AUGMENTED REALITY AND ITS POSSIBILITIES FOR E-COMMERCE

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Abstract

Virtual changing rooms, shops that display their products via mobile cameras, 3D animation to demonstrate a product... Augmented reality is a great ally for electronic commerce, which could use the advances being made in this technology to increase sales or for brand building.

But do you know what augmented reality actually is and what types of augmented reality exist? What are the benefits of using it? Is it affordable for everyone? How is it used for e-Commerce? This article sets out to resolve these and other questions with the help of professionals and companies from the augmented reality sector, and to discover what the future might look like thanks to this revolutionary technology.

What is augmented reality?

To many people it sounds like gobbledygook, others have heard it mentioned but don't know what it is, while only a few understand exactly what augmented reality (AR) is. But is it a concept that is very gradually catching on and which represents huge opportunities for companies. And none more so than electronic commerce, since selling via computers, mobile telephones or tablets still generates a certain amount of distrust in some consumers as they are unable to physically see the product, get an idea of its size or try it on – but this technology could solve these problems.

Raúl Reinoso, lecturer of the Regional Ministry of Education, Culture and Sports of Cantabria and author of online publications such as Aumenta.me and Tecnotic, defines augmented reality as an emerging technology that enables the real world to be reinforced (augmented) with digital content in real time. “This means that content in the form of text, images, audio and video files or 3D models can be incorporated into the user's perceived real world”, says Reinoso. These “augments” are designed to help improve the individual’s knowledge and to better understand what is happening in the environment. Nicolas Bapst, Marketing Product Manager at Total Immersion, states that augmented reality creates a bridge that bridges the gap between the physical and digital worlds.

Ángel Sastre, founder and CEO of Sensaa, adds that another characteristic is that augmented reality must be interactive, which therefore excludes the use of these techniques in movies, and must be recorded in 3D, which excludes effects such as chroma keying from the definition of AR.

Different ways of “augmenting” reality

There are different ways of classifying the methods for generating augmented reality. Ángel Sastre simply refers to different degrees of augmented reality based on the level of
immersion, or different techniques to achieve the same objective, “but the end goal is always the same – to mix the virtual world with the real world”, says the founder of Sensaa.

At Total Immersion they classify augmented reality in terms of the different technologies currently available, establishing four types: technology based on black and white markers; markerless augmented reality, which does not need to use markers to work; technology based on sensors; and lastly, technology that works with GPS and a compass.

The first of these is based on markers, which according to Carlos Wolk, founder of Wolk Media, act as activators for additional information in devices, with the information being superimposed each time that a marker is detected. This type of AR has grown through the use of scannable codes in advertisements, which makes the augmented reality services immediately accessible.

The second of these technologies, called markerless or MLT, does not require markers and at present is the most effective, according to Nicolas Bapst, who says that it enables active searching and recognizes the real environment on any type of support (objects, faces, movements…). It is more powerful than the first type and enables more complex augmented reality applications to be developed.

Sensor-based technology provides a total immersion experience and has proved popular among users. Furthermore, when lighting conditions are limited, the sensors are highly effective and can be used in places where MLT would be more difficult to use. When the sensors send a signal to the receiver, only the relevant information is processed and displayed to the user thanks to powerful filters.

Lastly, Total Immersion works with GPS and compass technology, accessing high speed wireless networks, which is often used in smartphones and tablet computers. It provides useful information at a local level with additional services in 2D format for the user, regardless of where the user is located, via the internet.

Carlos Wolk says that online augmented reality via geo-positioning can add a layer of information to the visual environment with previously entered points of interest (POIs). “This system is often used in tourism, museums, restaurants and any type of environment that wants to promote its services or characteristics depending on its location”, says the founder of Wolk Media.

In terms of the devices required to use augmented reality, Ángel Sastre points out that initially this required helmets and visors “which were a bit cumbersome”, but “the ubiquity of mobile devices has enabled AR to move beyond university laboratories and they are more practical than the traditional helmets”.

