

Airplane Simulator

Gesture Based URI Development for Bsc (Hons) of Science in Computing in Software Development

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https://github.com/majo-z/Gesture-Based-UI-Project

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*Requirements*

* Development of a Natural User Interface application
* Local implementation of the application using gestures to interact with it (for example, an application using voice control, or implementation of a solution taking advantage of hardware like the Raspberry Pi, Myo Armbands, Leap Motion Controllers, Kinect, HoloLens, Durovis Dive, Arduino, Lego Mindstorms etc.)
* Reproduction of a classic game or system using a gesture-based interface
* The programming language of choice

The project should include the following headings (including all references as evidence of the research):

* Purpose of the application - design of the application including the screens of the user interface and how it works.
* Gestures identified as appropriate for this application - providing a justification for the gestures that can be incorporated into the application
* Hardware used in creating the application – the purpose of each piece of hardware should be given with a comparison to other options available
* Architecture for the solution - the full architecture for the solution, including the class diagrams, any data models, communications and distributed elements that are being creating
* Conclusions & Recommendations – learning outcome from the project and the associated research, different approaches, critical evaluation of the project

*Objective*

The main aim of this project was to showcase skills we have learned over our 4-year course in GMIT.

The goal was to create an Airplane Simulator that can be controlled by Myo Armband gestures. This is reproduction of a Custom Airplane Physics designed by Indie Pixel (Technical Artist / Programmer / 3D Artist), that can be initially controlled by keyboard, Xbox controller or mobile gestures. Our goal was to implement the additional control system layer - Myo Armband gestures.

The application was created using Unity cross-platform game engine (version 2018.4.17f1 LTS) and C# language; and can run locally on a device with Windows 10 installed. The application hasn’t been tested on Apple system.

The user interacts with this airplane by using Myo Armband hardware attached to his/her forearm, that sends a signal to the application. Based on the implemented gestures the user can than control the airplane by using following distinguishable movements – waving left and right, double tapping, fingers spreading, making a fist, raising the arm forward and backward, sideways and rotating the arm.

*Purpose of the application*

*Gestures identified*

*Hardware used in creating the application*

*Conclusions & Recommendation*

*References*

*Appendix*

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