

Interaction Design & Virtual Reality (IDVR)

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Google Cardboard



GearVR



Oculus Rift



HTC Vive



iOS / Android

OpenVR API
SteamVR (runtime)



Browsers that support WebVR

Hardware

Mobile VR

Desktop VR



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Software

Native VR / Web VR

Native VR: Unity3D Engine → Android, iOS, SteamVR; Unreal Engine

Web VR: Unity → A-Frame, ReactVR

Cardboard



Google Cardboard

Experience virtual reality in a simple, fun, and affordable way.



Rendering

- Cardboard relies on the phone's IMU
- No kernel-level integration for optimizations
- No reprojection
 - Showing the previous frame when frame rate drops
- No head position tracking

GearVR



Manufactured by **Samsung**, developing
cooperated by **Oculus Rift** (now under Facebook)

How it works

- Headset: 3 Degrees of freedom (rotation only – no position tracking)
- Field of view (FOV): 110 degrees
- Controller: 3 Degrees of freedom (rotation only)

Rendering

- Headset provides low-latency IMU
- Kernel-level integration for optimizations
- Reprojection
 - Showing the previous frame when frame rate drops



Oculus Rift

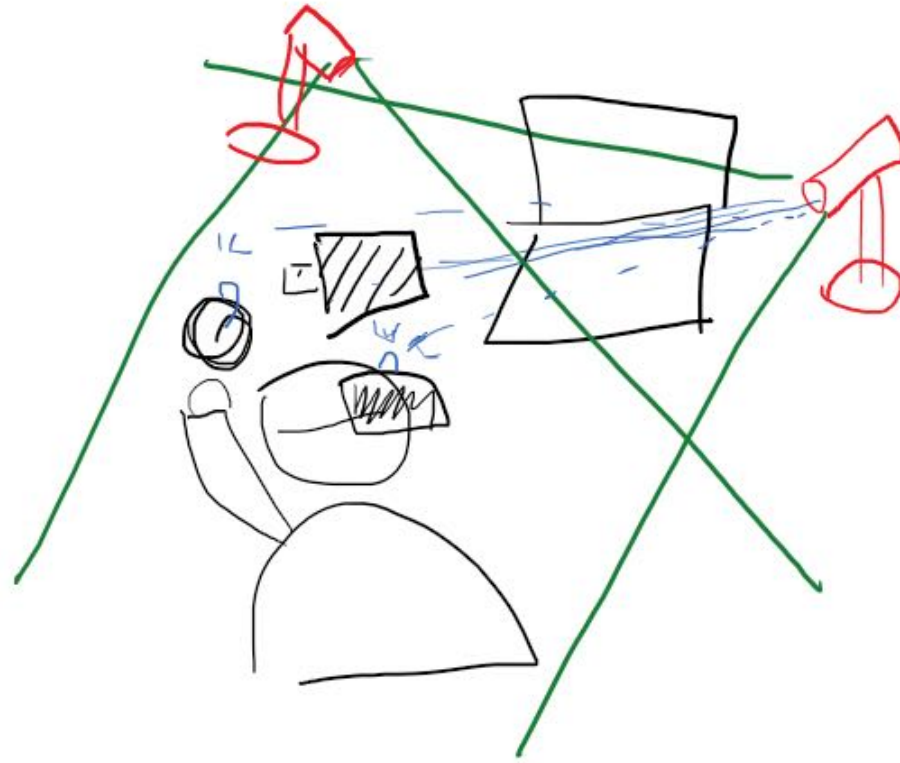
Came out originally from
kickStarter



Oculus remote



Oculus touch



How it works


- 6 Degrees of freedom (3 rotation axes, 3 position axes)
- Rotation tracking → low latency IMU in the headset
- Position tracking → **constellation system**
- Oculus touch: 6 DOF as well
- FOV: 110 degrees



HTC Vive

Manufactured by **HTC**. Developing
cooperated by **Valve** (Steam Game portal).





WHERE WILL YOU GO NOW...

