Final Project Presentation

INFR 3380U: Industrial Design for Game Hardware

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Introduction – Project Context

- Solo Project
- Focus on Virtual Reality Enhancement
  - Virtual Reality is Expensive
  - Virtual Reality is Gaining Traction in Gaming
  - Focus on Cheaper VR Peripherals for Gaming
- Virtual and Cardboard Prototypes

Presentation Outline

- Introduction – Problem Statement
- Justification – The Importance of Solving the Problem
- Project Goal
- Literature Review
- Methodology Description
- Development
- Live Demo
- Results
- Conclusion

Introduction – Problem Statement

- Virtual reality works best when its as immersive as possible.
- VR technology is gaining prominence in gaming, but is still very expensive.
- Cost-effective solutions are needed to bring in more consumers.

Justification – Solution Importance

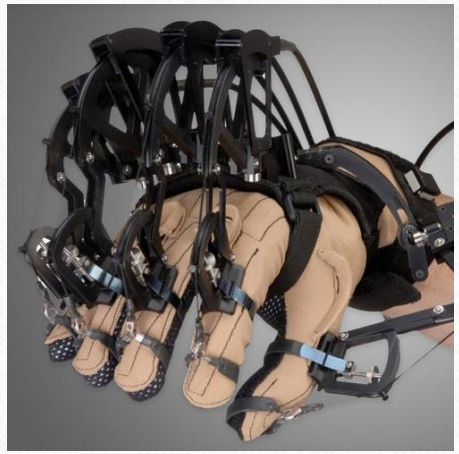
- More consumers means more appeal for developers to make VR games.
- More VR games means more research and development by extension.
- Drive innovation in the VR space, which brings forward other VR industries as well.

Project Goal

- Produce Virtual Reality Enhancing Product
- Low-Cost and Compact
- Marketable Product for Common Use
- Gameplay-Oriented

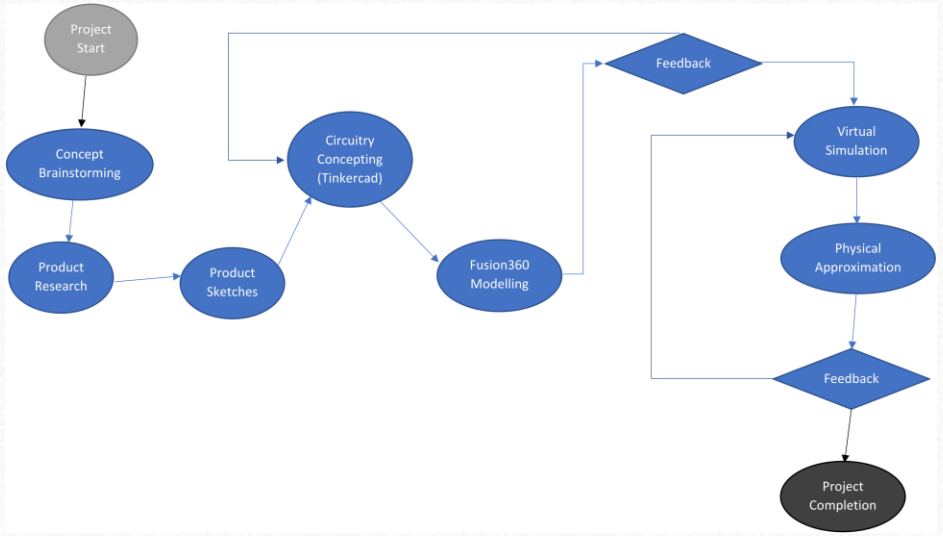
Literature Review

- Haptic Technology Started in the 1970s
- Haptic Technology has Changed Over Time
  - Uses Electronic Systems
- Different Glove Types
  - Motion Controller, Force Feedback/Movement Restriction
- Various Haptic Gloves Released or in Development
  - HaptX, CyberGlove Series, Senso Gloves, etc.



