Party4All: A Collaborative Digital Solution to Map Accessible Bars and Restaurants

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Abstract—**This short paper presents results of a survey made with disabled people, to understand how they feel when visiting public locations with accessibility problems. It focuses especially on topics related to find the most suitable place, in terms of accessibility, in big cities. This version focus on bars and restaurants in Brazil. In addition, it presents existing applications that intend to assist disabled people to reach selected places. Finally, it elicits the opportunity to present a new digital solution, called Party4All, which presents opportunities to be more accessible and efficient than the depicted application.**

Keywords-eliciting; survey; accessibility; disabled; solution; restaurants.

I.   INTRODUCTION

Universal Declaration of Human Rights states that human rights should be applied to everyone, but in practice, they are often denied to disabled people. Their interest a frequently ignored, either for political, economic or social motivations [1].

Around 15 percent of world's population, or estimated one billion people, live with disabilities. They are the world's largest minority. Eighty percent of people with disabilities live in developing countries, according to the UN Development Program [2].

Brazil - which will be used as representative of developing countries to investigations and solution proposed in this short paper - has about 45.6 million people with disabilities. They represent approximately 23.92% of the country population [3]. In Figure 1, is possible to see the percentage of people for each type of disability. According to Brazilian Institute of Geography and Statistics, 38.4 million of these people live in urban areas [4]. These areas come to be where most of the public services are located.

An appropriately designed environment may include enabling positive experiences of all users; yet public spaces are not always concerned about people with disability accessibility, in the universal sense. But manufacturers and builders who use the universal design concept, design their products and buildings to be as usable as possible by a larger population including children, older people, and people with disabilities. [5]. This universal approach to the designed environment allows the full social participation of everyone in the activities of public spaces regardless of age or ability. Everyone should have the right to choose and move around freely in any environment. No matter who, a person must have the chance to do what s/he wants and needs, including accessing houses, work, transportation, or social venues [6].
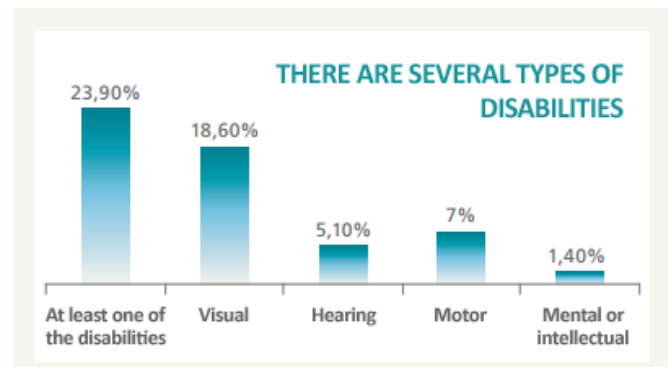

Figure 1.   People percentage for disability type in Brazil in 2010

This short paper has as main goal to analyze disabled people accessibility experience when attending bars and restaurants in big cities of developing countries. It also investigates how these people feel about places that are not prepared to provide adequate services to them. Besides the bars and restaurants services, this paper also talks about a search over existing application that have the purpose to assist disabled people in finding accessible establishments. In addition, as result of this investigation, the paper presents a new digital solution proposal that aims to be more complete and efficient than other solutions found during the previous search.

Section II presents the background material. It also talks about accessibility concepts and challenges faced by people with limited mobility, when attending a place not adapted to receive them. In Section III, there is an analysis of three digital solutions that intend to help disabled people to find accessible places. The user survey results are also detailed. In Section IV, conclusion and next steps are described.

II. BACKGROUND

A few years ago, it was rare to find a space with adapted toilets for people with disabilities or reduced mobility in bars or restaurants; today this is a trend. The Brazil national´s and regional´s laws state accessibility rules, and the increased importance of accessibility in the business marketing. Looking for a new audience and a consumer who values social commitment, the entrepreneurs begin to see the importance of adapting to accessibility rules, presenting opportunities in the field of adaptation. There are laws that require adequacy of tourist and leisure facilities to the requirements of ABNT 9050, making these spaces accessible to all people, including those with some type of special needs [7].

