



I.E.S. "LOS CERROS"



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FLIPPED CLASSROOM VIRTUAL REALITY & AUGMENTED REALITY IN EDUCATION



Fourth short-term exchange of groups of pupils
in Spain



Flipped Classroom strategy to fight against
school absenteeism improving students
motivation and performance

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Introduction

In this first workshop we are going to go through the Virtual reality and Augmented reality as a resource in the Flipped Classroom methodology.

Virtual Reality & Augmented Reality
do you know the difference?



What is Virtual Reality?

- ✓ The Virtual Reality is a technology that use software to generate realistic images, sound and other sensations that replicate real world environment.
- ✓ A user can interact and manipulate with the virtual world with the assistance of specialized devices like display screens or other devices.



What is Virtual Reality?

- ✓ A person using a virtual reality device is able to “look around” into the artificial world.
- ✓ Virtual realities are displayed either on a computer monitor, a projector screen, a virtual reality headset or even on a smartphone. For example, we can find Oculus Rift S, HTC Vive, Google Cardboard and so on.
- ✓ The virtual reality environment is captured from the reality by using a 360 degree special video camera.



Applications of Virtual reality

- ✓ **Films:** virtual reality is applied in 3D Films to try immerse the viewer into the films.
- ✓ **Video Games:** you can interact with a game by using your body and motions to control characters and other elements.
- ✓ **Education:** virtual reality for teaching and learning situations. It enables students to interact within a three dimensional environment. For example, 360° Virtual tours.





How does Virtual Reality work?

- ✓ Virtual reality tricks your brain into believing you are in a 3D world. VR does this with stereoscopic display. It consists on displaying two slightly different angles of the scene to each eye simulating depth.





Virtual reality devices

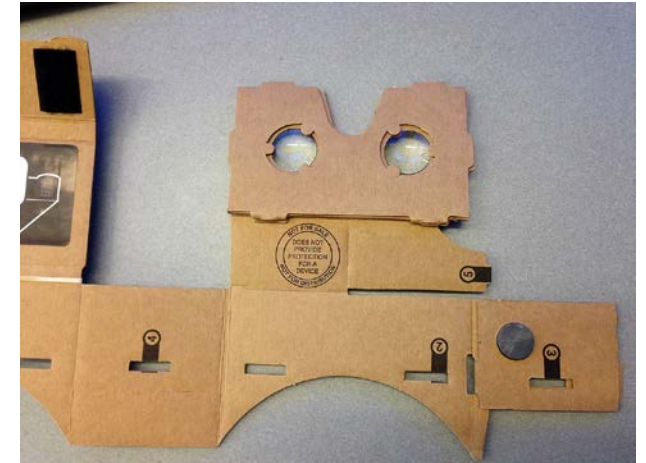
- ✓ **Oculus Rift:** it is a Virtual reality headsets developed and manufactured by Oculus VR, a division of Facebook Inc., released on March 28th, 2016. The problem is that currently it is really expensive, around 500 €.





Virtual reality devices

- ✓ **Google Cardboard:** it is a virtual reality platform developed by Google. Named for its fold-out cardboard viewer, platform is intended as a low-cost system to encourage interest and development in VR applications. To use the platform, users run Cardboard-compatible mobile apps on their phone, place it into the back of the viewer, and view content through the lenses.





What is Augmented reality?

Augmented reality is an interactive experience of a real world environment where the objects that reside in the real world are enhanced by a computer that augments the world with additional information.



What is Augmented reality?

- ✓ An AR system adds virtual components of a digital world such as visual objects, audio and other sense enhancements to a real world environment in real time.
- ✓ Augmented reality is used to enhance natural environments or situations and offer perceptually enriched experiences.