Methodology Description

- Start with Product Research and Design Brainstorming
- Tinkercad Circuitry Plan and Feedback
- 3D Modelling and Feedback
- Virtual Simulations and Feedback
- Project Completion

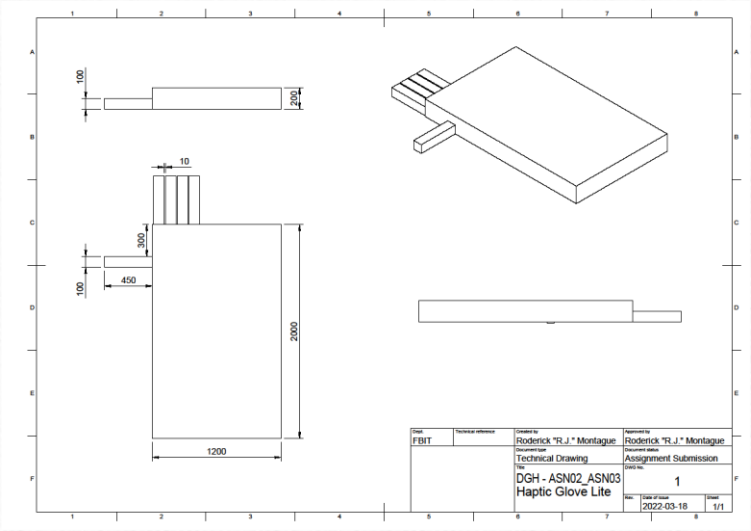


Development – Analysis and Characterization

- Compared to Existing Products
- Looked for Needs in the Market
- Think of Look and Use Cases

Development – Proposed System Architecture

- Looked at Existing Gaming Tools
- Consider Best Visual Representations
- Consider Hardware Trends



Development – Development Tools and Subsystem Development

- **Planning Tools**:
  - Photoshop and GIMP
  - Microsoft Excel
  - Sourcing from Websites (Creatron Inc., Amazon, etc.)
- **Development Tools**:
  - Fusion360
  - Blender
- **Simulation Tools**:
  - Unity

Development – Study Design

- Research Options for Hardware Components
- Focus on Circuitry Primarily
- Consider Comfortability and Ease of Use
- Consider Product Longevity
- QFD and Usability Tests

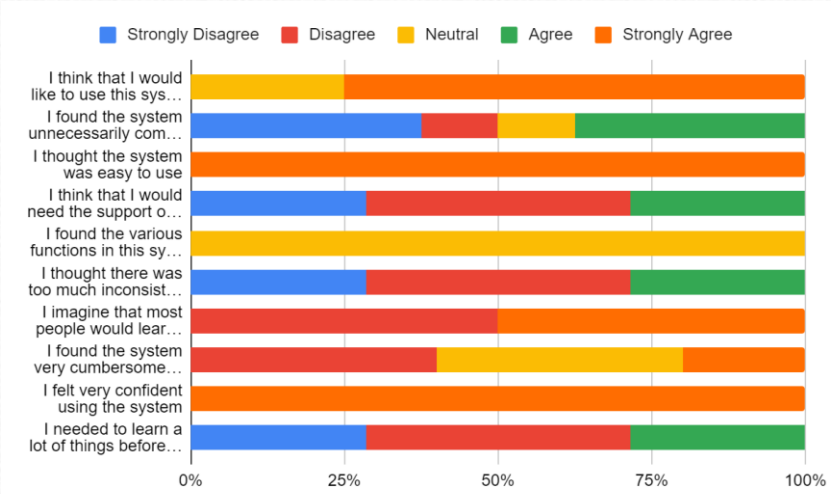
Live Demonstration

Solution Video

Results

- **Grade**: D (Poor)
- Large and Clunky
- Not One-Size Fits All

SUS Score
62
43
52.5
63
58
55.7



	I think that I would like to use this system frequently	I found the system unnecessarily complex	I thought the system was easy to use	I think that I would need the support of a technical person to be able to use this system	I found the various functions in this system were well integrated	I thought there was too much inconsistency in this system	I imagine that most people would learn how to use this system quickly	I found the system very cumbersome to use (1)	I felt very confident using the system	I needed to learn a lot of things before I could get going with the system
Strongly Disagree	0	3	0	2	0	2	0	0	0	2
Disagree	0	1	0	3	0	3	1	2	0	3
Neutral	1	1	0	0	2	0	0	2	0	0
Agree	0	3	0	2	0	2	0	0	0	2
Strongly Agree	3	0	2	0	0	0	1	1	4	0

Conclusion

- Still Potential Market Opportunity
  - Possible Adjustments Needed
- Design Needs to be Compressed
  - Improve Work with Measurements
  - Look for Smaller Components