Although there are several studies on tourism and accessibility, there are few, or almost nonexistent, researchers focused on accessibility in gastronomical enterprises [8]. During an ethnographic digital research on specialized websites and social network communities, focused on disabled people – one of the first's steps of investigation to produce this paper - it was possible to see that this public wants to know more, enjoy and promote social inclusion initiatives. Anonymous statements on Brazilian Adapted Tourism blog attest that, when they go to accessible bars and restaurants, they recommend them. If not, they spread around the web their opinion about the bad services [9].

Focusing on this, an opportunity was perceived to work on an application to help them to map bars and restaurants, according to their suitability for accessibility, in large cities. The app should also help to find these sites easily, helping people with disabilities to get to the establishments, and entrepreneurs to propagate their services.

Accessibility is, according to Brazil´s Law No. 5,296 / 2004, a condition to use, with security and autonomy in whole or assisted spaces, furniture and urban equipment, buildings, transport services and devices, systems and means of communication and information for people with disabilities or reduced mobility. An accessible environment permits to be utilized and enjoyed by anyone, including those with disabilities [10].

Although people with disabilities are often seen with the stereotype of being unable to lead a normal life, they show up to be active and able to interact. They can participate in any activities as others, if provided adequate accessibility conditions [1]. During our ethnographic research, we found out how much people with disabilities were bothered about not having their rights respected, as much as any other citizen rights. Frustration and anger are feelings that appeared in their testimony. They state, "The world persists in believing that they would be locked in the house".

However, instead of complying with these preconceptions, they show disposition to fight to make everyone understand that they have a life, and they want to live it as any other [9].

III. SIMILAR APPLICATIONS

During investigative web researches and consultations with experts on disabilities – one professional and one director of a disability association - just a few mobile device applications showed to be available to assist people with limited mobility to name and locate properties that fall out the accessibility rules, particularly in Brazil. Three of them stood out and were chosen to an analysis, that took into account the following aspects: served platforms; general visual aspect; possibility to add new establishments; coverage of bars and restaurants in 5 biggest cities in Brazil; main features; possibility to share results and comments on social networks; feedback for establishment owners. Results of this research come next.

A. Clapp-in

Clapp-in is an application produced in Brazil with objective to allow users to applaud public or private establishments, according to their adaptation to accessibility [11]. With announced intention to promote social inclusion of people with disabilities in tourism and leisure, it allows people to map, evaluate and comment on application with notes and opinions about the visited establishments. In Figure 2, one can see app´s screenshots with a home screen, where user is introduced to application and its objective and also a main screen image, with a list of establishments, its addresses and evaluation results, represented by claps icons (from 0 to 5 claps).

Figure 2. Clapp-in screenshots

Available for Android, it was possible to install it only on one of the four devices in which we performed tests – Samsung Grand Duo (Android 4.1.2), showing that it still does not seem adapted to the various versions of platform. The other phones were a Samsung SII TV (Android 4.2) and 2 Moto G (Android 5.0.2).

Clap-in has a simple design, but makes it clear to user its objective, and is not difficult to use. However, share comments on social networks or send feedback to establishment owners, are not possible with this application. Moreover, the numbers of establishments already registered at app are not significant, in comparison with the millions of public services offered in one of the 5 biggest cities in Brazil, which were taken into account during this analysis. That can make the app not very helpful for the user.

B. Accessible Tourism

Accessible Tourism is a Brazilian Ministry of Tourism program application and has the function of allowing collaborative construction of accessible establishment's data bank throughout the country [12]. Available in IOS and Android, it allows users to add new establishments in the system and information, such as city and type of service, covering not only bars and restaurants, but any public site. Users can also rate and seek for establishments according to type of disability. In Figure 3, one can see some of application´s screenshots: home screen with shortcuts to find accessible places according to disability type and a screen listing establishments prepared to receive people with physical disabilities.

