**PROJECT SPECIFICATION - Project (SEGM) 2017/18**

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| **Student:** | **James Kirk** |
| **Date:** | **26/09/2017** |
| **Supervisor:** | **Jamie Hufford** |
| **Degree Course:** | **BSc Computer Science** |
| **Title of Project:** | **Investigating increasing video game immersion through the use of external environmental data** |

#### Elaboration

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| There has been a significant push in recent years in the video games industry towards virtual reality headsets, with devices such as the PlayStation VR and VIVE making them much more accessible. However, the focus appears to be to immerse the user in an experience through nothing more than visuals and audio. The aim of this project is to explore another aspect of increasing immersion for the player. This will be done by the real-world environment having an effect on the in-game environment.  The project will use a single-board computer, such as a Raspberry Pi – with additional sensors, to collect various environmental data. There will then be a basic video game, where the player must alter these real-world environmental factors in order to solve puzzles in-game. |

#### Project Aims

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| * Set up a single-board computer to connect to the internet. * Collect real-time temperature, movement, light and sound data on the single-board computer. * Treat the data if needed. * Start publishing the data to the world so it can be read into. * Make a simple desktop application that reads in the data and displays it. * Create a simple game demo * Setup the game demo so that it collects the real-time sensor data * Make the game demo alter in-game factors based on the incoming data. * Use a project planning tool, such as GitHub, to organise and plan workflow. * Improve and expand my understanding and knowledge of games development. * Investigate whether or not a setup such as this actually increases immersion. |

#### Project deliverable(s)

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| The project will have a single-board computer, such as a Raspberry Pi, with various sensors attached.  Alongside this, there will also be a simple video game made for use on a Windows PC that the data will feed into in real-time, where a series of puzzles must be solved by altering the reading on the sensors. |

#### Action plan

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| |  |  | | --- | --- | | **Task** | **Milestone Date** | | Investigate best data to collect | 01/10/2017 | | Order required hardware | 06/10/2017 | | Investigate what game engine should be used | 08/10/2017 | | Investigate technologies to communicate the real-time data into the game | 15/10/2017 | | Finish project spec and ethics form | 18/10/2017 | | Set up hardware to collect real-time data | 22/10/2017 | | Publish (and treat if needed) data to the world for later use | 29/10/2017 | | Create a desktop application that reads in and displays the data | 05/11/2017 | | Finish information review | 24/11/2017 | | Create a simple game demo | 07/01/2018 | | Feed the external data into the game demo | 21/01/2018 | | Have the external data alter something in-game | 28/01/2018 | | Have a series of puzzles that need to be solved by interacting with the external environment | 04/02/2018 | | Finish draft critical evaluation | 02/03/2018 | | Finish draft report | 02/03/2018 | | Submit body of project report to TurnitinUK | 10/04/2018 | | Final submission | 10/04/2018 | |

#### Ethics

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| This is in the form of the completed ethics form which is available on BB. If you think that your project may be unethical in any way, or that there may be ethical issues to resolve (working with vulnerable people, testing procedures . . . ) then discuss this with your supervisor as soon as possible. In addition you will be asked to consider the risks associated with your project.  Please contact the project co-ordinator if further advice is needed. |