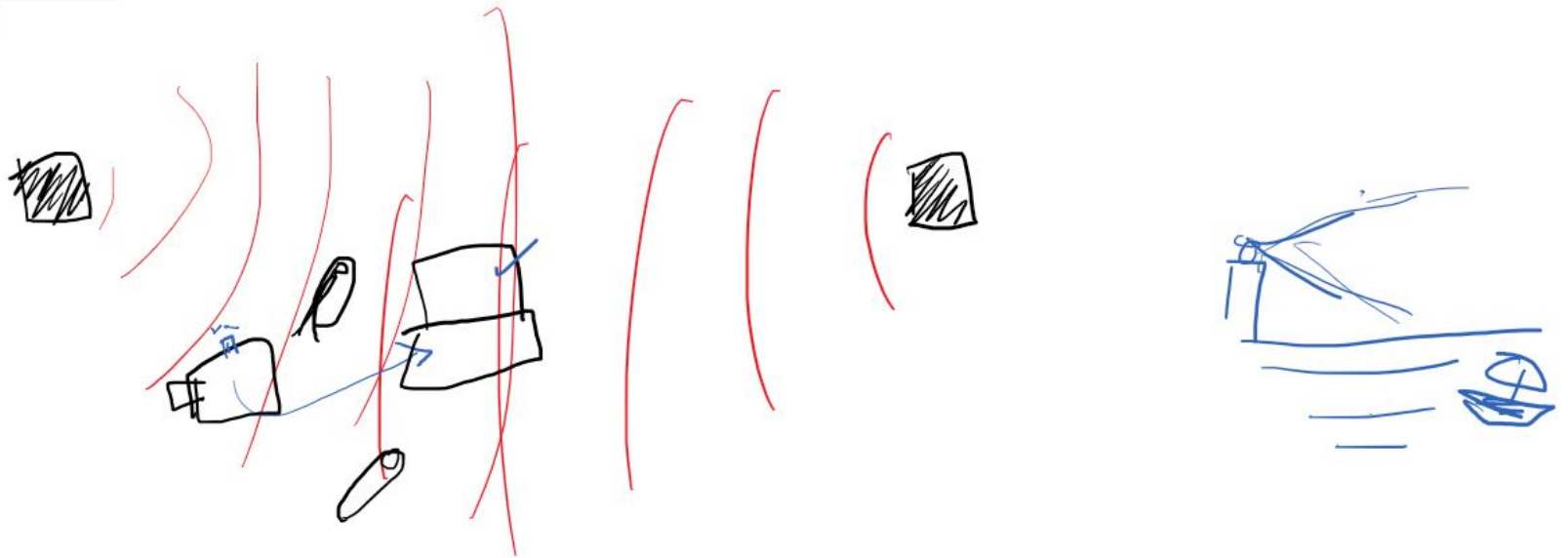
YOUR JOURNEY BEGINS AT  **VIVEPORT**


How it works

- 6 Degrees of freedom (3 rotation axes, 3 position axes)
- Rotation tracking → low latency IMU's
- Position tracking → **lighthouse system**
- FOV: 110 degrees (horizontal)

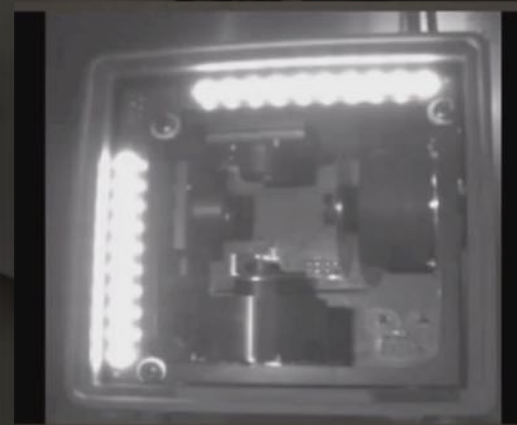
Lighthouse system

Thursday, 11 May 2017 4:55 PM





Time since last flash: 6.71 ms
Delta t X 5.680 ms = 32.698 Deg
Delta t Y 4.618 ms = 09.758 Deg



Welcome to Room Setup!

Set up for Room-Scale

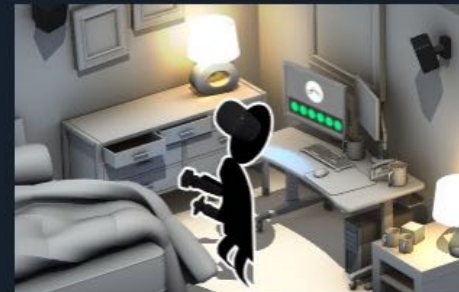
Play Room-Scale, Standing, and Seated VR experiences. Choose this if you have at least 2 meters by 1.5 meters, or around 6.5 by 5 feet.



ROOM-SCALE

Set up for Standing Only

Play Standing and Seated VR experiences. Choose this if you have limited space to walk around.



STANDING ONLY

