Unity & VR

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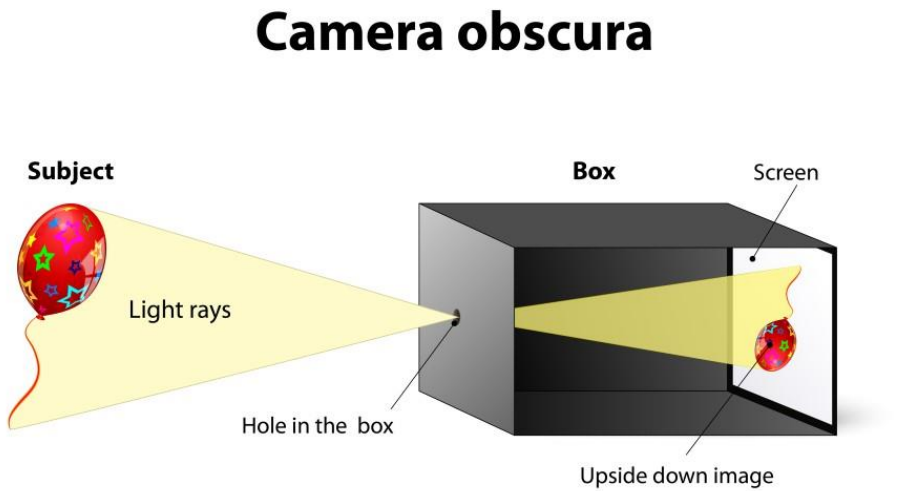
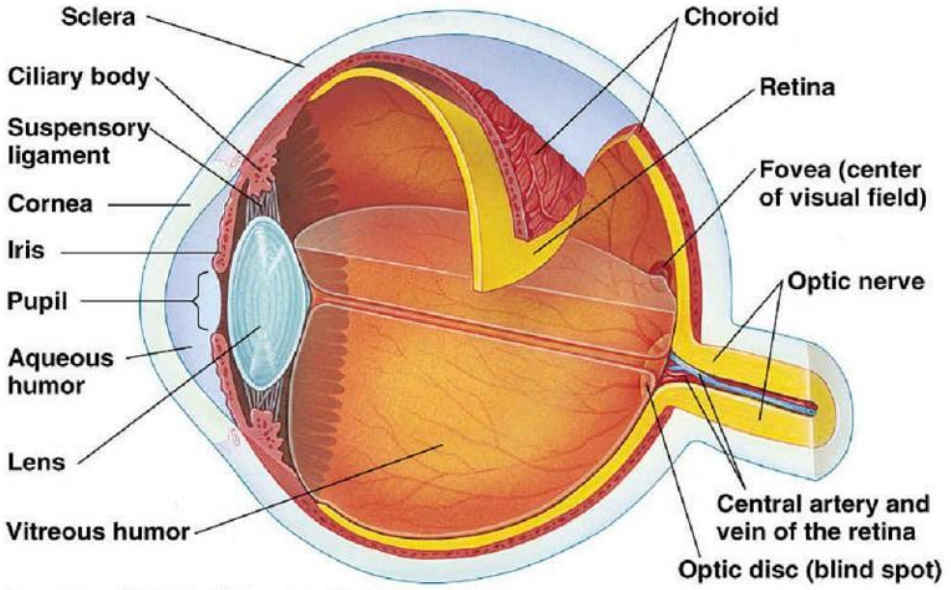
Lab 05

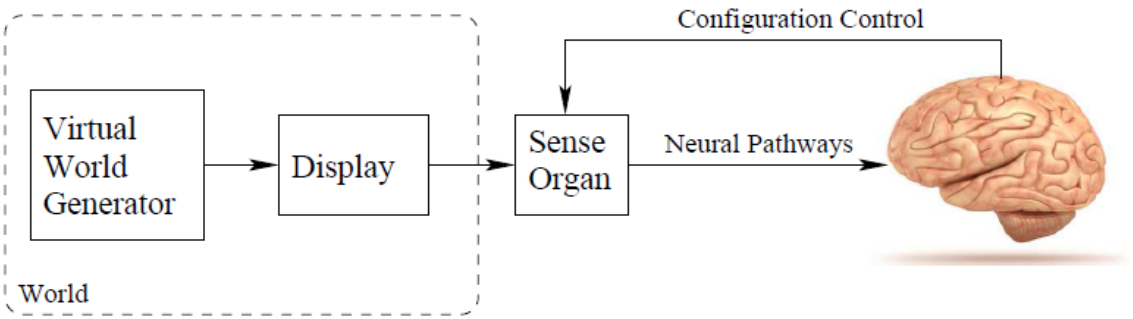
Human Eye:

