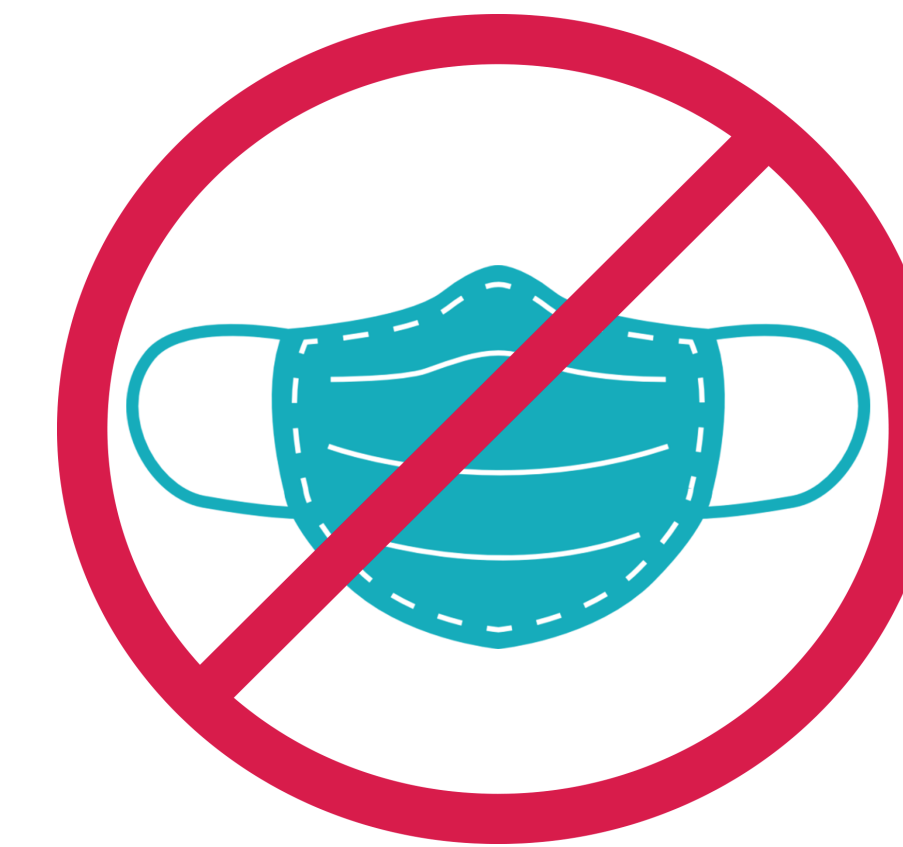
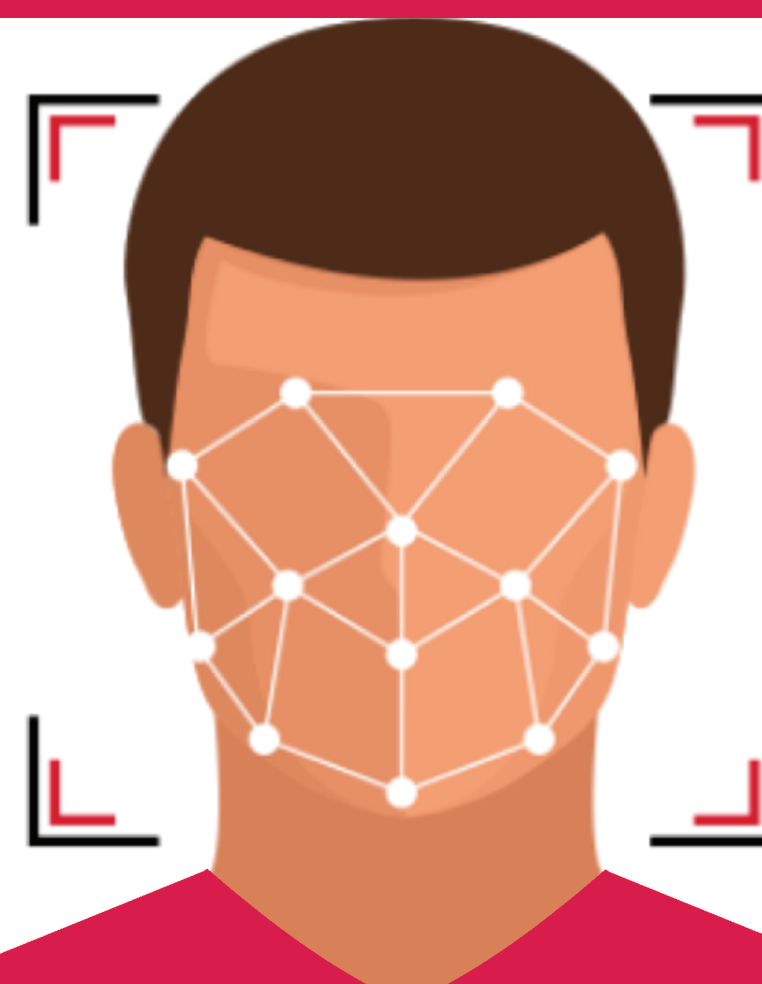
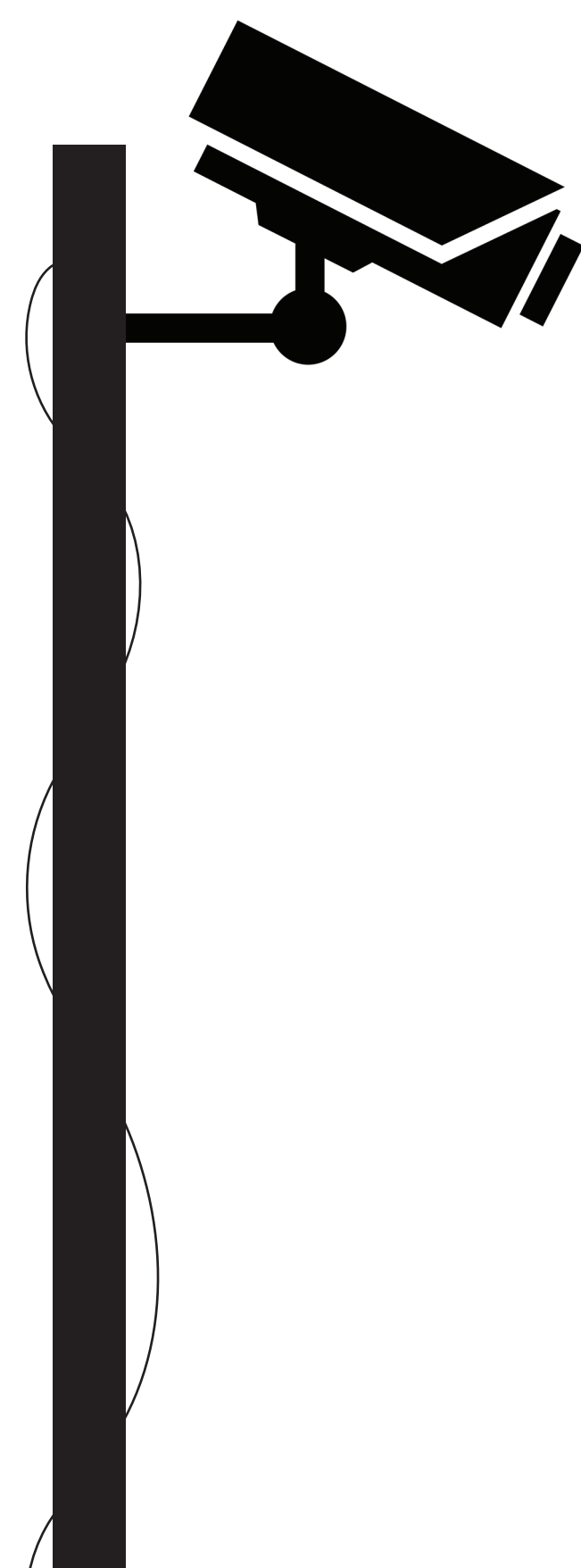




