Project Proposal

# BEng Software and Electronic Engineering

## John Lawless

### **Proposed Project**

My interest and passion has always been the automotive industry and for my work placement I was blessed to have been placed with Jaguar LandRover, Shannon. While working on a project there I got to talk with the Smart Cabin team in the UK about the future for JLR vehicles, but more specifically the use of face recognition software. While talking with them I got to thinking about how face recognition software could be used for fleet management purposes. Multiple drivers on one vehicle, each with a specific profile attached to them. I believe that this project could be of benefit to companies with large fleets, to the rental car industry and shared mobility. It could also have the benefit of adding another level of security, by not allowing a vehicle to power up unless the driver is recognized and sending an alert to the fleet manager stating that an unauthorized individual is trying to operate the vehicle. I believe the camera could also be used to gauge the alertness of a driver, by tracking their eye movements and act accordingly.

In conclusion I propose to develop a face recognition software driven fleet management application. Which could possibly make it much easier for fleet managers to track a vehicle, with 100% certainty of who was driving it at all times.

### **The Challenge**

I propose to use a Raspberry Pi with Computer Vision and Machine Learning techniques to develop this project in Python. I have never used a Raspberry Pi and have no Python experience, so these will be a challenge. I am presently taking a course on Udemy in Deep Learning, Computer Vision and Machine Learning techniques with Python which I hope to be an advantage in relation to this project. I also hope to develop a server and app for communication between the vehicle and fleet management service.

My plan is to deliver working face recognition software by the December demo deadline.

### **Proposed Hardware and Software**

* Raspberry Pi
* Pi Camera
* OpenCV
* Python
* Java for the App

