School of Computing  
CA326 Year 3 Project Proposal Form

**SECTION A**

Project Title: Class Attendance and Mask Compliance using Facial Recognition

Student 1: Name Cian Mullarkey ID Number: 19763555

Student 2: Name David Weir ID Number: 19433086

Student 3 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ID Number \_\_\_\_\_\_\_\_\_\_\_

*(A third team member is exceptional and requires detailed justification.)*

Staff Member Consulted for supervision: Hossein Javidnia

Project Description (2 pages max)

**Introduction**

*Describe the general area / problem covered by the project.*

The general area covered by this project is that of machine vision, in particular facial recognition. The problem we wish to tackle is to record student attendance in classes using facial recognition technologies and determine if they are following COVID19 safety guidelines by complying with face mask rules..

**Outline**

*Outline the proposed project*  Our goal is to implement a face recognition system to record class attendance in real time. After this, we will determine whether that individual is wearing a face mask.

**Background**

*Where did the ideas come from?*

This idea came about through our research of potential project ideas earlier in the year. While neither of us had a particular project or technology that we had our heart set on, after some research we both agreed that machine vision and facial recognition were technologies that appealed to both of us as it was something we both found interesting and also felt would be challenging.

We found that this project had practical applications that could be used outside of academia which made the project all the more interesting to us. Many institutions and organisations can always make use of facial recognition software to take attendance in classes or meetings etc. Additionally, with the prevalent threat of COVID19 the use of machine vision could assist organisations with ensuring compliance to the face mask rules set by the government.

**Goals**

*What will the project aim to achieve?*

The aim of the project is to achieve a functioning classroom attendance log using a camera and a facial recognition algorithm to identify and then log and record students who have attended the particular class. The final project would also be capable of noting whether a student is wearing a face mask as per government guidelines.

*Why/when/where/how will it be useful?*

This will be made use of and beneficial in classroom environments where the attendance record of students may be required as attendance is mandatory, or it may just be useful data for the institute to have in order to receive insights in determining class participation.

**Programming language(s) and tools**

*List the proposed language(s) you plan to use and any other software tools you might use (compiler, database, web server, etc.)*

* Python
* OpenCV
* TensorFlow/Keras
* Deep Learning
* Camera
* SQL Database
* Mobilenetv2

**Breakdown of work**

**Student 1**

~ David Weir

* Implement a face recognition training script
* Build and train a model to recognise an individual's face from a webcam / image.
* Real-time / Image face detection implementation for use in storing attendance of students in class

**Student 2**

~ Cian Mullarkey

* COVID-19 face mask detector training script
* Implement a fask mask detector for real-time / images