**PROJECT SPECIFICATION - SEGM 2015/16**

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| **Student:** | **Martyn Rushton** |
| **Date:** | **25 September 2015** |
| **Supervisor:** | **Peter Collingwood** |
| **Degree Course:** | **Computer Science** |
| **Title of Project:** | Developing a self-driving car software framework to support a subsumption architecture. |

#### Elaboration

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| The purpose of this project is to understand the principles and issues that surround self-driving cars and use that understanding to build a software framework to support a subsumption architecture.  I will demonstrate this framework by driving a small chassis that uses an Arduino microprocessor to gather sensor data and a single-board computer to process that data |

#### Project Aims

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| Produce a software framework that can   * Take in sensor data * Process the sensor data * Perform actions required depending on the sensor data   Produce a small model to demonstrate the framework in action. |

#### Project deliverable(s)

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| I will produce a software framework that takes in sensor data, processes it and outputs actions to be performed.  I will produce a small robot, designed to use the same drive and steering features of every day cars. This will be built using an Arduino microcontroller and a single-board computer. The robot will take the action data from the framework and perform the specified actions.  The robot will be tested on factors including speed control, decision control, action latency and safety. This will be done through a series of tests that will involve performing a set of predetermined tasks in a controlled environment. To do this, I will also use other small robots to act as actors in the system. |

#### Action plan

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| |  |  |  | | --- | --- | --- | | **Task** | **Est. Completion** | **Deadline** | | Hand in Specification and Ethics Form | 21/10/2015 | 23/10/2015 | | **Hardware**   * Research Current Self Driving Cars * Research Microprocessors * Research Single Board Computers * Build Selected Hardware * Write Code to interface with Hardware | Ongoing  30/10/2015  30/10/2015  15/11/2015  30/11/2015 | Ongoing  05/11/2015  05/11/2015  20/11/2015  05/12/2015 | | **Software**   * Write Code for ‘easy driving’ * Write Code for dealing with traffic * Write Code for emergency situations | 30/11/2015  15/12/2015  30/01/2016 | 10/12/2015  25/12/2015  05/02/2016 | | **Report**   * Hand in Provisional Contents Page * Have first draft written * Have Second draft written * Have Third draft written * Have final draft written | 01/02/2016  01/02/2016  15/02/2016  30/02/2016  30/03/2016 | 12/02/2016  05/02/2016  20/02/2016  05/03/2016  04/03/2016 | | **Submission**   * Report to TurnitinUK * Hand in Report & deliverable * Demonstration | 06/04/2016  11/04/2016  18/04/2016 | 11/04/2016  13/04/2016  29/04/2016 |   Dates in red are university set deadlines |

#### Ethics

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| Please find attached Ethics Form |