

turbulence

AIRTRAFFIC CONTROLLER GAME



User Manual

Contents

Set-Up	4
System Requirements	4
Software Installation	4
Software Installation from Source Code	4
 Menu Navigation	 5
Main Menu	5
Difficulty Select	5
 Interface Guide	 6
Airspace Overview - Nav Mode	7
Airspace Overview - Plan Mode	8
Control Hub	9
 Controls	 10
Mouse Based	10
Keyboard Based	10
 Game Features	 11
Landing	11
Taking Off	13
Score	14

Contents

Appendices	14
Glossary	14
Credits and Acknowledgements	15

Set-Up

Recommended System Requirements:

Operating System: Windows 7

Processor: 1.6 GHz Dual Core

Memory: 2GB

Input: Keyboard, Mouse

Software Installation:

1) Install the latest Java Runtime Environment

Available from java.com/download

2) Download the Turbearlence executable

Available from as1481.github.io/Turbearlence/

Please note: if you are running the game on a CS Lab PC make sure you are running the game from the 'M' drive.

Installation from source code:

1) Install the Eclipse IDE on Windows 7

Available from www.eclipse.org

2) Download the Turbearlence source code

Available from as1481.github.io/Turbearlence/

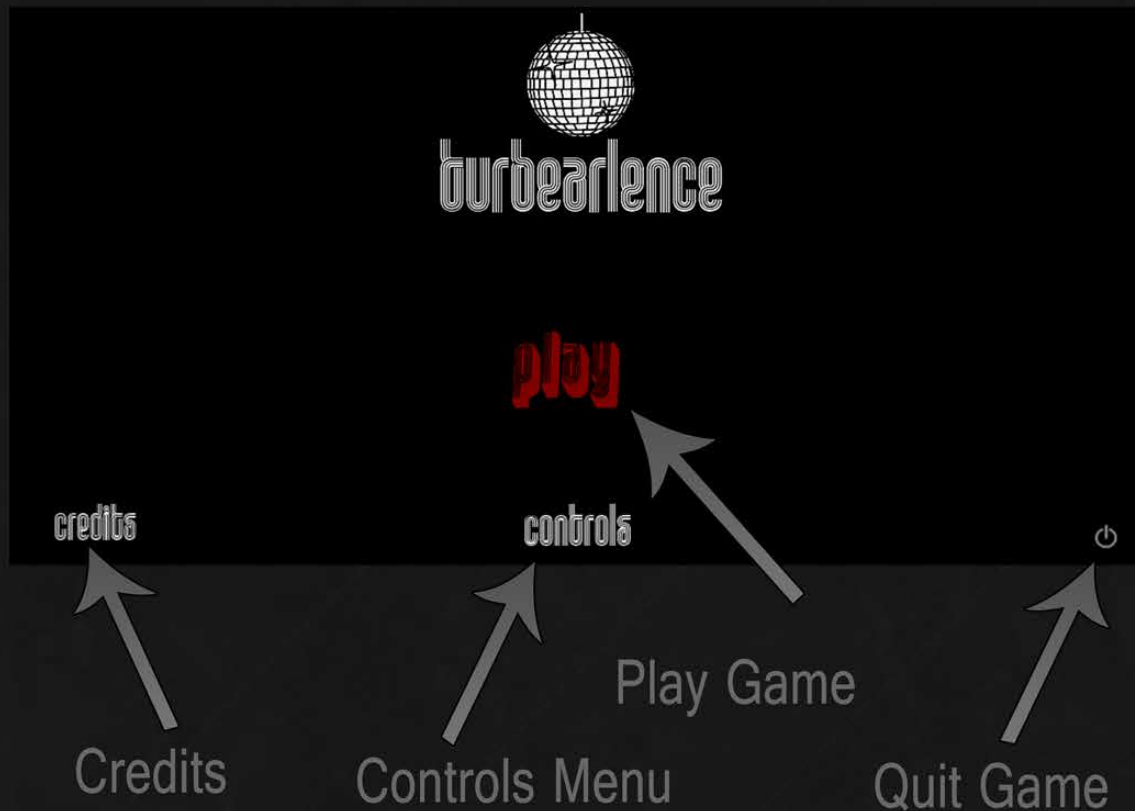
3) Load the Eclipse project into the program

4) Open the 'game.java' class located in the stateContainer package

5) From the top tool bar select Run -> Run As -> Java Application

Menu Navigation


Main Menu:



Difficulty Select Screen:

Difficulty

Difficulty affects separation rules
Select your bear



It is the late 1970's. you are a bear. After a number of successful years controlling air traffic in Russia you have been transferred to the USA in the era of disco.