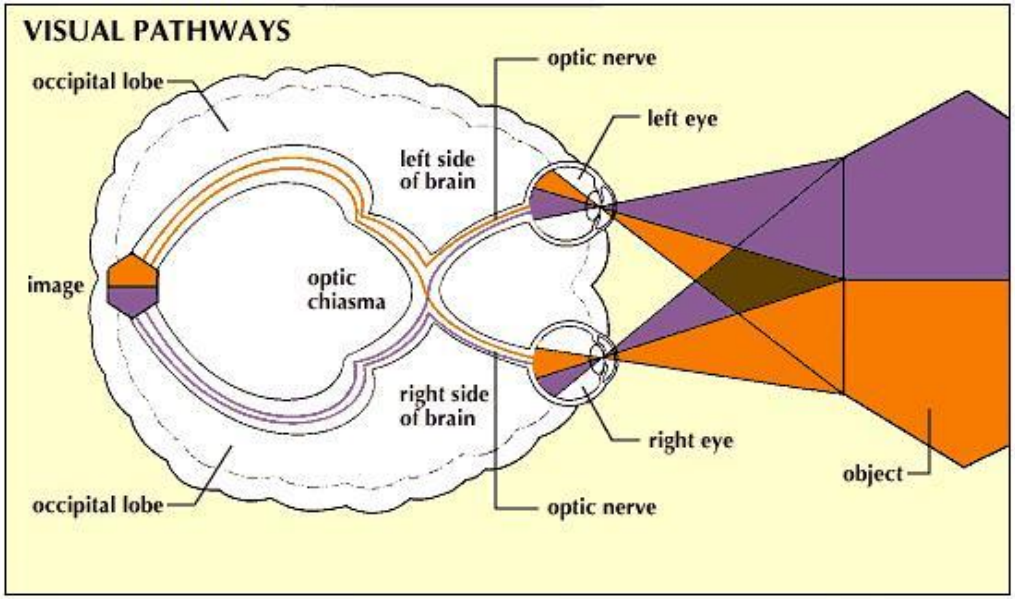


https://www.khanacademy.org/partner-content/pixar/virtual-cameras/virtual-cameras-1/a/simple-pinhole-camera



Two Eyes – One brain!





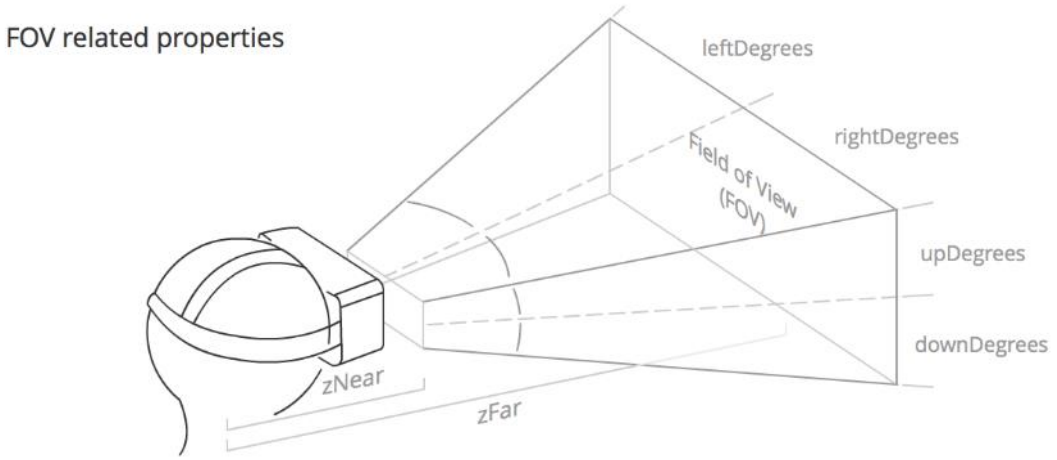
MEMS (gyroscope) to track head movements and display the right portion of the sphere textured

