

Context-Aware-VR

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VR headset survey



Figure 1: Phone-driven VR

Properties:

- ▶ Built-in gyroscope and accelerometer → rotation
- ▶ No positional tracking → through phone or indoor positioning system (Ken)
- ▶ No eye tracking solutions
- ▶ Precision and quality → dependent on phone
- ▶ Unity or Unreal Engine → no OpenVR

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Figure 2: Oculus Rift S

Properties:

- ▶ Pc-driven
- ▶ No base stations → inside-out tracking (less precise)
- ▶ Play area defined by controller
- ▶ OpenVR compatible → orientation
- ▶ €450 (incl. 2x controllers)

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Figure 3: HTC Vive Cosmos (NOT ELITE)

Properties:

- ▶ Pc-driven
- ▶ No base stations → less precise
- ▶ Play area defined by controller
- ▶ OpenVR compatible
- ▶ Upgradable to ELITE
- ▶ Eye tracking → Pupillabs (expensive)
- ▶ €800 (incl. 2x controllers)

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Figure 4: HTC Vive Cosmos ELITE

Properties:

- ▶ Pc-driven
- ▶ Base stations → external tracking
- ▶ Eye tracking → Pupillabs (expensive)
- ▶ €1030 (incl. 2x base stations v1 and 2x controllers)

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VR headsets with eye-tracking as a module:

PupilLabs Binocular Add-on:

- ▶ €1400!
- ▶ High compatibility → Python, Unity,...
- ▶ HTC Vive, Vive PRO or Vive Cosmos VR → OpenVR



Figure 5: Pupillabs vs. Droolon f1

Droolon f1:

- ▶ Only costs around €150
- ▶ Vive Cosmos, Vive Focus Plus, Vive Focus or the original Vive aka Vive CE

VR headset overview

Headset	Price	Base stations	PC	Orientation	Positional	Eye tracking	SDK
Phone driven	€0	No	No	?	?	No	?
Oculus Go	€378	No	No	?	Yes	No	No
Oculus Quest	€450	No	Both	?	Yes	No	?
Oculus Rift S	€450	No	Yes	Yes	Yes	No	OpenVR
HTC Vive (original)	€250+€300	Yes	Yes	Yes	Yes	Pupil Labs	OpenVR
HTC Vive Cosmos	€800	No	Yes	Yes	Yes	Pupil Labs	OpenVR
HTC Vive Focus Plus	€870	Yes	No	Yes	Yes	Pupil Labs	OpenVR
Pico Neo 2 Eye	€945	No	Yes	Yes	Yes	Yes	Tobii sdk
HTC Vive Cosmos Elite	€1030	Yes	Yes	Yes	Yes	Pupil Labs	OpenVR
HTC Vive Pro Eye	€1400	Yes	Yes	Yes	Yes	Yes	OpenVR