The aim of the game is to successfully navigate all flights along their specified flight plan of waypoints and out it's exit waypoint. The more waypoints you navigate a flight through, the higher your score.

Flights will enter the airspace at three entry waypoints around the map and will automatically fly towards their first waypoint. After this it is up to you to help them along their way.

If aircraft get too close to each other a red line will be drawn between them. Your goal is to avoid this separation violation and crashes.

Interface Guide

The main game screen is divided into two primary sections, the **airspace overview** and the **control hub**. The airspace overview provides you with a top down perspective of all the aircraft, waypoints and exit points you will need to keep track of. The control panel allows you to land planes and get them to take-off, it also gives a quick reference for various flight parameters such as heading and altitude.

Main Game Screen:

Airspace Overview

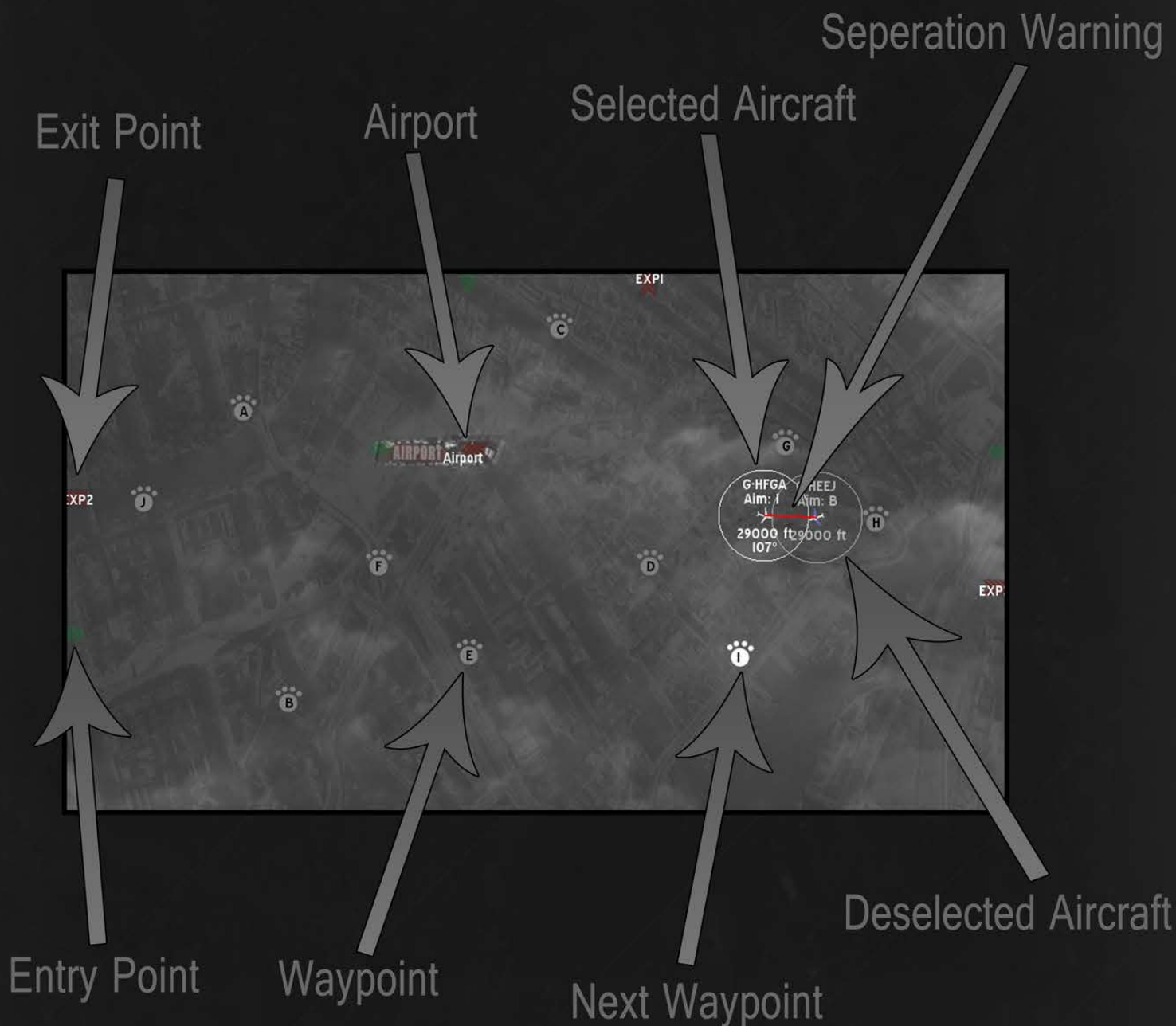


Control Hub

Airspace Overview

Navigator Mode:

The navigator mode is used for giving commands to flights in your airspace. Click on an unselected flight to select it, and then click and drag in its control circle to give a new heading.



Airspace Overview

Plan Mode:

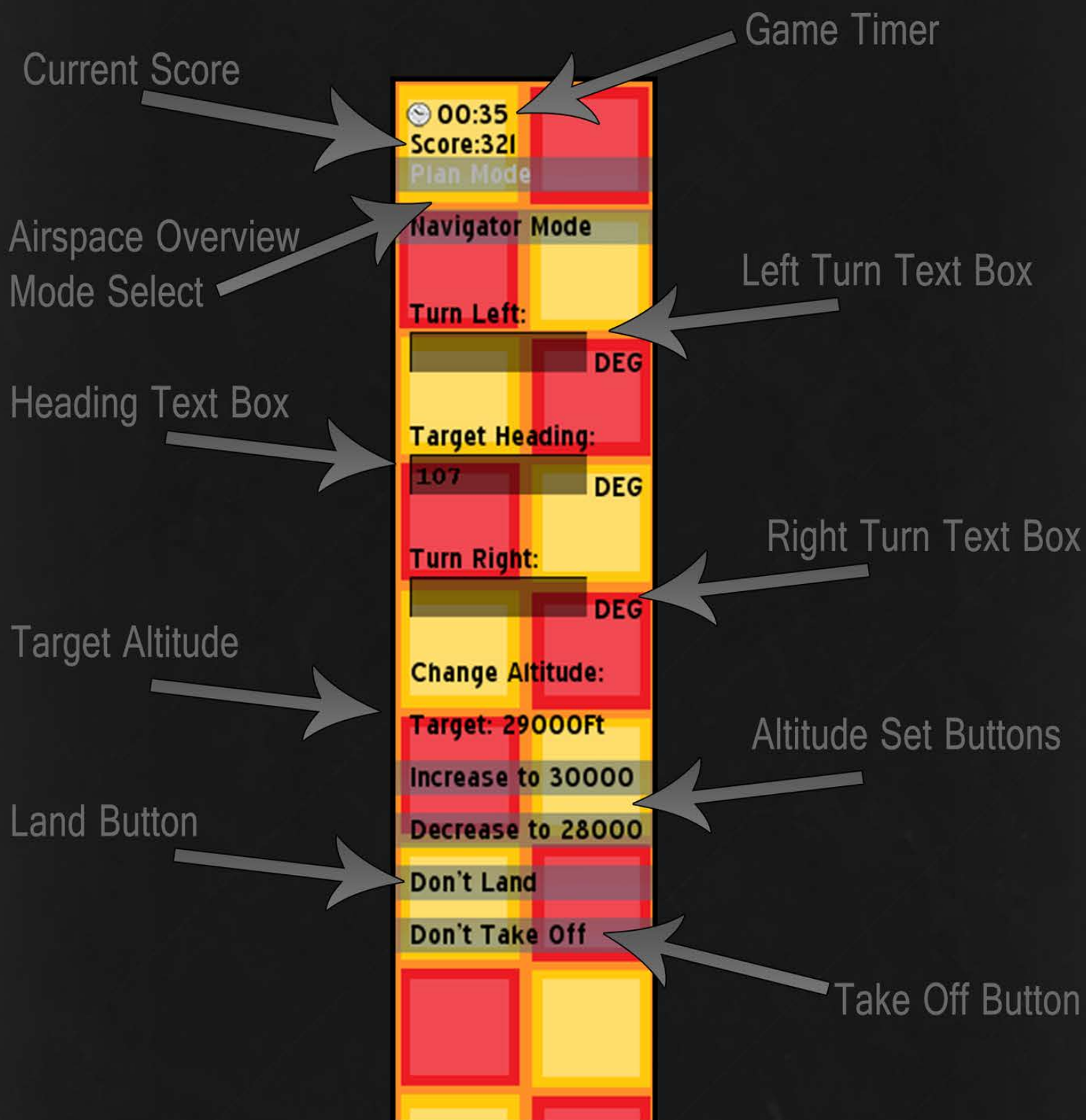
Plan mode is used for re-assigning waypoints to the selected flight. You can click and drag on a waypoint to move the waypoint connection line to another waypoint. You can re-assign any waypoint to any other waypoint but you cannot change the total number of waypoints for a flight.