With attractive design, large icons with clear metaphors and list items placed so user can select them and perform searches with ease, as well as an information hierarchy well planned, the application shows efficiency. This app has no integration with social networks and it has no possibility to locate establishments on a map for easy access. It was also noted that only 2 of the 5 biggest Brazilian cities have a significant number of feedbacks or information inputs.

Figure 3. Accessible Tourism screenshots

C. Wheelmap

Whellmap [13] is an online map to search, find and mark wheelchair accessible places around the world. It permits anyone to participate in this map, marking public places as restaurants, cinemas, bar or supermarkets. Wellmap is available for website, iPhone and Android. Easy to install, the app on iPhone 6 has an attractive and clear layout. Users can easily find establishments, evaluate them, comment and share by twitter, Facebook or email. They can also filter establishments on the map by categories, which is very useful. Although it was possible to see that are many places already mapped in Brazil, just a very few of them had their wheelchair accessibility marked. Figure 4 presents some app screenshots: a map with various establishments, identified according to their accessibility level. There is also a screen shot with more details of a restaurant, showing options for sharing, commenting and tracing the route to go there [13].
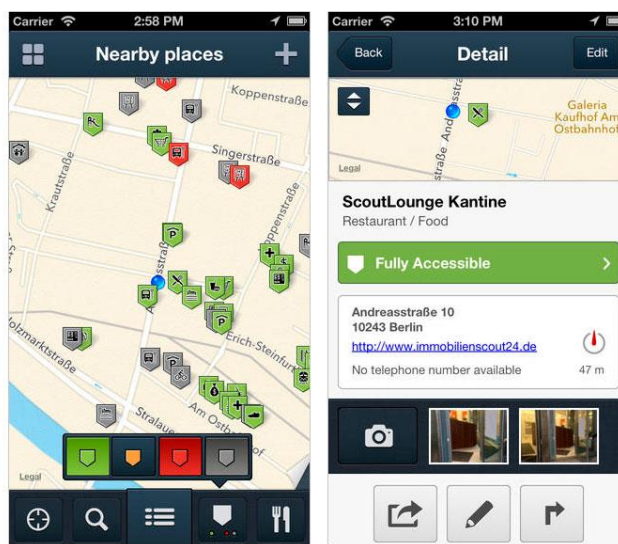

Figure 4. Whellmap screenshots

When conducting this research on Whellmap, we wonder why Brazilian government data is not part of this international effort to map accessible establishments, rather than having its own application for this. The answer could be in the new Law project 5.344 / 13, which establishes the regulatory framework of cloud computing and states that to acquire cloud computing services agencies of federal administration shall require that data center is located in Brazil. The measure intends to ensure that Brazilian law prevails, over any other, in case of contractual discussion and protects data, since contractor has to be subject to audit [15].

IV. USER SURVEY

By comparing the 3 applications, it was possible to find important inputs to determine what features presented at them could be interesting to add to a new solution proposal, and which ones are not relevant to this new app objectives. Adding a new establishment and evaluating a local business, is a common feature for all of them. They are also easy to

use and seem to have enough tools to realize their main objective – allow users to evaluate a local business, according to its accessibility. However, some items, like lower coverage in Brazilian cities and giving no possibility to contact the local owners directly, or share opinions on social networks, are features that need to be considered in a new solution. The 3 apps are also very embracing in terms of public services types and what makes it difficult for a user to find a specific bar or restaurant nearby, for example.

After the ethnographic digital research and similar applications analysis, the next step was to make semi-structured interviews with disabled people. A total of 10 interviews were conducted, of which 5 people had physical disabilities, and 5 were blind. The intention was to understand who they are, what their recreational habits and interests are, how satisfied they are with restaurants and bars accessibility.