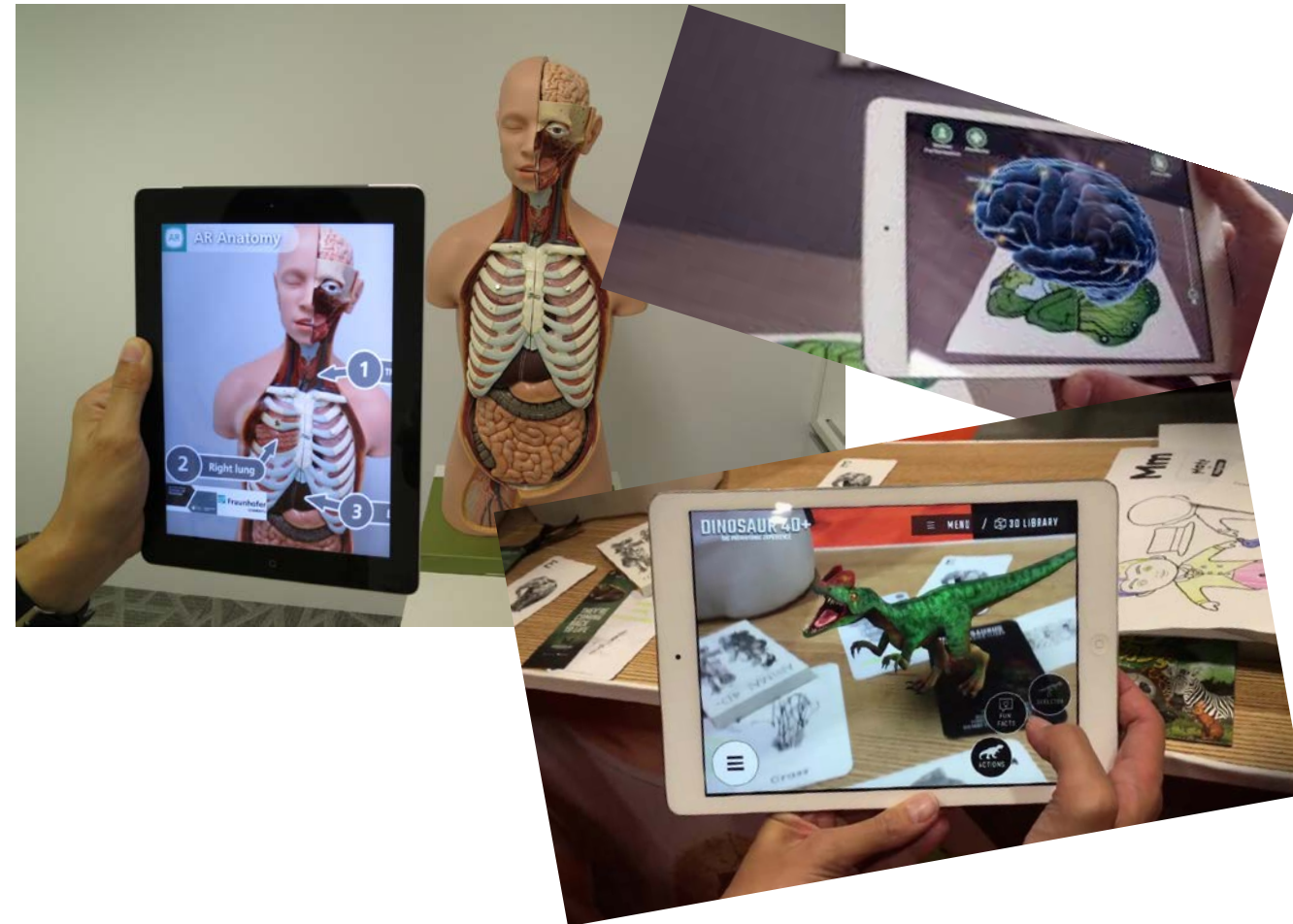
Applications of Augmented reality

- ✓ Augmented reality has been explored for many applications, from gaming and entertainment to medicine, education and business.
- ✓ Example applications are:
 - ✓ Archaeology
 - ✓ Architecture
 - ✓ Medical
 - ✓ Robotics
 - ✓ Commerce and education
 - ✓ Games: the famous Pokemon Go



Applications of Augmented reality

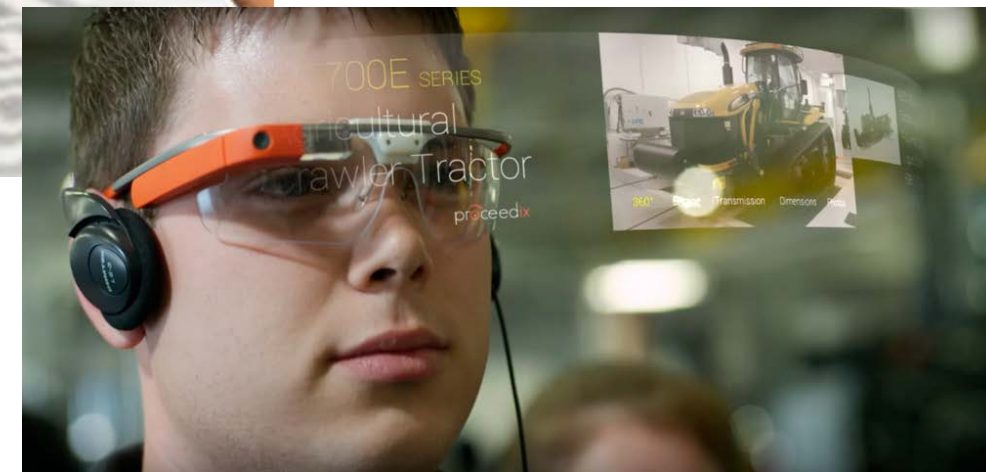
- ✓ **STEM Education:** in educational settings, AR has been used to complement the curriculum. Text, graphics, video, and audio may be superimposed into a student's real-time environment. Textbooks, flashcards and other educational reading material may contain embedded "markers" or triggers that, when scanned by an AR device, produced supplementary information.





Augmented reality devices

- ✓ **SmartPhones:** the best thing about AR is that it doesn't require dedicated hardware and can use phones, tablets, and computers.
- ✓ **Google Glass:** it is a small, lightweight wearable computer with a transparent display for hands-free work.



Augmented Reality Vs. Virtual Reality



Augmented reality is a mix of the real world and the virtual world.



It lets people interact with both worlds and distinguish clearly between both.



This is generally achieved by holding a smartphone in front of you.

Virtual reality creates an entire virtual world.



In this case, it is hard to differentiate between what is real and what is not real.



This is generally achieved by wearing a helmet or goggles.

