

Reality

FROM AUGMENTED TO VIRTUAL

Reality

” THE STATE OF THINGS AS THEY ARE, RATHER THAN AS THEY ARE IMAGINED TO BE:”

[CAMBRIDGE DICTIONARY.CAMBRIDGE.ORG/DICTIONARY/ENGLISH/REALITY](https://www.cambridge.org/dictionary/english/reality)

Types of Reality

Augmented

Mixed

Virtual



Augmented

Information is overlaid into field of view, using either, a semitransparent glasses, Head Up display usually in cars or, portable device such as a mobile phone or tablet. Information provision is Just in Time. Allows for contextual support i.e. what is that? Who is that? When is that?

Technologies

Glass – Google <https://developers.google.com/glass/>

HoloLens – Microsoft <https://www.microsoft.com/microsoft-hololens/en-us>

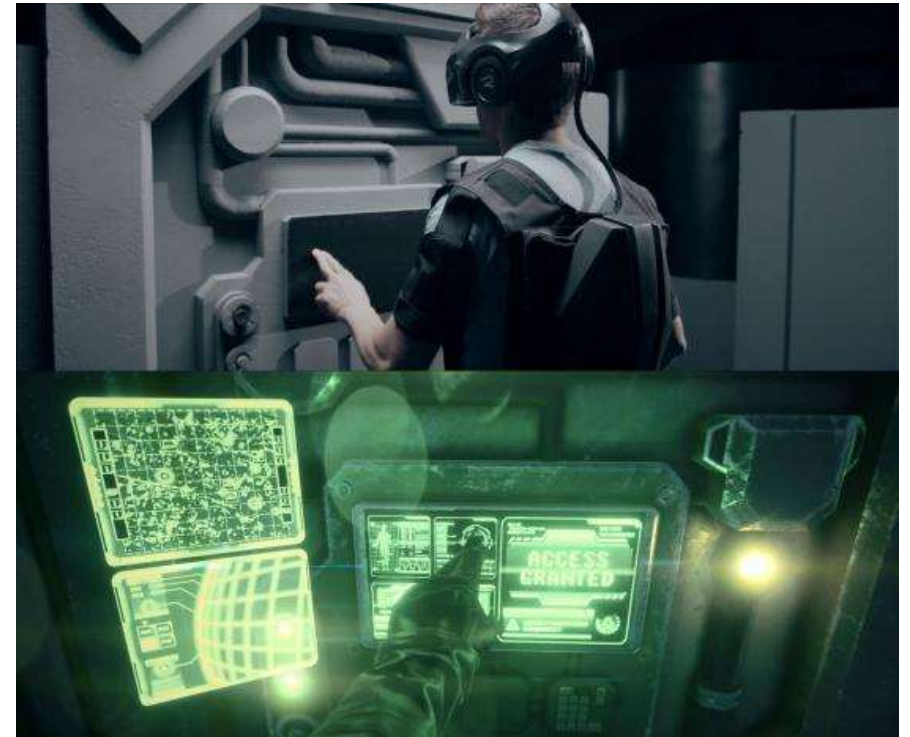
Magic Leap – Magic Leap <http://www.magicleap.com/>

Mixed

Virtual reality headsets used in a physical environment, example, “The Void” primarily gaming also, simulation and training. Flight simulators

The Void - Visions of Infinite Dimensions (Oculus Technology)

<https://thevoid.com/>



Virtual

Immersive technologies, often delivered using a full headset that excludes outside light, or a controlled environment such as a flight simulator. Is very processor intensive but creates a rich experience.

Technologies

Cardboard – Google <https://www.google.com/get/cardboard/>

Gear VR – Samsung (Oculus Technology)
<http://www.samsung.com/global/galaxy/wearables/gear-vr/>

Oculus Rift – Facebook (Kickstarter project) <https://www.oculus.com/en-us/>

VIVE – HTC <https://www.htcvive.com/>

Why

Provide contextual relationship to data

Geographic awareness

User Viewpoint

Social Graph – Personalised

Visualisation



Enabling technologies

Optics

- Light field capture and generation (Lytro <https://www.lytro.com/>)
- Micro displays
- Laser engines

3D graphic processing

Location awareness

- GPS
- Beacons
- Magnetometer
- Altimeter

Enabling technologies

Environment

- Barometer
- Camera
- Microphone

Motion Tracking

- Head
- Hands
- Full Body (Void)

Movement

- Accelerometer



Development environments

Unreal Engine – <https://www.unrealengine.com/>

“The Unreal Editor is up and running in VR, so you can build VR content in VR. Using the Oculus Touch and HTC Vive motion controllers, your movement in the real world is mapped one-to-one in VR; you can reach out, grab, and manipulate objects just as you would in real life.”

Development environments

Glass Developer

<https://developers.google.com/glass/>

Holo Lens Developer

<https://www.microsoft.com/microsoft-hololens/en-us/developers>

Audio

“The premise of VR is to create an alternate reality, but without the right audio cues to match the visuals, the brain doesn't buy into the illusion.” <http://www.engadget.com/2016/01/22/vr-needs-3d-audio/>

Sites

Magic Leap

<http://www.magicleap.com/#/home>

HoloLens

<https://www.microsoft.com/microsoft-hololens/en-us>

Oculus Rift

<https://www.oculus.com/en-us/>

View Master

<http://www.view-master.com/en-us>

Examples

Compilation

<https://youtu.be/KIZP44ncWZM>

ViVe HTC

<https://youtu.be/a5Wq3SrRcS8>

The Void

<https://youtu.be/cML814JD09g>

Monetisation

Advertising

Content creation

Gaming

Gambling