The research also intended to identify whether there was an opportunity to offer a digital service to help people with disabilities or limited mobility, on having the same rights when attending public institutions. In addition, if there was this need, which were their main interests as users of this service? We also tried to find out if they knew any application to help find and map accessible places in Brazil. We also wanted to know if they knew an app with this objective and their opinion about it.

The interviews resulted in rich testimonials and showed some of the problems faced by disabled people. In general, they stated that there were huge improvements in accessibility of bars and restaurants in recent years. They believe that Brazilian federal and state laws, which demand establishments to meet accessibility requirements to have operating license, caused it.

The interviewees display autonomy when the environment has ideal accessibility conditions. They are able to work, study, drive, practice sports, and socialize with friends. They rely on these friends to help them, when going to places that are not easily accessible for them, but prefer to go to the ones that give them freedom without any help. In Figure 5, some interviewees can be seen.

Figure 5. Some of the survey respondents

A few problems were recurrent in their answers. The

sidewalks are not appropriate and make difficult accessing places. Sometimes stairs are the only access to establishments and others, the entrance to wheelchairs is through the service door. Even the bathrooms, which should comply with disabled people necessities, occasionally, have doors opening inside, what make impossible for wheelchair users to close them.

During the interviews, people said that they find out about accessible places through friends, social networks or websites. In spite of them being regular users of smartphones, they only heard about the digital applications found during mentioned research, having no opportunity to download it and use it. However, they showed interest in having an application that helps to choose a place, according to accessibility and share their impressions about it with friends. They declared to be available to collaborate with user tests, when the time comes.

Looking for services to facilitate their movements and ensure their rights, allowing life quality, is almost a consensus among them.

V. CONCLUSION AND NEXT STEPS

By reading through blogs and communities in social networks, in addition to interviews with disabled or with limited mobility people, was possible to observe that they are increasingly leaving their houses, looking for their rights, and using digital media to do so. They want a more active life and to be able to attend bars and restaurants that are prepared to receive them.

After the survey and conducted research, there was an indication that a collaborative application could be of a great help in promoting the social inclusion of people with special needs. This application should allow users to help build an information database, focused on mapping bars and restaurants, according to how accessible a place is. It also has to be possible to evaluate and find these places, besides enabling search for locations and trace route. They should also be able to share thoughts about these establishments on social networks, thus promoting greater awareness of services offered or problems faced.

The application proposed in this work - Party4all - intends to allow users to use their smartphones, find and map places, rate them by level of accessibility, check rates and comments created by other users. It is also possible to share all information and insights through social networks, allowing sharing good or bad initiatives. It also permits to communicate with bars and restaurants owners, to let them know their evaluation and give them the opportunity to communicate directly with their clients and give them feedbacks.

As represented in the application architecture, Figure 5, the sharing collaborative network cycle should go through the following steps: People, regardless of their disability status, should be able to add information to the tool and share on social networks. By doing this, it is expected that those places will have more clients improving their

experience, changing the overall grade, and therefore spreading new information on social networks.

This should promote greater comfort and mobility in bars and restaurants for people with disabilities or with locomotion difficulties.

Figure 6. Party4all information architecture

The next step to accomplish this goal is related to publish studies and researches on, why people in Brazil appear not to have a significant participation in worldwide initiatives, like the Whellmap itself, or other international services that collaborate with social inclusion through technology;

Study the most suitable option to implement the solution itself and the possibility to take advantage of collaborative production is also a future step. This would bring new challenges to the project.

The development should start with an Android application, since this platform had been used by 91.6% of Brazilian smartphones in 2014 [16]. Nevertheless, more investigation will be made to decide, for example, what technology is going to be used to map places.

At the same time, the user experience solution will be built, through sketching and prototypes that can be tested with users. We also need to answer questions such as if the information is sufficient, or if more details are needed. Inputs as these and others will be primordial to have a solution. That will help achieve the goal to promote social inclusion in an engaged and efficient way.

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