

ABSTRACT

Today's universities rely on their history and a few words to present their self but sometimes this isn't enough because students want to know exactly in witch environment they will study for the next three or four years or maybe more.

Another issue for a first year student is entering for the first time in the university building and confusion caused by it.

Advances in technology allow us to do more than that but nobody stepped out to do something. Now it's possible to make a web app that allow us to solve these issues. Each university can make it's on web app in which they can present themselves in a unique mode that nobody did it and help students to find what's right for them.

“Can we stop causing death by Power point and give student's a digital Virtual Reality experience instead? “

Keywords: 360 presentation , Virtual tour , web app , university departments presentation, virtual reality

Introduction

Nowadays most Universities use for their presentation simple images or maybe one or two video clips. But some time for a student that's far away from the university location is a little difficult to choose the right one based on that information. Another issue for a first year student is getting around in the university.

All these problems can be resolved with a web app that allow for anyone with an internet connection to see a 360 virtual presentation for each department of the university and virtual tours in university building and campus.

A 360 virtual presentation is a web app that allows to navigate in a building. You can rotate in all directions, and then you can have an overview of the university. In a 360 virtual presentation the university can promote each department of the university and their features. For example the informatics department can present their computers and software used.

This allows for any student to know the building inside out even before entering for the first time in the building.

Another feature is compatibility with virtual reality (“Virtual reality or virtual realities (VR), which can be referred to as immersive multimedia or computer-simulated reality, replicates an environment that simulates a physical presence in places in the real world or an imagined world, allowing the user to interact in that world. Virtual realities artificially create sensory experiences, which can include sight, hearing, touch, and smell”)

Although Virtual Reality as a concept is old, innovative virtual (VR) and augmented reality (AR) technologies and recent industry developments stimulated an increase in VR and AR usage. Several companies made huge investments that received a lot of media attention such as Facebook's \$2 billion acquisition of Oculus Rift and investments of Sony (in Playstation VR), HTC and VALVE (in VIVE), Google (in Cardboard and Magic Leap), Samsung (in VR headset) and Microsoft (in HoloLens). Several companies, among which Oculus' Story Studios and 20th Century Fox, already started producing movies and videos for VR devices, expecting unique immersive experiences. Immersion describes the extent to which media are capable of delivering the simulation of reality to the senses of a human participant.

The last feature is augmented reality.” Augmented reality (AR) is a live direct or indirect view of a physical, real-world environment whose elements are augmented (or supplemented) by computer-generated sensory input such as sound, video, graphics or GPS data. It is related to a more general concept called mediated reality, in which a view of reality is modified (possibly even diminished rather than augmented) by a computer. As a result, the technology functions by enhancing one's current perception of reality. By contrast, virtual reality replaces the real world with a simulated one. Augmentation is conventionally in real-time and in semantic context with environmental elements, such as sports scores on TV during a match. With the help of advanced AR technology (e.g. adding computer vision and object recognition) the information about the surrounding real world of the user becomes interactive and digitally manipulated. Artificial information about the environment and its objects can be overlaid on the real world.” In a near future augmented reality may become as usual as smartphones or maybe replace them. For now aren't available any augmented reality hardware available for everyone because this technology is in early stage of development.

MATERIALS AND METHODS

For creating the application we need an camera that allows up to create 360 degree imagines. Then we combine them to obtain a full image of the university. For the virtual tour we need an audio recording of someone that represents each part of the building then we synchronize the audio part with the video one. After that for each distinct element we need an audio recording for more information. For example if someone wants more information about a classroom.

For the pc web application, the interaction with the content should resemble with that found in video games because is easy to use and somewhat familiar for the students.



Keyboard controls:

- Key: W forward
- Key: S backward
- Key: A left
- Key: D right
- Key: 1 video presentation
- Key: 2 virtual tour
- Key: 3 free navigation
- Key: Tab progress of the virtual tour/ video presentation/
- Key: C camera mode
- Key: F1 help (indications and features)
- Key: Enter confirm actions
- Key: Backspace previous chapter of the virtual tour/ video presentation
- Key: Esc exit virtual tour/ video presentation to the main menu

Mouse controls:

- Key: Left click: stop virtual tour/ video presentation
- Key: Right click on an object: more information about the object
- Key: Scroll wheel: browse through the virtual tour/ video presentation chapters

For the mobile web application the controls they will be:

- Left corner of the screen: directions (forward, backward , right ,left)
- Right corner of the screen: orientation
- Long press on an item: information
- Back key: Esc exit virtual tour/ video presentation to the main menu
- Menu key: displaying of different options (camera mode, help, browse through the virtual tour/ video presentation chapters)

For the virtual reality application the user needs a pair of virtual reality headset or they can use their smartphone and a certified viewer. This allow them to view inly the virtual presentation and virtual tour. For the free navigation, a controller is required.



