Inclusive Cultural Heritage Tourism

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Abstract. *Tourism is an important contributor to the global economy, providing employment and generating revenue. However, the industry faces many challenges, including the need for greater inclusivity and accessibility for all. Inclusive Tourism offers a new market niche that has both economic and social value and has the potential to compensate for any declines in tourism growth rates. This niche offers opportunities to extend the touristic experience of a region, activate cultural heritage, support the creation of new technological businesses, and stimulate the digitalization of touristic offers. Developing innovative solutions, such as the Inclusive Cultural Heritage Tourism online platform and the automatic bidirectional translator for touristic activities, can improve access to information and communication in everyone's first language. Advancing Inclusive Tourism can open doors to a significant share of the global tourism market and position promoters at a unique advantage in the international touristic environment.*

Keywords. Inclusive tourism, sign language, machine translation, holographic user interface, online platform

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1   Introduction

In order to ensure inclusion and accessibility for deaf citizens when accessing information, visiting cultural sites, or using services, new assistive solutions are needed to overcome communication barriers. For deaf tourists, language barriers pose a significant challenge and hinder their ability to fully participate in international tourism activities. As tourism is now widely recognized as a social good, it is essential that everyone has equal access to it through innovative and inclusive solutions.

The Inclusive Cultural Heritage Tourism (ICHT) project is aimed at expanding the benefits and opportunities of tourism to all members of society, especially those who are often excluded from tourism. The project focuses on developing digital and assistive tools and content to meet the criteria of sustainable development. It aims to improve accessibility and inclusion, offering a better quality of life to those who face difficulties accessing tourist destinations and services [1].

The ICHT project involves two key deliverables: an online platform and an automatic bidirectional translator for touristic activities (ATT). The aim is to enable communication in everyone's first language, and to improve the engagement of deaf tourists in all touristic activities. Five pilot installations will be adapted to incorporate these deliverables, and the project also advocates for a broader access to information in everyone's first language, as well as training of touristic operators in sign language basics to better welcome and assist deaf tourists [2].

In addition to its social relevance, the ICHT project promotes economic interests and expectations of development and innovation in the National Touristic Strategic Plan, by prioritizing "innovative strategies to develop new products with high added value by addressing niche markets" and "upgrading the quality of the visitor experience." By enhancing accessibility and inclusion, destinations become more attractive, fostering economic growth and international recognition [3].

Overall, the ICHT project aims to provide new assistive solutions for deaf citizens, promote the touristic offer, value cultural heritage, and boost economic growth through technology. By prioritizing inclusion and accessibility, it offers a unique opportunity to improve the socio-economic development of our societies.

2   ICHT platform for inclusive tourism

The ICHT platform integrates an online application with a holography user interface that is installed on-site at various tourist attractions. These elements are linked through a game that includes both deaf and non-deaf tourists and touristic operators, creating an all-inclusive and collaborative touristic experience that can be enjoyed before, during, and after the visit. The aim is to support deaf tourists and introduce the cultural heritage and touristic attractions to a wider audience.

2.1 Online platform

An internet-based platform has been developed to facilitate collaborative efforts amongst those who are interested in cultural heritage tourism. This platform has been integrated with on-site ICHT installations, providing a joint experience for both on-site and remote visitors. The platform offers information and support throughout the entirety of the touristic experience, from planning to sharing post-visit experiences with others. The user may choose to utilize their game account on the platform. The online platform is divided into six primary sections: Home, Courses, News&Events, Game, Practical Community, and Contacts.

Home. The primary page of the platform is the Home page, which the user initially encounters upon opening the platform. The Home page is divided into six distinct sections. The first section contains a video showcasing some of Porto's most stunning lo-cations to visit. The subsequent section provides a brief introduction and contextualization of the plat-form's objectives, along with meteorological information for the Porto district at the time of platform consultation. A third section provides links to pages that reference the locations where the ICHT system is installed, followed by a section featuring 12 suggested tourist destinations in Porto, and a section addressing potential user questions with their respective answers. Lastly, there is a section containing information on how to contact GILT.

Courses. The platform will feature two sign language MOOCs. One will focus on LGP, while the other will cover IS. These courses are designed for tourists and touristic operators interested in learning the fundamentals of each respective sign language. The primary objec-tive of these courses is to provide national non-deaf human resources in the touristic sector and deaf tourists from foreign countries with a foundational under-standing of Portuguese sign language and international sign language, respectively. This will help to facilitate com-munication between deaf and non-deaf individuals during touristic activities. These courses will be accessible via the Courses page on the online platform.

