



492 presentation

sdmay18-08

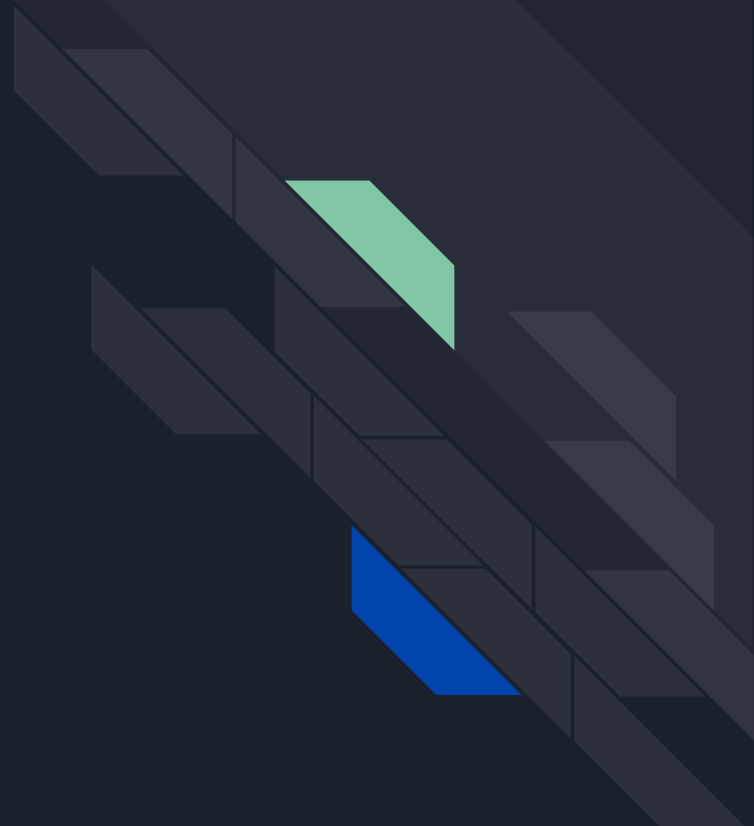
Project need and goal

Project need

Make a VRUI for engineering applications.

Goal

The UI contains enough space for a large number of functions and is convenient for the user to operate.



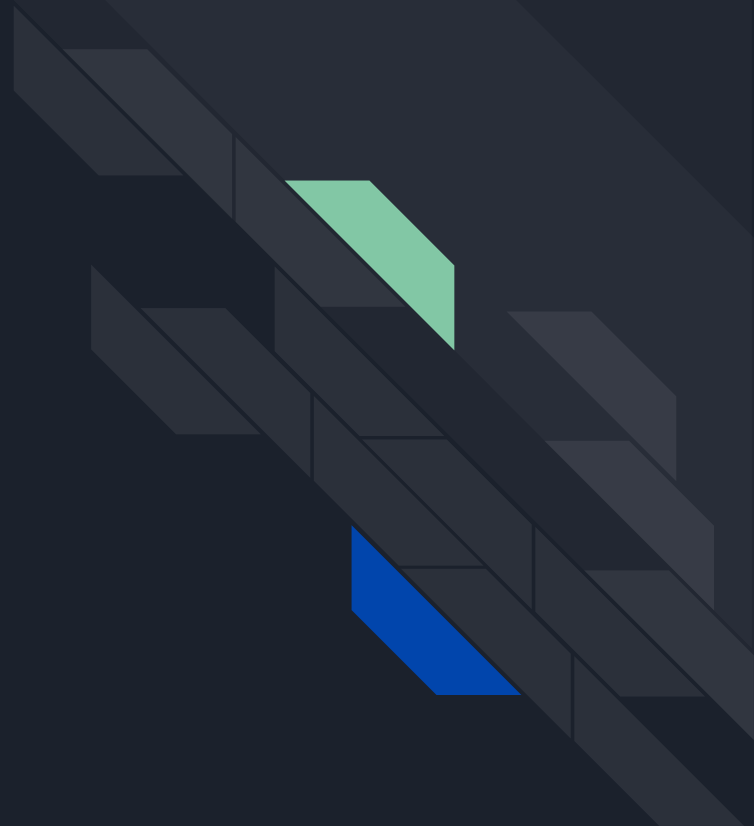
Requirements

Functional Requirement

- Movable
- Select Objects
- Support large number of functions
- non-occlusion

Non-functional Requirement

- The interface is clear
- An convenient operating way





Detailed Design

- Hardware & Software
 - Based on Unity 3D, VRTK toolkit
 - HTC Vives, Controllers and Base Stations
- Content
 - Interface for engineers
 - Specific functions are excluded
 - Key features: Tool Belt, floating menu

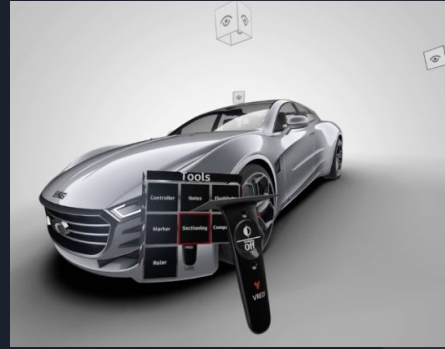


Key features

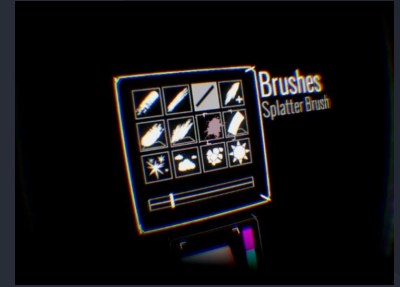
- Belt
 - In front of chest
 - Shortcuts for the top 3 used function
 - Convenience
- Floating menu
 - Can stick in the air
 - Return to hand with certain button
 - Won't block users' sights

