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ARCHITECTURAL ATMOSPHERE MEASURING INSTRUMENT DIGITAL PERCEPTION TOOL

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Abstract: The aim of this article is to focus on the importance of new technologies, namely the use of artificial intelligence, in order to promote culture, art or history of urban places. This is a contemporary theme, as tourism is one of the key elements for increasing the number of visitors to a city. After the crisis that emerged with COVID-19 virus, a very important question is how to attract people back to certain historic and tourist areas that have been deserted.

We will show a mobile application, which is still under development, about the emotional meaning of a specific urban or architectural place. This tool or game shall have an influence in the attractivity of the city since people will tend to go to places with a more positive evaluation. Both for leisure and for business purposes. To explain the purpose of our mobile application, it will be necessary to focus about the importance of marketing and the way in which we perceive a space.

The goal is to showcase a digital tool that is currently being developed and that we hope will be able to contribute to promote and make urban places more attractive and dynamic.

Keywords: Urban places; Artificial Intelligence; City; Tourism; Urban marketing.

Introduction

The way which we communicate is directly related to the way in which we understand reality and with our cultural heritage (Burgess, R., 2014). Therefore, many people communicate in the wrong way and end up being misinterpreted. We know that communication is a vehicle that brings the information about a specific set of facts or issues to the final consumer, namely the receiver.

Communication can be gestural, visual or verbal. But it can also be done through graphic records or artistic expressions, in this case the issues related to aesthetics and marketing end up becoming important to understand the message and its respective information (Vicente, P. N., 2017).

Man has always communicated, revealing stories, life moments and interacting with others in the most varied situations. Over time, many were the forms of expression in terms of expression at the level of communication, which were used in the most varied situations, and many were the “machines” that were invented to help in the spreading of messages, many linked to the discovery of the telephone and fax, for example. However, and more recently, with the invention of the computer and the emergence of the Internet, the way of communicating has completely changed, living now in a very different paradigm, where everything is faster and where an almost immediate response capacity is expected.

We no longer communicate only with the people around us, but with the world, anytime and anywhere.

Communication has become interactive and it is expected that people acquire a previous learning on how to use the various equipment's.

Marketing has allied itself to communication, being itself a form of communication, which manipulates and influences people in relation to certain situations that are intended to be promoted or publicised. Philip Kotler wrote about marketing and communication in his book *Marketing Management - Analysis, Planning, Implementation and Control* describing how communication is fundamental to marketing and how it is possible to manipulate and influence consumer behaviour (Kotler, Philip, 2011)

Marketing has direct links with communication, but at the same time it is involved with aesthetic issues, both at the level of graphic expression and linguistic expression. However, in some situations, marketing can operate as a kind of boycott of information.

Artificial intelligence, allied all forms of knowledge (Oren Etzioni, 2018), at the level of various techniques and methods of communication, leading people to react according to their own and organisational stimuli. In fact, cities, streets, and buildings become intelligent due to artificial intelligence.

But the issues linked to our historical and cultural past were never forsaken, and since early times the need was felt to design spaces where memories could be

preserved, and at the same time expose them in the form of an exhibition. In this way, cultural heritage was preserved and protected. Thus, Museums or specific areas of the city emerged, trying at all costs to preserve the cultural and architectural characteristics of a relevant historical past. Museum spaces and protected areas, inside and outside urban spaces.

These spaces have been following the evolution of communication, designing strategies, interesting, to attract people to visit them, but also to expose those memories in a way that its reading or understanding is practical and intuitive. Artificial Intelligence, ended up being part of these spaces, recognizing people's facial expressions and understanding what the motivations of each one are, giving orders to the several computers to act in a certain way in the most diverse situations.

The use of new technologies is a constant in our daily life, helping us with many of our tasks, making them simpler and more practical.

Museums have modernised and now combine digital technology with reality, opening doors for more and more people to visit them. Videomapping, for example, is a constant in almost all historic areas, projecting memories, projecting dreams. Videomapping ended up using architecture as a fundamental element of the film, where for the first time it was possible to interact between the real and the virtual world, as here the two dimensions live together.

Communication has become a vehicle for cultural dissemination and, for this very reason, Museums use it with great imagination. The ability to communicate leads to a better understanding of messages that we want to spread.

The strategies of communication from museums or spaces linked to culture or heritage tend to be increasingly imaginative, interconnecting directly between what is communicated and how one wants to communicate, and also, with the way in which this communication can work as an element of attraction, outside or in the streets near the museums, so that people feel curiosity or understand the intended message.