1.

Introduction

FR has emerged as a solution to improve security across many global sectors. The manipulation and use of unique biometric data are used to identify and verify individuals. Safety within academic environments has become an important discussion throughout the past decade.

The relationship between this sector and technology have been addressed throughout the exploration of FR technology and current security measures resulting in a tailored FR application specifically for Neath Port Talbot College.

2.

Aims and Objectives

The aim of the project is to assess how FR software can be used to improve the security of current systems within an academic/educational setting.

Sufficiently test and evaluate a designed solution within a suitable setting (educational setting) and obtain feedback where necessary.

3.

Methodologies

A range of different methodologies were used to design and create a fully functional application. These include a number of Python based libraries such as OpenCV and PyQt (a GUI designer within Python).

The accuracy of the FR application was tested against a number of intrinsic (physical characteristics of a user such as age and facial expression) and extrinsic (items responsible for the changing of a users appearance such as light illumination) factors.

4.

Findings

Initial findings suggest that FR technology is limited throughout the academic sector excluding the United States who have become early adoptors of this technology within the sector discussed.

Designing an algorithm proved time-consuming. A pre-built Python based facial recognition algorithm was implemented within the application proposed. Many factors affected the accuracy of the algorithm, such as the resolution of a users' image (compared against the live-camera feed) and many more.

5.

Conclusion

FR can improve security within an education setting if implemented correctly. Legislation testing must be conducted on the solution due to the area/sector this may be implemented. The software libraries used worked well together.

The hardware, specifically the Raspberry Pi 4 had difficulty running multiple libraries at once. This resulted in long load times. The aims and objectives were met and recommendations for further work have been identified.