Presence:

- **The ability to take you somewhere other than where you really are, and trick your mind into believing it.**

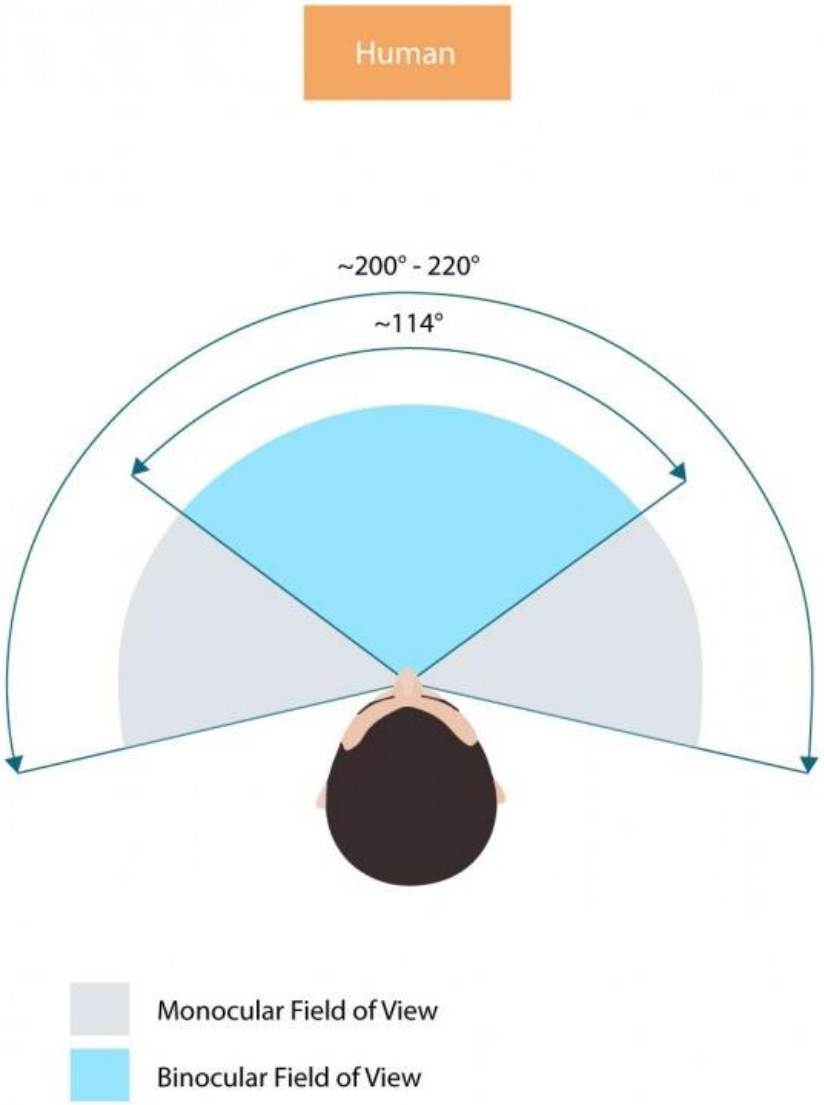
Important aspects are:

- High frame rate
- High resolution
- High pixel fill density
- …
- FOV (Field Of View)



(https://vr-lens-lab.com/field-of-view-for-virtual-reality-headsets/)