Communication is done by using posters, subtitles, sounds, installations, videomapping or simply through games, etc.

In the urban space, preservation and promotion strategies combine restoration techniques with the most modern technology, namely that related to artificial intelligence.

Marketing has become a very important element, which can help promote and enhance the various contents that are intended to be known, establishing a close relationship between what you want to show or make known and the visitors.

Artificial Intelligence and new technologies

Artificial intelligence allied to information technologies using computers and appropriate programmes can, on the one hand, help develop certain functions, through machines, or simply influence the organisation of space, implying that people live and orientate themselves in a certain way. Without realising that they have been manipulated or orientated through computer programmes that stimulate orders and regulate the world we live in. But, on the other hand, we end up becoming less autonomous and less spontaneous, because that same spontaneity is also controlled by artificial intelligence.

The use of marketing as a form of communication has become a powerful tool, which manipulates messages so that they are understood as intended, leading people to believe and accept with greater ease, the rules and understanding of the world around them (Dormann, Christian, 2015). In other words, marketing and artificial intelligence, go hand in hand.

A fundamental question still arises, which is to know if artificial intelligence really exists, since it is a set of orders, processed in an “artificial brain” that through some information reacts according to a specific programming. Therefore, intelligence may not be artificial, as it is said, since it is limited to the set of information and stimuli that were previously incorporated into it. Even in the case that the “artificial brain” evolves and is able to respond to other stimuli. This only happens because its initial programming foresaw it. Basically, what we know as artificial intelligence ends up being an easy way of understanding the whole process that makes up a set of responses and orders that a certain machine produces.

For a long time now, a new form of artistic expression has taken shape, the so-called digital art, made using digital tools and appropriate computer programmes to respond to the creative and artistic impulses of a particular artist. But today it is also possible to see machines or robots copying works of art or even painting. For many this is a form of artistic expression, but for others it is just a machine that reproduced a set of pre-configured information, but where spontaneity did not exist.

The aesthetic pleasure that a certain work provokes in the observer may even be the same, regardless of whether it was made by a person or a machine, but the aesthetic and emotional pleasure of conceiving a work, feeling a panoply of emotions and states of mind that only artists know or can feel, that doesn't happen when the work is made by a robot, since a robot doesn't feel emotions.

When we walk through the streets of a city, we are taken to live varied experiences at the level of emotions that are experienced through the atmospheres that we go through. The streets and the details of each built space reveal memories that cross with the past and the culture of each one. For this very reason, the

streets that some like the most do not correspond to the ones that others prefer.

In the middle of the pandemic caused by the COVID-19 virus, the cities were silent and the streets emptier and others completely deserted. Commerce has weakened and many shops have closed. Commerce and business are increasingly done online and from home. It is expected that the lifestyles of each people have changed and when the pandemic is over, many of the cultural habits, which have always marked the characteristics of each culture, will have been affected and will change. Working from home, shopping online, eating meals at different times, nightlife that will start earlier, some new habits regarding the sense of quality of life, etc.

For all these reasons, marketing is a very important tool to attract people back to the streets and to consumption. Cities, which are now less polluted due to less car traffic, will have to adopt more environmentally friendly measures and thus change the way of moving around within them. Creativity and the use of new technologies will be necessary, both to reorganise cities, with regard to circulation rules, traffic rules and safety, but also to devise strategies that will restore confidence and at the same time attract people and tourists back to the city streets, boosting the recovery of commerce and the economy in general. Artificial intelligence will increasingly play a key role, and this same intelligence must be updated in order to interact with people in the most varied functions, both organizing the urban space and playing.

Art has always been a strong ally that, associated with culture, will be one of the fundamental factors in attracting people to the public space. In other words, it is necessary to promote more artistic interventions that somehow provoke emotions, curiosity and get people talking about those same interventions (Gaspar, C., 2014). In this way the art will awaken, again, the interest of people for the street and the city and will also be an element of publicity about the place. This advertising will be supported by marketing and communication strategies.

Description of the LikePlace APP

Urban art has been increasingly valued by citizens. What until recently would have been considered an act of rebellion has come to be seen as a form of artistic expression. We have the example of Vills, who quickly went from being an interventionist in abandoned buildings to an artist who is spread all over the world and recognised for his artistic and creative character.

