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| ICT371 Project |
| Wildlife Campus Project |
| Game Design Document |
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# Group Members

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# Project Description

This project was proposed by Victor Alvarez at Murdoch University. The objective of this project is to design and implement a serious game with the goal of supporting the education of students with regards to wildlife conservation in the local Murdoch area. The game will be designed for the “Epson Moverio BT-200” smart-glasses, and will feature an engaging real-world experience. Our group has organized a meeting with Victor in order to establish his expectations as a client, and to then synchronize those with the requirements of the unit.

# Purpose of the Game

This game will be designed to provide an engaging and interactive learning tool. This tool will be used by environmental students to enhance their study of the local flora and fauna. The game will also highlight conservation programs, and threats to native wildlife.

# Game Overview

The ICT371 Wildlife Campus Project is a serious game that will engage students in a real world experience and support learning about the wildlife at the Murdoch South Street camups.

## Game Concept

The ICT371 Wildlife Campus Project will involve a real-life augmented reality field trip through the campus. Players will be guided to discover the wetlands in Murdoch, various plants and animals, cockatoo nest tubes and microbat roosting boxes, and possibly key conservation buildings and programs. At set locations, information about the local environment will be provided, and students will be required to answer quizzes based on the information they have hopefully learned.

The game will also link to the Climate Watch website: <http://www.climatewatch.org.au/>

## Game Design

This game will be developed in the Unity Engine – with heavy use of the C# programming language – to provide easier development for the “Epson Moverio BT-200” smart-glasses, utilizing the “Vuforia” SDK to develop the augmented reality. The GPS system imbedded in the “Moverio” will be leveraged to allow tracking of the player position and triggering questions when in appropriate positions. User input will be achieved via the touch pad which accompanies the “Epson Moverio BT-200” smart-glasses.

## Game Flow

When the game starts the player will be presented with a login screen. Logging in allows player data to be saved for future reference. If the user does not have an existing account they will be prompted to create a new one. Once logged in, the user can then select to either review their report data, view the objects they have collected in the gallery or take an excursion.

Starting a new excursion allows the player to select which animal they would like to follow around the Murdoch campus. Initial design will allow for the ‘Black Cockatoo’ only, however this can be expanded later to add other campus wildlife.

Selecting the ‘Black Cockatoo’ option then provides the user with the options of exploring the cockatoo’s birth, or two other different life cycles. These action scenes will then take the player on a journey through Murdoch campus. When they reach the required waypoints, the player will be given the option to take a quiz which loads the ’Dialogue’ scene. Completing the quiz then returns the player to the main action scene. Once all waypoints have been achieved the player will have successfully completed the selected life cycle. Upon completion of the selected life cycle, the player will return to the main menu to select either a new animal or life cycle.

# Storytelling

A requirement of the unit project is to weave storytelling into the serious game with the objective of making the game compelling and therefore increase user retention. Our current idea for a story sets the user as a character sent from the future to learn about environmental conservation to avoid a future where the local ecosystem is destroyed. The augmented reality glasses become a storytelling prop in themselves, as well as providing an interface for the game.

# Unique Features

* Augmented Reality (AR) integration.
* GPS Real-world interactions.
* Immediately applicable to teaching users about Murdoch’s biodiversity.

# Data Capturing

The game will collect data during every game and play session. The data we are interested in currently includes quiz results and objective progression. These can be compared to baselines, as well as the student’s past performance. This establishes what the student knows, what they have learnt, and helps to identify gaps in their knowledge that they can improve on (by following suggestions from the game). Report screens can be generated from this information. Following a meeting with Victor, the data of interest can be clarified.

# Background Research

The “Epson Moverio BT-200” smart-glasses have a 3D display, touchscreen control, a front facing camera, and include headphones for audio. These elements must be considered when designing the gameplay and operation of our game. The glasses appear to have an average battery life of 20 minutes, which will need to be considered when asking users to navigate the real world playing space. Victor has worked on a similar project in the past and his experience and knowledge will be greatly beneficial when it comes to the design of our game.

# Assessment Requirements

* Serious Purpose.
  + Environmental education.
* Characters.
  + At least one main character.
  + Possibly an avatar that has sent you on this ‘mission’.
* Game Virtual Environment.
  + 3D game world.
  + Our game also uses the real-world as the game world.
  + Include reference images.
  + 3D models can be 50% created and 50% sourced.
* Storytelling.
  + Story must guide the experience.
* Level Design.
  + Must be more than one level.
  + Do different ‘waves’ of objectives meet this requirement?
* Development Platform.
  + Unity with heavy use of C#.
* Input Devices.
  + Primary user interface is the “Epson Moverio BT-200” smart-glasses.
* User Modelling and Data Collection.
  + Quiz results and number of objectives met can be captured.
  + This data can be used to produce performance reports, demonstrating how much the student knows about the various topics that are addressed.
* Coding.
  + Code will be properly formatted and documented.
  + GitHub is being used for version control.
* Game Elements.
  + Include, but not limited to:
    - Alarms; Buttons; Controllers; Goal Points; Helpers; Inaccessible Areas; Resource Generators; Save Points; Spawn Points.
  + This will need to be integrated with the client’s proposal.
* Game Testing.
  + A game testing plan will need to be made and rigorously tested.
* Launch Game Trailer.
  + 20 second minimum trailer demonstrating the game.
* Additional Requirements For Unity
  + See Kevin Wong about these.