Similarly, Aida Otalola, Marketing Manager at Virtualware, points out that the use of mobile devices means that today anyone can enjoy these augmented reality applications. Aida also believes that tablet computers are ideal devices, as well as smartphones, because both incorporate increasingly sophisticated cameras, which not only enable the super-imposed information to be displayed, “but also users to interact with this information in a highly intuitive way, because nowadays mobile phones and tablets all have touch screens”.

“Computers with an internet connection and a webcam can also display content for augmented reality”, adds Carlos Wolk, although they are no good for technologies based on geo-positioning.
Main functionality for companies

But how can other companies make use of this technology? At Sensaa they believe that augmented reality could be a highly valuable communications tool and is also very effective for resolving problems related to browsing, task implementation, etc.

Virtualware believes that augmented reality can be adapted to numerous business sectors and environments. “Today, a large number of initiatives focus on leisure and marketing, but they are expanding into other sectors such as tourism, education and healthcare (medical training, phobia treatment, etc.), as well as the military where it is already in use”, says Aida.

In the field of marketing, Otaola states that the technology mainly tries to capture the client's attention, differentiate a product or service from the competition, or explain the benefits of a product through a more visual and eye-catching experience. Total Immersion explains that AR technology in this field can be used to generate an emotional link with consumers, stimulate brand recognition or to improve their perception, which translates into more potential clients and a higher conversion rate. It can also be used for actions at marketing events such as trade fairs, exhibitions or conferences.

Virtualware also believes that this technology lends itself to maintenance processes, such as storage, transportation, quality control, etc.) “superimposing digital information over reality”, which could reduce errors in tasks and the time taken to carry them out.

In the field of education, it can be used to offer contextual learning experiences and “enables information associated with the real world to be explored and discovered in a much more visual and attractive way”, says Otaola.

“In general, any company that needs to communicate additional content about its products or to provide detailed user information would benefit from augmented reality”, says Carlos Wolk.

But this does not mean that this technology should be used for everything - or even used at all - “but should be used in projects in which it can be linked to the message that needs to be conveyed, because only that way will we be able to convince more and more companies to use this technology”, says Ángel Sastre.

What stage is augmented reality at?

Despite the many applications and benefits offered by augmented reality to companies, the number of firms that have begun to use these technologies is still small. At Sensaa they believe that the problem is not just a lack of awareness of the possibilities but also a reluctance to innovate.

Wolk Media thinks that companies are waiting to see the results of the brands that are taking the lead and working with augmented reality, although the company also points out that there is poor communication by experts in this field.

Virtualware says that AR is positioned to enter every part of the consumer sector. According to figures from AIB, augmented reality will grow from sales of $6 million (€4.25 million) in 2008 to $350 million (more than €248 million) in 2014, with annual growth of 97%, spurred on by the increase in mobile devices, especially smartphones, as well as portable consoles.
Total Immersion believes that more than 1,000 projects have been carried out in three years and that there are currently no barriers to creating solutions with augmented reality. "The design tools have improved significantly in recent years and there are now highly efficient production tools", says Nicolas.

In relation to the cost of producing a corporate AR project, Ángel Sastre says that simple projects may cost around €6,000, but usually exceed €15,000.

Nicolas Bapst estimates that the price of a complete digital marketing application can range from €20,000 to €60,000, although SMEs can also develop AR experiences using much cheaper design tools.

Wolk Media states that it depends on what the company needs (adding information and extra content for catalogues, adding markers, geo-positioning in AR search engines, etc.).

Otaola believes that the cost depends entirely on the scope of the project, “although in our case we try to reduce the cost of the production process in order to make it more affordable to companies and organizations that want to incorporate it”.

A major boost for e-Commerce

The electronic commerce sector has already recognized the enormous potential of these technologies and how they could solve various problems associated with distance selling.