Urban art has taken over run-down or disreputable spaces in cities and helped transform them into areas associated with fashion and nightlife. They became “hotspots” of cities, being visited by all, promoting business, and increasing the number of people in the streets or places where they exist (Jenks, A., 2020). But this urban art, may be associated with the use of new technologies,

such as videomapping, for example. With this form of digital technology, cities can be dressed in stories and momentary emotions, provoking curiosity, and the desire for interaction, between the built urban space and the projections. The city, the street or the buildings become scenic elements that are part of the projection itself, because without them the projection would not exist.

Along the cities, buildings coexist with decorative elements, artistic or momentary installations, which have become over time like hotspots, attracting visitors. Cities have always fought among themselves to promote themselves; buildings alone were enough to attract attention, sculptures and works of art gave a great increment to the idea we all have of certain cities. Without these elements, the idea of a city is just “blurred”.

Over the last three years, we have been developing research on the meaning of colours and shapes, which was synthesized in the development of an application for mobile phones, which we called LikePlace.

This application, based on the development of an algorithm, will give an approximate answer about the mood that a certain street or building can cause to most people. In addition to other information, such as the highest percentage of a dominant colour, of a geometrical shape or even of the exterior typology of the building or street, with regard to the number of floors and the various functions (housing, offices, commerce).

It will be a mobile phone application that will help promote places, since Happiness Hotspots (Lester, M., 2012) will be created according to the number of answers that were given each time someone uses the application about a certain place. These hotspots will appear on a digital platform, like Google Maps, and thus attract more visitors to certain streets, helping to promote business and boost trade in those areas, since more people will pass by there. Basically, it will be a kind of social network, interconnected in all the places where someone decides using the application. In the field of real estate valuations, it can also be used as a working tool, as it will give a percentage of good or bad mood that a certain property can cause to people, and with that we can appreciate or depreciate a property, depending on these factors.

The existing colours and the existing forms in the hotspots of the city (Gomes, E. , 2020), will also influence the reading of the built space, so the dynamics between the permanent or momentary artistic objects, will also be a key factor in the reading and the attractiveness of the place.

For the detection of geometric shapes, existing in a certain place, in selected locations, the LikePlace mobile application uses a method of detection of simple shapes, such as circles, rectangles or and lines existing in an image, called Hough transform. The Hough transform is an algorithm that can isolate the geometric shapes of an image, being determined through a parametric shape, a priori (Santos,L., 2018).

The user should take a photograph of the place to be analysed, and the LikePlace application will later send it to the Cloud and to a server, which will automatically analyse the shapes and colours existing in the place.

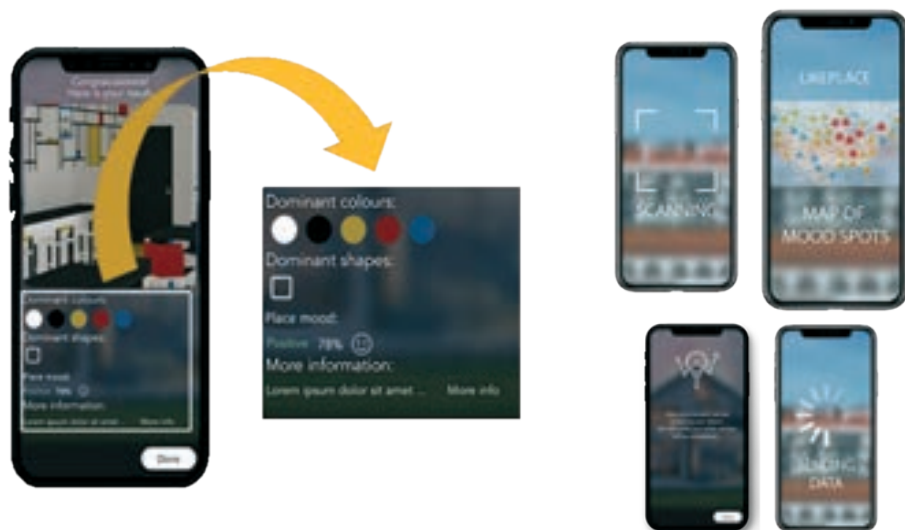


Figure 1- LikePlace, an example of the possible layout.

As a conclusion, we understand that this mobile application will influence the number of visits and the appreciation or depreciation of places, from a real estate point of view. In what concerns tourism, it may also provide new visits, which are not only the conventional ones that normally appear in tourist itineraries, since this application will create hotspots, in a digital platform, and thus attract the curiosity of visitors.

Cities are increasingly connected to social networks and the means of digital dissemination are practically indispensable to promote themselves.

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