Market/Advantage

- Materialize tools
- Moveable menu
- More functions



Autodesk VRED




Tilt brush by Google



Dassault


A decorative graphic on the left side of the slide. It consists of a blue parallelogram and a light green parallelogram, both tilted at an angle. The blue shape is in the foreground, and the green shape is partially behind it. They are set against a dark blue background with subtle diagonal lines.

CHALLENGE IDENTIFICATION

- 
- A decorative graphic on the left side of the slide consisting of two overlapping parallelograms. The front one is blue and the back one is light green. They are positioned diagonally, with the blue one partially covering the green one.
- Unfamiliar with VR
 - Unfamiliar with design tools and language
 - Lack of related knowledge
 - Limit imagination
 - One-sided view


The image features a dark navy blue background. On the left side, there are two overlapping geometric shapes: a blue parallelogram and a light green parallelogram, both tilted at an angle. The word "SOLUTION" is written in a white, sans-serif font, centered horizontally in the middle of the image.

SOLUTION

- 
- Experience & research
 - Play VR game
 - Watch VR game live streaming
 - Watch introductions and other existing VR products' demo video
 - Self-learning
 - Online tutorial
 - Also research

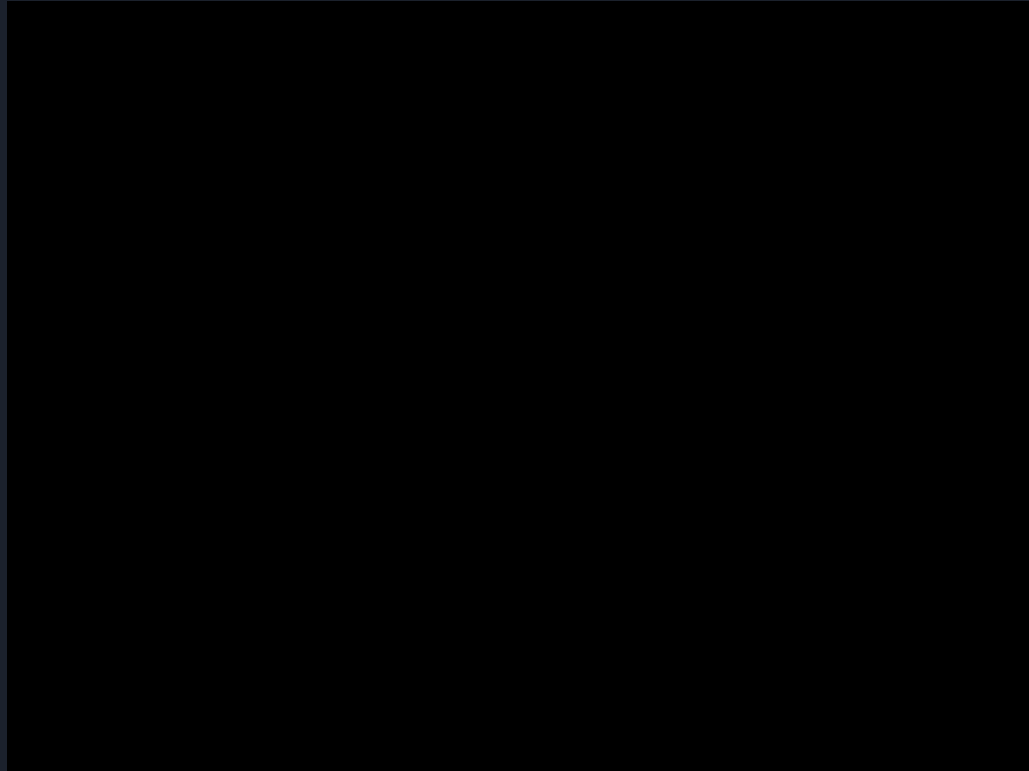
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BUILD IMPLEMENTATION DETAILS

- 
- A decorative graphic on the left side of the slide consisting of two overlapping parallelograms. The front one is blue and the back one is a light green color. They are positioned diagonally, with the blue one in front of the green one.
- Sketch in 2D environment
 - Feedbacks and suggestions from client and professors
 - Design in Unity 3D statically
 - Add dynamic effect and functions



DEMO





Test Plan

Occlusion Test :

1. Menu behind a object

(Can call back menu immediately)

2. Toolbelt interactive with object (challenge!)

(Tobelt have occlusion issues with object)



Conclusion

- Design a easier and more convenient user interface in VR environment
- Users achieve goals easier and faster



Future Expansion

- Occlusion Problem: when two objects overlaps the back one got blocked
 - adding a paid tools from Unity market
- More Functions
 - Background environment change to a factory
 - Engineering related functions
- Usability
 - User-friendly style and self-explained icon



Thanks!