Google cardboard



HTC vive

RESULTS

A university with this app stands out and for students is more easily to find out in which environment they will study.

For students that are far away from the university location is easier to see the dorm in which they will live in.

This kind of web app can have a future feature in which a 360 degree cameras can be mounted in each classroom and used to record lessons. This feature can be very useful in some cases where the student can't be present in that classroom or to recap parts of lessons.

Discussion

The idea of using a 360 degree web app is not new but he has not been implemented very well.

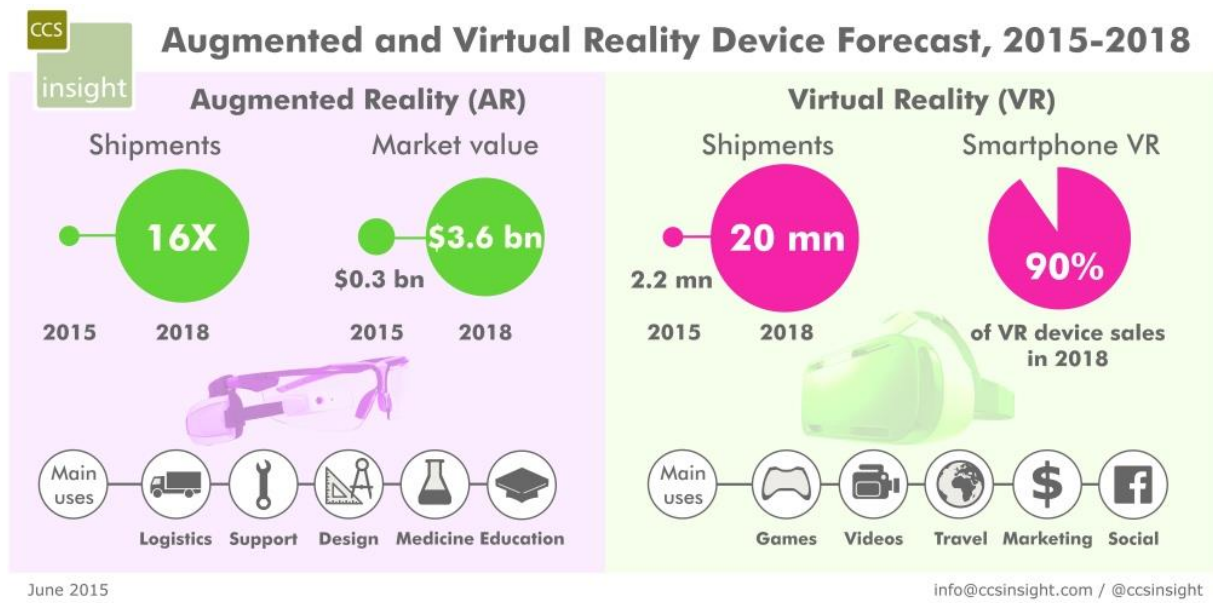
For example a university had some 360 degree imagines of their exterior two classrooms but the interaction it was not so intuitive and presentation of two or three classrooms is too little.

As for the advantages of using a 360 degree presentation instead of a video are:

- better understanding of the university building
- more details than a regular video. For example if you want to analyze a specific element of the building in a video you must stop it and see the frame but in a 360 presentation you can see exactly what do you want as you would be in that place.
- the future of this technology is constantly growing.
- With the likes of Microsoft, Sony, Facebook, Samsung and Razer all involved in the latest virtual reality revolution, it's perhaps not surprising that the market is set to explode in popularity.
- Virtual reality is now being integrated everywhere
- virtual headset are getting cheaper and are even compatible with smartphones example "google cardboard"
- being able to see in a 360 degree perspective is unique and it's far superior than any other virtual viewing experiences
- easy to use

As for the disadvantages of using a 360 degree presentation instead of a video are:

- The biggest con of virtual reality is the cost. For creating virtual reality the hardware and it's equipment used in this process costs a lot. The process of creating virtual reality is still new in the business and hasn't been completely adapted in the industry. So the process remains expensive for people to easily experiment with.
- Only large companies have access to current technology.
- "Virtual reality sickness (also known as cybersickness) occurs when exposure to a virtual environment causes symptoms that are similar to motion sickness symptoms. The most common symptoms are general discomfort, headache, stomach awareness, nausea, vomiting, pallor, sweating, fatigue, drowsiness, disorientation, and apathy. Other symptoms include postural instability and retching. Virtual reality sickness is different from motion sickness in that it can be caused by the visually-induced perception of self-motion; real self-motion is not needed. It is also different from simulator sickness; non-virtual reality simulator sickness tends to be characterized by oculomotor disturbances, whereas virtual reality sickness tends to be characterized by disorientation"



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