News & Events. This page showcases the most recent news and upcoming events related to various topics, including the ICHT project, tourism, deaf individuals, and related subjects.

Game. The ICHT game will be integrated into the platform, allowing tourists to begin playing from the moment they express interest in a particular destination. Tourists can play the game for as long as they desire, accruing points and rewards for interacting with other users through the collaborative platform. The online platform will also serve as a central hub for promoting all ICHT destinations. The Game page on the online platform will be respon-sible for facilitating the interaction between the game and the platform. This page will display links for users to download the game, as well as pages containing information about locations where the game can be played.

GameMap. There will be five GameMap pages created for the following locations: S. Pedro do Sul Thermae, Porto Coliseum, Maia Zoo, Porto Commercial Atheneum, and Cléri-gos Tower. These locations will serve as pilot installations for the ICHT system. Each Ga-meMap page will display the following information about the respective destination: a brief description of the touristic location, scheduling information, written and LGP-based question and answer sections, a gallery of destination photos, and a map highlighting the location of the destination.
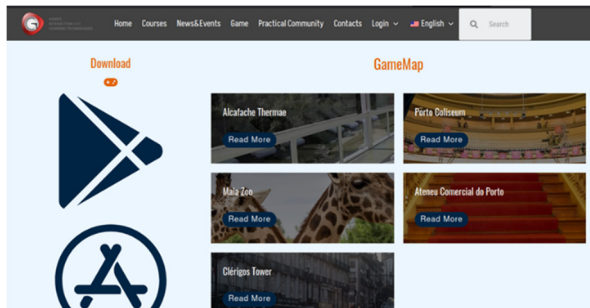
Figure 1. Game page

Practical Community. The Practical Community page on the platform allows users to access all the social networks associated with the ICHT project. Users can share their experiences, ask questions, and engage with other users through these social networks.

Contacts. The Contacts page on the platform was designed to provide users with a straightforward and easy way to contact the project developers via email.

2.2 Hologram

The holographic vision of the avatar doing the translation is obtained using the Dreamoc XL3 which is a 270° 3-Sided Holographic Display. To give a 3D aspect to the avatar, the video format needed to be this: 3 avatar images, one facing the viewer, in the middle between the 1st and 2nd quadrants, and two in profile, one in the 3rd quadrant and one in the 4th quadrant. The one facing the viewer must have a 180° angle and the profile ones must have an angle of 90° and 270° respectively. The background of the video must be dark.

This phenomenon is called Pepper's Ghost Illusion which is a special effect technique used in theatre, television and magic shows to create the illusion of a ghostly apparition or a transparent, holographic projection. The technique involves a reflection of an object or a person onto a glass or a transparent sheet positioned between the viewer and the object. The reflection is usually achieved by using a hidden, angled plate of glass or a sheet of Mylar film. The effect creates the illusion that the object is floating or appearing out of nowhere [4].
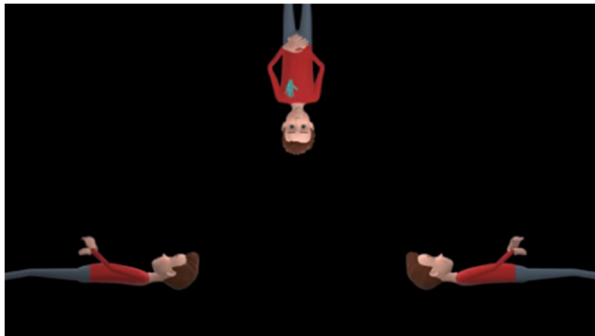

Figure 2. Holographic position

3   Conclusions

The ICHT project is a remarkable initiative that can bring about significant changes in the way the deaf and non-deaf communities communicate and interact in touristic activities. By providing sign language MOOCs and an automatic bidirectional translator, the project aims to empower both deaf tourists and touristic operators to communicate effectively and enjoy a more inclusive and fulfilling touristic experience.

Moreover, the development of the ICHT online platform, which integrates the sign language solutions with touristic information and assistance, can enhance the accessibility of tourism for the deaf community. By offering a collaborative experience among live and remote visitors, the platform can also promote cultural exchange and awareness.

Overall, the ICHT project demonstrates a promising approach to overcoming communication barriers and promoting inclusion and accessibility in touristic activities. It can serve as a model for other destinations seeking to improve their accessibility for deaf tourists and enhance their cultural heritage tourism.

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