# Literature review

## REF COUNT:

REF COUNT IN TEST: 7

REFS FOUND: 15

TO ADD: 8

**TODO:**

Web tech, frontend and backend

Oculus integrations vs XR

Summary the technology to be utilized for the project.

End of each chapter should be a summary of what was it in.

# Good references

API PYTHON FLASK: https://learning-oreilly-com.ezproxy.uwe.ac.uk/library/view/python-api-development/9781838983994/C15309\_01\_ePub\_Final\_SW.xhtml#\_idParaDest-16

API REST PYTHON Frameworks: <https://iopscience-iop-org.ezproxy.uwe.ac.uk/article/10.1088/1742-6596/2094/3/032016>

This article discusses the key points of developing a secure RESTful web service API for keeping a student achievement journal. The relevance of using web services has been analysed. The classification of web applications is given. The features of the Single Page Application architecture were considered. Comparative characteristics of architectural styles of application programming interfaces are given. Requirements to be met by RESTful API services are considered.

VR: https://web-p-ebscohost-com.ezproxy.uwe.ac.uk/ehost/detail/detail?vid=0&sid=dadedcad-8807-442b-9127-5aead738d22c%40redis&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#AN=119003987&db=bth

Abstract:

The article offers information on the virtual and augmented reality market. Topics discussed include growth in the investment and interest flow into virtual and augmented reality industry, development of frictionless VR technologies, and views of Terence Kawaja, founder of digital media Luma Partners, on development of VR and AR application.

Metaverse: https://dl-acm-org.ezproxy.uwe.ac.uk/doi/10.1145/2480741.2480751

Abstract:

Moving from a set of independent virtual worlds to an integrated network of 3D virtual worlds or Metaverse rests on progress in four areas: immersive realism, ubiquity of access and identity, interoperability, and scalability. For each area, the current status and needed developments in order to achieve a functional Metaverse are described. Factors that support the formation of a viable Metaverse, such as institutional and popular interest and ongoing improvements in hardware performance, and factors that constrain the achievement of this goal, including limits in computational methods and unrealized collaboration among virtual world stakeholders and developers, are also considered.

Google glass: https://ieeexplore-ieee-org.ezproxy.uwe.ac.uk/document/6504855#full-text-header

Abstract:

Soon, Google Glass will be worn by many users as part of the Glass Explorers Program. However, to get to this point, Google first hired many of the academics who have worn such devices as part of their everyday lives. Here, Thad Starner discusses how he got hooked on HUDs and why he thinks wearable interfaces will help users pay attention to the real world as opposed to retreating from it.

Hand tracking: <https://www-sciencedirect-com.ezproxy.uwe.ac.uk/science/article/pii/S0262885619300861?via%3Dihub>

Abstract:

Vision-based 3D hand tracking is a key and popular component for interaction studies in a broad range of domains such as virtual reality (VR), [augmented reality](https://www-sciencedirect-com.ezproxy.uwe.ac.uk/topics/engineering/augmented-reality) (AR) and natural human-computer interaction (HCI). While this research field has been well studied in the last decades, most approaches have considered the human hand in isolation and not in action or in interaction with the surrounding environment. Even the common collaborative and strong interactions with the other hand have been ignored. However, many of today's computer applications require more and more hand-object interactions. Furthermore, employing contextual information about the object in the hand (e.g. the shape, the texture, and the pose) can remarkably constrain the tracking problem.

TRACKING SLAM Oculus (META): <https://ai.facebook.com/blog/powered-by-ai-oculus-insight/>

PART OF TEXT: To unlock the full potential of virtual reality (VR) and augmented reality (AR) experiences, the technology needs to work anywhere, adapting to the spaces where people live and how they move within those real-world environments. When we developed [Oculus Quest](https://www.oculus.com/quest/?fbclid=IwAR1bSuFlxJywLkdDpvtK_FLUR7JAFEK2adR0ScYR4b-774hzxvb_-BEQJEs), the first all-in-one, completely wire-free VR gaming system, we knew we needed positional tracking that was precise, accurate, and available in real time — within the confines of a standalone headset, meaning it had to be compact and energy efficient.

Inside out: <https://ieeexplore.ieee.org/abstract/document/9152604>

The virtual reality (VR) industry has greatly evolved over the recent years. VR, being an extremely promising technology, has already found its use in various different areas, and most likely will continue to expand further. Thanks to the accumulated scientific knowledge base in the field of VR, technological progress and human enthusiasm, new ways of providing a better, more effective immersive experience in VR are constantly emerging. In this paper, we investigate the hardware aspect of the current VR technologies. We examine the classification of modern VR head-mounted displays (HMDs) and conduct a comparative analysis on an example of several relevant for today headsets, such as: Oculus Rift S, HTC Vive Pro, HTC Vive Cosmos, Valve Index and Samsung HMD Odyssey+. The results of the analysis show that overall HTC Vive Pro has the best qualities among the other devices. In addition, based on this study, we choose this VR headset to be used in the future development of an industrial training VR simulator, to the process of which a separate article will be devoted.