Electronics and Computer Science

Faculty of Engineering and Physical Sciences

University of Southampton

Muhammad Hazimi Bin Yusri

31/10/2023

Open-Source Stereo Video Camera System and Software Implementation for Virtual Reality (VR) Lifelogging and Content Creation

Project supervisor: Tom Blount

Second examiner: <2nd Examiner>

A project progress report submitted for the award of

<MEng Electrical and Electronics Engineering>

Abstract

In the realm of virtual reality (VR) and lifelogging, this project endeavors to overcome barriers of exclusivity and cost by developing an open-source, low-cost, and modular stereo video camera system. Designed to clip onto spectacle frames, this system integrates lightweight cameras and a microphone with the Raspberry Pi Pico microcontroller. It offers efficient stereoscopic (3D) video capture and immersive surround sound recording. Complementing the hardware, the project entails the development of lifelogging VR software using the Godot game engine. This includes a side-by-side (SBS) video player and intelligent metadata auto-tagging through scene and object detection. The primary objective is to democratize VR content creation, making it accessible to a broad audience, from VR enthusiasts to content creators, encouraging innovation in VR and lifelogging. Challenges, such as technical complexities and power management, are addressed through rigorous prototyping and optimization, ensuring project success and fostering inclusivity, innovation, and the advancement of VR content creation technology in the field of lifelogging.

Contents

[Abstract 2](#_Toc77155402)

[Contents 2](#_Toc77155403)

[1 Project Goals 2](#_Toc77155404)

[2 Background and report of literature search 2](#_Toc77155405)

[3 Report on Technical Progress 2](#_Toc77155406)

[4 Plan of remaining work 2](#_Toc77155407)

[References 2](#_Toc77155408)

# Project Goals

12 pt text for main body

# Background and report of literature search

12 pt text for main body

# Report on Technical Progress

12 pt text for main body

# Plan of remaining work

12 pt text for main body

References