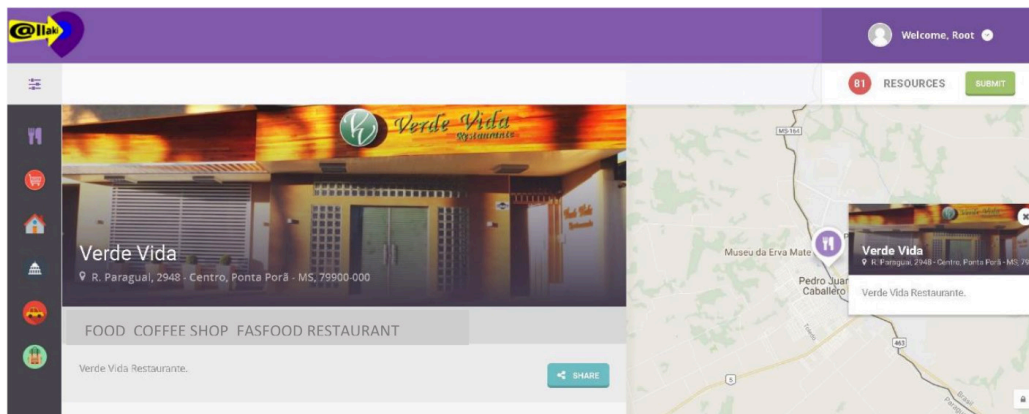
Source: Prepared by the author (2017).

Figure 11. Location screen.

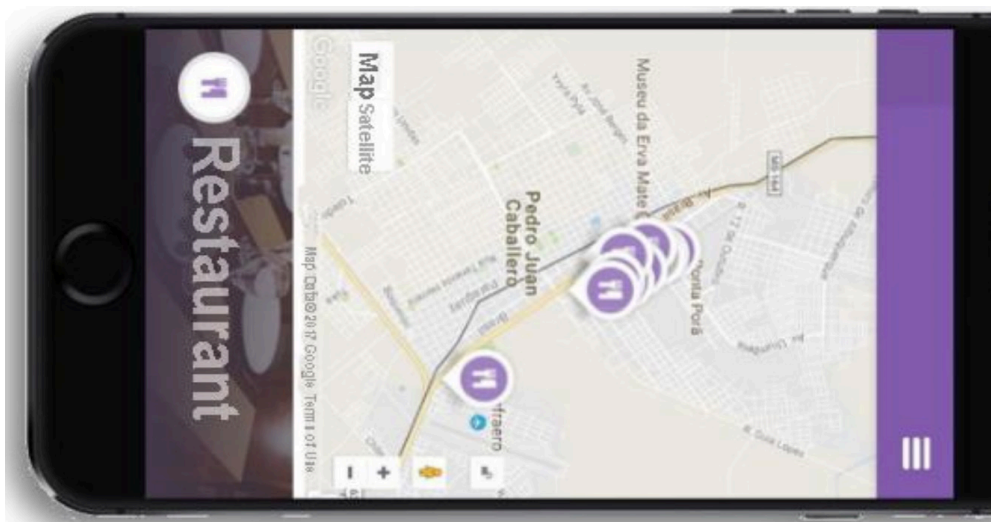Source: Prepared by the author (2017).

Figure 12 Location screen in mobile application.

Source: Prepared by the author (2017).

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