Final Year Project Proposal Form

Please complete this form and have your project proposal approved by your proposed supervisor. In addition, you are required to read and sign the declarations at the bottom of the form. Please submit your completed form via Brightspace.
You can type or hand-write the information in the form as long as it's legible. Digital supervisor signatures are acceptable.
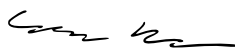
Name	Alex Butler
Student ID	21338787
Course Code	LM121
Supervisor Name	Conor Ryan
Project Title *(initial title or working title)*	A Bare Metal Implementation of a C++ Program on a Raspberry Pi

Project Description

*A brief description only for project suggestions chosen from the list provided. **Own** suggestions require a detailed description (see the section titled **Description of Own Proposed Project**)*

Develop a real-time image processing application that performs a computationally intensive task, such as applying various image filters (e.g., edge detection, blurring, sharpening) to a video stream.
The application will be implemented in two different environments:
A bare-metal C++ environment on a Raspberry Pi.
A standard C++ application running on Linux on a Raspberry Pi.
Objectives:
1.Develop a real-time image processing application in a C++ bare-metal environment on
Raspberry Pi.
2.Implement the same image processing application in a standard C++ environment on
Linux for Raspberry Pi.
3.Compare the performance, resource utilization, and latency between the bare-metal and
Linux-based implementations

Sign-off by Proposed Supervisor

Supervisor Signature *(Proposed Supervisor)*	
Supervisor Name	Conor Ryan
Date	dd/mm/yyyy Sep 13, 2024

Environment Required

You will be allocated a computer in the fourth year lab regardless of whether you have your own one or not. This information helps us to allocate machines more fairly as well as address any specific requests you might have.

Operating system required for your project

Item	Write Yes/Y where appropriate
• Mac	
• Linux	
• Windows	y
• Mac OSx	
• Other *(please provide specific details)*	

Languages you propose to use

C++, assembly

Specialist software, hardware and so forth you require *(any framework, access to a specific database and so forth)*

Raspberry Pi 4

Your Computer

Question	Write Y or N
Do you have a computer suitable for this project?	y
Is it portable?	y

Description of Own Proposed Project

This page is only required for Own project proposals. It should contain a detailed description of the project and should include sections on 'Background Research to Date', 'Key Aims', 'Special Resources Required' and 'Significant Milestones'. This description should be at least 500 words long.

Declarations

Declaration 1: FYP Guidelines Document

I declare that I have read and understood the FYP Guidelines document provided to me on Brightspace. I declare that I have read and understood the deadlines and associated penalties as outlined in this document.	
Student Signature	Alex Butler
Date	11/09/2024

Declaration 2: Ethical Approval

I declare that I have understood that undertaking a project involving human participants, including but not limited to interviews, user testing or questionnaires will require approval from the Faculty of Science and Engineering Ethics Committee. While it is the responsibility of the supervisor to lead and guide the application process, it is the student's responsibility to plan for sufficient time for this process. The lead-time on this is generally four to six weeks. Further details will be in a FYP lecture.	
Student Signature	Alex Butler
Date	11/09/2024