Carlos Wolk says that augmented reality can be used to provide clients with additional information when selecting a product or service as well as allowing clients to better understand a product or service, its specifications, how it works and what it would look like when worn by the buyer, by superimposing it on to the buyer’s body, or what the product would look like in situ.

The changing room solutions offered by augmented reality make it easier to buy from home or on the move, and eliminate the period of time between making a decision and actually making the purchase. “Imagine you are buying a garment on the Internet on a website that has a changing room for the product you have chosen, which allows you to choose the color or the model that suits you best and you can buy it while you continue with your activities at home or chatting with friends”, says Total Immersion, which offers various virtual changing room solutions for watches, glasses, shoes or jewelry. The system automatically detects points on the body and aligns the objects with them, which enables the user to move around and see the article from different angles.

Wolk Media created a virtual changing room for glasses for Óptica El Poeta that can be used by anyone with an internet connection and a webcam.

Other examples of applications include the software developed by Virtualware for Correos, which enables users to see what type of packaging they need for specific types of deliveries. "The application simulates the different box sizes offered by the postal service and checks if the object that the user wants to send fits in the box, which saves time and money for the client", says Aida Otaola.

Solutions can also be developed that simply aim to generate a word-of-mouth effect, says Sensaa, which may be less practical but can generate greater awareness and familiarity of the brand. “This alternative is only recommended if we can ensure that the augmented reality experience transmits the brand’s values", says Ángel Sastre. The company has developed similar applications, such as Monsters, in which a “monster” is created from a
drawing done by the user, which moves across the screen, sleeps, etc. This technology could also be applied to creating “live” t-shirts and other types of personalized objects based on drawings by the user.

In terms of geo-localization, this technology enables POIs (Points Of Interest) to be created for local businesses, which pop-up as suggestions when the user approaches a specific location, or it can display store offers in the street or redirect users to companies’ websites in order to make online purchases.

Looking to the future

Looking to the future, the Marketing Manager of Virtualware says that AR technology is wide-ranging and if it continues to evolve its development will be limitless. “It will evolve as information technologies mature, offering new services that will be much more user-friendly, with numerous capabilities, provided that the focus is on usability and functionality”.

Sensaa echoes the same sentiments, believing that to ensure the future of augmented reality it needs to move away from being a simple curiosity to become a narrative tool that is capable of fascinating and captivating the user. “There are similarities between early moviemaking and the current situation of augmented reality. The earliest movies were mundane sequences, such as workers going in and out of a factory or a train arriving at a station, which were shown to demonstrate the wonder of moviemaking, but little else. But movies would not exist as they do if they had not begun to be used as a narrative tool”, notes Ángel Sastre. He believes that AR needs to evolve in this way to ensure its development and future, “avoiding what happened to virtual reality in the 1990s”.

Wolk Media believes that, although it is difficult to predict, the future of AR will receive a major boost with the creation of a new device that is capable of unlocking all the benefits offered by AR in a simple and intuitive way. The mass acceptance of smartphones will help, which has already occurred, since the number of users has doubled between 2010 and 2011. “Tests have begun, which are in the experimentation stage, to insert an optical implant with a chip that would enable the user to directly experience the world of augmented reality – similar to the Terminator films – although I don’t see this option being very feasible”, says Carlos Wolk.

According to Aida Otaola, the ultimate step in its evolution lies in combining display technologies with the miniaturization of components, which is already used in the military sector through visors that enable soldiers to know the proximity of their enemies, “which we saw in Robocop”. Wolk also believes that this could be a viable option, “just as people put on sunglasses today to protect their vision, in the near future we might put on similar glasses that would show us a new world full of augmented reality - in addition to providing solar protection”.

Total Immersion believes that the numerous applications that are emerging thanks to the solid development of AR projects, will transform the way in which people see the world and learn about their environment, and will revolutionize companies’ business models.

Augmented reality therefore offers numerous possibilities to companies now and in the future, including the electronic commerce sector. It is therefore important not to overlook what AR can do to improve sales or brand image and not to miss this opportunity of using these technologies.