CMP404: Applied Game Technologies

Assessment Brief

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Programmes:	Computer Games Technology 4 Computer Game Applications Development 4
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Project Overview

The aim of this module is to enable students to look at the realm of existing technologies currently used in computer games development and beyond and seek out opportunities for innovation within the field.

Learning Outcomes

1. Identify and critically evaluate the use of emerging technologies within computer games development.
2. Demonstrate and critically evaluate the application of existing and emerging technologies through application development.
3. Investigate appropriate areas of research and conceptualise their use within computer games development.
4. Formulate potential new areas of technological development based on current trends.

Assessment Tasks

The assignment will revolve around the design, development and evaluation of application based around the augmented reality technology that has been discussed throughout the delivery of this module.
Design a game application that specifically exploits the features of the technology. Research how the technology is being implemented in current game applications and explore any potential for innovation.
The project portfolio is weighted at 100% - however it is broken down into the following components:

Task One – Application Development

- Write a game prototype program that demonstrates the use of Augmented Reality.
- You need to implement at least one of the techniques covered in the module. Only use techniques that are coherent to your game – do not add techniques if they do not fit well with your coursework idea.
- The application must demonstrate features unique to AR – the gameplay should not be plausible on a PC screen or without enabling AR.
- You must implement the ability to restart the game within the application.
- Your application must run on an Android device. Alternative platforms are only permissible with agreement from the module tutor.
- The application should be written in C++ in a structured and well commented manner. Credit will be given for good program structure, style and commenting.
- Minimal use of Blueprints and editor tools will be allowed but your coursework will only be judged on your C++ development.
- The application must be a functional game with menus (all pages linking to each other) and audio implemented. The implementation of a settings and pause page is recommended but optional.
- Any use of additional software or libraries that deviate from the lab frameworks must be agreed with the module tutor.

Associated Learning Outcomes: LO1, LO2, LO3

Task Two – Report

The report (2000 words) will describe and justify the design and development of your application and should address the following points.

- A short clear guide detailing how to use the application.
- A description of the features and operation of your application.
- An outline of your application design from a software architecture perspective.
- Provide detail on how the design and implementation of your application specifically exploits the AR technology. Research about and indicate external features that could be used to build upon the application created.
- A reflective section in which you critically evaluate the approach taken and the effectiveness of your solution.
- Discuss any problems encountered and solutions devised.
- Discuss opportunities for innovation around the AR technology in relation to the application you have developed.
- References to literature and other resources used (in Harvard format).

Associated Learning Outcomes: LO1, LO2, LO3, LO4

Source - GitHub Classroom

Here is a link to the GitHub Classroom repository. This will contain the starter project for your coursework. If you have already begun work on your project, you could replace the files in this repository with your project files but maintain this repository for coursework submission. Select your student number on this classroom appropriately. There is already a functional `.gitignore` in the repository, which should strip down your project of all unnecessary files and significantly reduce the size of the project.

Video - MS Stream

Create a video demonstrating your AR game application. You may use the built-in recorder in most Android 11 phones, or any third-party screen recording applications, for example – Xrecorder.

I. Video Guidelines:

- Show all the menu screens including the pause menu if you have one.
- Make sure the in-game audio is being recorded and is audible in your video.
- Play the game the way it's meant to be played the ideal way in the video.
- Talk over the video to explain your gameplay better (optional).

II. Uploading your video:

Sign into your University Account on Microsoft Stream. Upload your video here, and make sure that your lecturers have the permission to view the video. Add both Naman Merchant and William Kavanagh to the list of viewers and set both to be the owner of the video – this will allow us to download the video and share it with the external examiner.

Submission

Select Assessment "AR Project" in MyLearningSpace for *CMP404: Applied Game Technologies* and attach 2 separate files to the single submission – do not zip them:

- Report – .pdf
  Format: Report_ ForenameSurname_CMP404.pdf
  Submit your report in a well formatted PDF document.
- Application – .apk
  Format: Apk_ForenameSurname_CMP404.apk
  Submit your application as an apk file. This needs to be a packaged standalone apk which can be installed on an Android Device. We will be using the Pixel devices to test this application.

In the description for your submission, add the following:

- Link to your video
  Upload your video to Microsoft Stream and share a link for it in the description/comments of your submission. Be sure to give all your module lecturers permissions to watch this video.
- Source On GitHub
  Include a link in the description with your latest commit to the coursework GitHub repository. *Any changes after this commit will be disregarded*. This repository should be linked to this GitHub classroom.

Assessment Criteria

Knowledge and Understanding
Demonstrate an understanding of emerging technologies for game development and how they are and used.

Practice: Applied Knowledge and Understanding
Design and create an interactive piece of entertainment software exploring creative solutions to the use of emerging technologies.

Generic Cognitive Skills
Demonstrate a synthesis and critical analysis of ideas and means to implement them within a games application.

Communication, ICT and Numeracy Skills
Design, plan and implement a piece of entertainment software using the appropriate software techniques.

Autonomy, Accountability and Working with others
Conform to the criteria of the brief and identify and apply resources as necessary