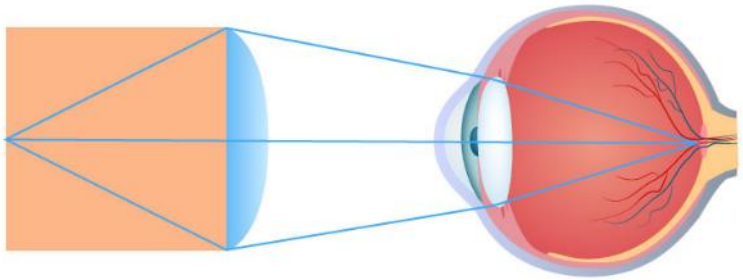
FOV:


Human
~200° - 220°
~114°
Monocular Field of View
Binocular Field of View

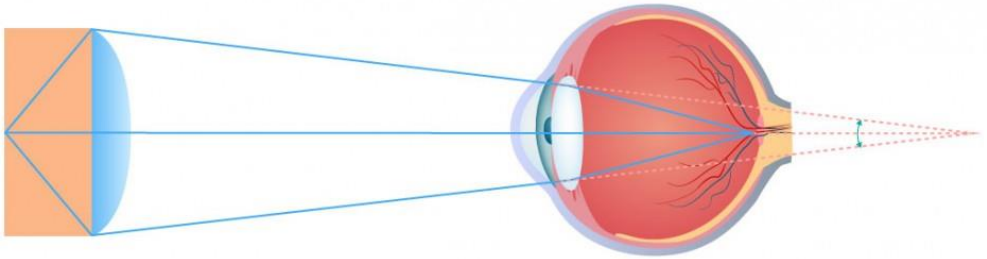
Trade off between:

weight, size, immersion, distortion, power, etc…

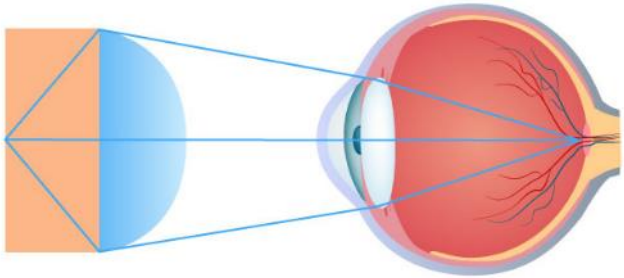
A) Thinner lens, bigger VR HMD



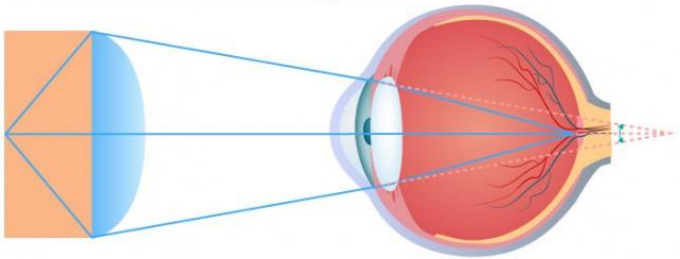
C) Thinner lens, more distance, smaller FOV



B) Thicker lens, smaller VR HMD



D) Thicker lens, less distance, bigger FOV



Several Cardboard types:

How much does it cost?

0 $

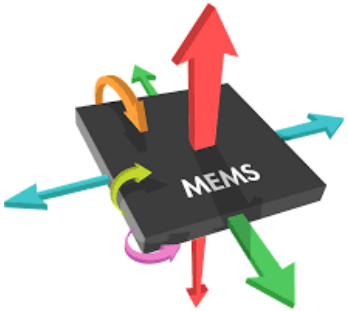
1000 $

Software SDK:

- Unity VR
- Google VR

- Oculus SDK
- HTC Vive SDK
- Steam VR

Input Devices:



- MEMS (Aiming)
- Magnet (deprecated)
- Remote control
- Advanced controller (oculus touch, vive, leap, kinect)

VIVE

oculus

Third view controller
(Reality from new perspective)

https://www.youtube.com/watch?v=KXPJNZT5Cko

DEMO: Unity VR (+ google VR)

- Pure exploration (like youtube 360°)
- Add GoogleVR (easy debug and aim)
- Look and destroy static target
- Look and destroy dynamic target
- Look and destroy dynamic target with Bluetooth controller
- Movement from point A to point B using trigger and NavMesh
- Movement from point A to point B with tele transport
- Movement with keyboard or Bluetooth controller