Waypoint

Waypoint Connection Line

Control Hub



Controls

Mouse:

Mouse 1 selects an on screen element, such as a flight, textbox or waypoint.

Clicking and dragging with mouse one allows you to move an element around the screen. When clicking on a selected flight this allows you to order a new heading to be flown. When clicking on a waypoint it allows you to re-allocate a new waypoint.

Keyboard:

Up Arrow - Increase Altitude

Down Arrow: Decrease Altitude

P - Pause

Escape - Quit the game and return to the main menu

Landing

Due to one of the plane's possible destinations being the airport within the airspace you are controlling, the player must give planes permission to land. When a plane that wishes to land at the airport has visited all of its waypoints, it will request permission from the player to be able to land. The player must then select the flight and give it permission to land by pressing the permit to land button. The plane will then descend in altitude slowly until it is at an appropriate landing altitude before landing on the runway.

However sometimes you may have multiple planes attempting to land, or a plane may already be on the runway attempting to take off. For this reason the player is also able to abort a plane landing by pressing the abort landing button when the plane is selected. This will cause the plane to begin ascending back to a cruising altitude until it is again given permission to land by the player.

Landing

Requesting to Land:



Permit to Land button

Requesting to Land

Landing:



Abort Landing button

Taking Off

Occasionally a plane will not enter from the entry points but will instead start on the airport runway and will want to take off. When this happens, you will see a plane on the runway and will be informed that it is currently requesting permission to take off. The player must then select the plane and give it permission to take off by pressing the permit to take off button. The plane will then slowly ascend to a cruising altitude and will begin to follow its flight path as expected.

Requesting to Take Off:



