Initial Project Proposal

Mach G

Disc Ex Machina

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Information

Team Name: Team Mach G

Team Members:
  - Alvin Cheung
  - Cyrus Duong
  - Grant Guillen
  - Henry Nguyen
  - Michael Wang

Email(s): TeamMachG@gmail.com (All emails fall under this)

Github link: https://github.com/cnhenry/machg

Meeting Time: 10/7, 11/18 @ 11:15

Team Meeting Times: Tue, Thurs - after class; Varying weekends

Lab Meeting Time: Mondays @ 4:00 PM

Project Sponsor: None

Project Game Name: Disc Ex Machina
Virtual Reality is current technology that has yet to be pushed to its full potential, and is a currently growing market. Disc Ex Machina would allow the students design an application that works in tandem with the latest VR hardware and controllers. The primary goal is to create an immersive virtual world for entertainment purposes to learn how to setup and maintain a workflow to develop video game software with industry-level quality standards in mind.

Disc Ex Machina would be developed in Unity, as it has many libraries that could be used to save time from creating certain aspects of games. These include physics and creating smooth, graphically-sound transitions which are dependent on the objects’ relations in space; as well as a fluid user interface with user experience as a high priority.

The goal would be to design a dodgeball-esque game in which the user is able to throw a disc like object which would bounce around the room similar to the basic pong game. The third dimension aspect adds complexity to the application due to the additional axis of movement. Being in VR would provide an environment with awe-inspiring visuals and an immersive gameplay experience with accurate physics and motion.

The finished product would be an application that could be downloaded and would ideally feature a two player multiplayer mode in which two people may compete in real time with one another online. We are aiming for an industry level of quality in Disc Ex Machina that will be a fully flushed out with all the features and functionalities that one would expect from a production quality game.
Project Milestones

Implementation Milestones

1. Virtual world created with basic dimensions and player camera movement.
   a. 1 Person - 1 Day - September
2. Plan a design for all aspects of game
   a. 5 People - 3 Days - September
3. Player movement and objects capable of being thrown.
   a. 2 People - 3 Days - September
4. Player object rebounding with physics along with addition of targets/AI enemy added into
   the game. Refined collisions and hit detection.
   a. 3 People - 7 Days - October
5. Training target practice mode
   a. 2 People - 2 Days - October
6. Basic UI Elements with menu navigation
   a. 2 People - 2 Days - October
7. Base models with some thematic appeal
   a. 3 People - 15 Days - November
8. Fully develop game logic (scoring, win conditions, options modifications)
   a. 3 People - 7 days - November
9. Collision Noises and Sound Design
   a. 3 People - 15 Days - November
10. Introduction of 2 player mode with addition of second machine.
    a. 3 People - 7 days - December
11. Main Theme Song, Background Music, Ambient Music
    a. 3 People - 5 Days - March
12. Completed Models and Textures
    a. 2 People - 4 Days - March
13. Finalize aesthetic and theme of the game
    a. 5 People - 2 Days - April

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1 Days do not directly translate to hours. One day could vary between 4-6 hours accordingly to school hours
and school workload.
Documentation Milestones

1. Team Formation - September
2. Initial Project Description - September
3. Gantt Chart - October
4. Quad Chart - October
5. Project Proposal Report - October
6. Project Proposal Video - October
7. Design Documentation - November
8. Requirements Documentation - December

Mach G will be collaborating as a full team, and each document will require all five individuals to actively participate and contribute to the creation of the documentation. Each member is expected to work on and develop clear, concise documentation that accurately reflects our product and its many aspects. Each member is also required to attend weekly meetings and is expected to work on development as well as documentation in their free time. As a team, we are accountable for each member to achieve a certain standard of quality as well as making sure each document is submitted punctually.
Project Budget

Hardware
- Hardware is all owned by us
- 2 HTC Vives
- Desktops: i7 Processors; Nvidia GTX 1070/980 Ti’s; 16GB RAM
- Play Areas: Living room of team apartment and additional room.

Software
- Game Engine
  - Unity
    - https://unity3d.com/
- Modeling
  - Blender
    - https://www.blender.org/
- Texture/Material Editing
  - Substance Painter
  - Photoshop
- Video Editing
  - Sony Vegas
- Version Control
  - Github
    - https://github.com/
- Task Management
  - Trello
    - https://trello.com/
- Audio and Audio Editing
  - FL Studio Producer
    - https://support.image-line.com/jshop/shop.php
  - NoCopyrightSounds
    - https://www.youtube.com/user/NoCopyrightSounds
Work Plan

Team Member Proficiencies

While we have dedicated roles that each member is proficient at, we will be following more of a fluid design in terms of team roles. With this, each member can switch roles at any time and fill in for development.

Listed skills in order of proficiency:

Alvin Cheung - Design, Scripting, Documentation
Cyrus Duong - Video, Design, Scripting
Grant Guillen - Design, Scripting, Documentation
Henry Nguyen - Design, Scripting, Documentation
Michael Wang - Scripting, Documentation, Design

Member Fulfillment of Proficiencies

Scripting
- Alvin, Michael, Henry, Grant, Cyrus
- These scripts determine the inner workings and fine tuning elements of the game.

Physics
- Cyrus, Henry, Michael
- Sets the regulations of how objects move in correspondence to certain variables.

Game Logic
- Cyrus, Michael
- Determines the overall correctness and fairness of game decisions in the engine.

Design
- Alvin, Cyrus, Grant, Henry, Michael
- Thematic decisions in terms of UI, UX, Modeling, and Sound Design.

UI Design
- Alvin, Grant, Henry
- Design an efficient UI that is simple to use.

UX Design
- Alvin, Grant, Henry
- Design a user experience that is comfortable, efficient, and natural for the player.
Graphics
- Alvin, Cyrus, Grant, Henry
- Creation of images, models, and special effects that enhances the user’s experience.

Sound/Audio
- Alvin, Cyrus
- Create sounds/music that adhere to our thematic decisions.

Video
- Alvin, Cyrus
- Trailer to promote the launch of Disc Ex Machina.