

Context-Aware-VR

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Context extraction

Context type information:

- ▶ Eye tracking
- ▶ Location tracking
- ▶ Rotation of the head

→ Mobility pattern

→ Basis for criteria to choose appropriate VR headsets

VR headset survey



Figure 1: Phone-driven VR

Advantages:

- ▶ Built-in gyroscope → rotation
- ▶ Location → through phone or indoor positioning system (Ken)

Disadvantages:

- ▶ Eye tracking difficult → position of front facing camera
- ▶ Precision → dependent on phone
- ▶ Everything needs to be app-driven → complexity increase

VR headset survey

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 2: 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 survey



Figure 3: HTC Vive Pro **Eye**

- ▶ Rotation & location → Vive sdk or OpenVR (Valve)
- ▶ Eye tracking → tobii xr sdk or Vive SRanipal SDK
- ▶ tobii xr sdk → Unity only
- ▶ Pricing around €1400
- ▶ Everything needs to be app-driven → complexity increase

VR headset survey



Figure 4: Tobii HTC VIVE Devkit/Tobii Pro VR Integration

- ▶ Supports: Unity, Unreal and native
- ▶ Pricing? → through application form

VR headset survey

Qualcomm snapdragon:

- ▶ Native support with Tobii XR SDK (but need to contact them)
- ▶ Snapdragon VR SDK
- ▶ Sold out → price?



Figure 5: Qualcomm vs. Varjo v2

Varjo:

- ▶ Business only
- ▶ VR/AR
- ▶ €5000 and more → software

Platforms

Platforms:

- ▶ Unity → C and JavaScript
- ▶ Unreal Engine → C++
- ▶ Vizard → Python
- ▶ Native → No 3D environment

Platforms

Unity:

- ▶ HTC Vive Pro Eye → Tobii xr sdk or SRanipal SDK
- ▶ Pico Neo 2 Eye → Tobii xr sdk
- ▶ Tobii HTC VIVE Devkit → Tobii xr sdk

Unreal Engine:

- ▶ Tobii HTC VIVE Devkit → Tobii xr sdk
- ▶ HTC Vive Pro Eye → SRanipal SDK

Vizard:

- ▶ HTC Vive Pro Eye
- ▶ Tobii VR (included non-headsets)
- ▶ Pupillabs

Native:

- ▶ Tobii HTC VIVE Devkit → Tobii xr sdk
- ▶ Qualcomm Snapdragon VR 845 → Tobii xr sdk