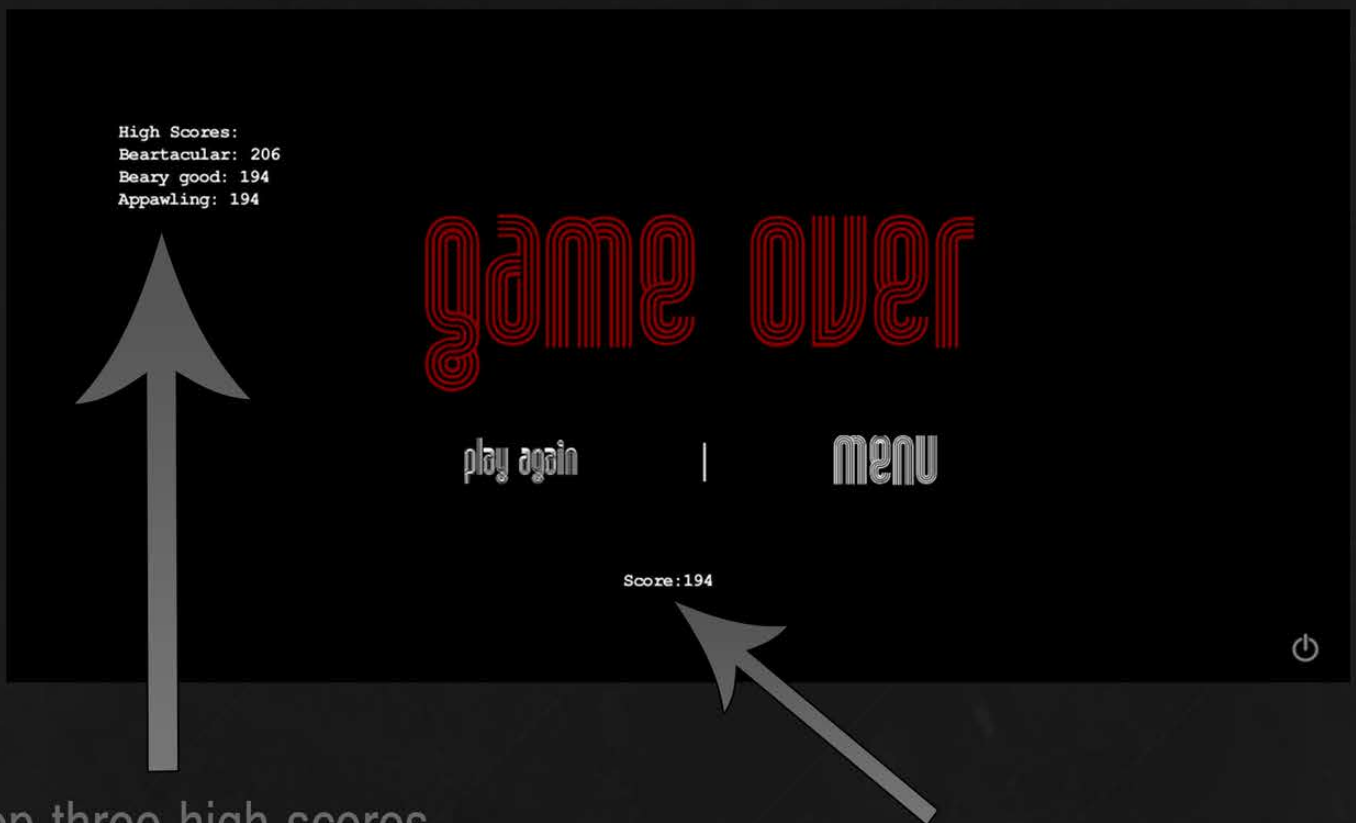
Permit to Take Off button

Requesting to take off

Score

While playing the game you will be gaining a score, the score is updated according to a number of factors. The time you have been playing will increase your score, as will each succesful flight you manage to guide through the airspace. However, when two planes are violating the seperation rules you will begin to lose score. You will also lose score while you are manually controlling planes, so be sure to only use it to maneuver planes that are on a collision course. At the game over screen you will be able to view the score for the lost game, and your three highest scores.

Game over screen:



Top three high scores

Most recent score

Glossary

Airspace Overview - Primary View to the right of the game screen

Altitude - Distance the flight is above the ground

Control Circle - Circle around a currently selected flight

Control Hub - Panel on the left of the main game screen

Entry Point - A point where flights will enter the airspace

Exit Point - The final objective of a selected flight

Flight - Any aircraft in the players airspace

Flight Plan - The route through the airspace, includes waypoints and exit points

Heading - Bearing between 0 and 360 that the flight is flying

Nav Mode - Used for controlling aircraft

Plan Mode - Used for adjusting a flights waypoints

Text Box - A control where you can precisely enter new values

Waypoint - A static point on the map, used for navigation

Acknowledgements

DEVELOPERS

Team WAW:

Liviu Pirvan - lp752@york.ac.uk
Oliver Ramirez - or544@york.ac.uk
Lewis Shaw - lms530@york.ac.uk
Rory Simpson - rs1019@york.ac.uk
Adam Taylor - at895@york.ac.uk
Adam Wright - aw973@york.ac.uk

Team FLR:

Alex Stewart - as1481@york.ac.uk
Gareth Handley - gh666@york.ac.uk
Huw Taylor - ht692@york.ac.uk
Josh Adams - ja814@york.ac.uk
Sanjit Samaddar - ss1276@york.ac.uk
Stephen Webb - slw546york.ac.uk

Music Assets:

"Aurea Carmina" Kevin MacLeod (incompetech.com)
Licensed under Creative Commons: By Attribution 3.0
<http://creativecommons.org/licenses/by/3.0/>