

UNIT 3 – Bowling Alley (Virtual Reality)

(Due: 23rd April 2022 – 5.00 PM)

A chance demo of the bowling simulation application to a big name gaming corporation gave rise to discussions about the possibility of making the existing Bowling Simulation application as a VR based application. As a result, as part of UNIT 3 project, the teams have been tasked with rebuilding the existing project in UNITY which is used for developing VR and Web 3D Products. You are expected to work with your new teams and deliver the application within the given timeline.

As part of this project, you will design and develop a virtual reality scene. As part of the design process – each member of the team will use VR Sketch sheets (provided under resources) to design the overall layout of a VR Scene individually and later collate your ideas to finalize the overall design of the VR Scene. As part of development, you will have to use assets related to your VR Scene from the UNITY Asset store and develop the end-to-end scene.

The client would like you to be at your best with respect to creating the Scene designs !!! While functionality is important, the client would like you to ensure the interaction between the game players and the system is focused upon. So, the more creative/simple your interaction designs are the better your chances are to get your project accepted as part of the companies wide list of games.

Requirements

1. Create a simple single user – first person bowling alley game. You may make use the assets like Pins, Bowl etc. from UNITY asset store. (15 Marks)
2. The participant user should have 10 attempts to reach the end of the game (15 Marks)
3. There should be able maintain score board for the single user. (15 Marks)
4. Maintain Top score details for the last 10 games (15 Marks)
5. Create a Home Menu to enter and exit game (5 Marks)
6. Include at least one audio effect in the entire VR Scene (5 Marks)

You are allowed to test/validate your projects using **Oculus HMDs** stationed at SERC, T-HUB 5th floor between 3-5 pm on Monday – Saturday from April 10th until April 22nd 2022. Kindly note that the HMDs may not be taken outside of the lab. Please reach out to the TAs if you have challenge accessing the HMDs.

Additional Resources

- Learn UNITY Engine - <https://www.youtube.com/watch?v=MX6b7bS8JxY>
- Writing C# Scripts in UNITY Engine - <https://www.youtube.com/watch?v=Z0Z7xc18CcA&list=PLX2vGYjWbI0S9-X2Q021GUtoITqbUBB9B>
- UNITY SDK Documentation - <https://docs.unity3d.com/Manual/UnityAnalyticsBasicSDK.html>
- Use UNITY 2020 Editor Release as it is stable release - <https://unity3d.com/unity/whats-new/2020.3.0>
- VR Scene Sketch Sheets for designing mockups - <https://www.dropbox.com/s/b81o5ke92fejvqiv/VR%20Sketch%20Sheets%20and%20Paper%20Prototype%20Public.pdf?dl=0>
- Guide for VR Mockup Screen - <https://blog.prototypr.io/vr-paper-prototyping-9e1cab6a75f3>

Submission Instructions

1. Create a zip file named TeamMembers_Unit3.zip (where Team Members are your team members first names) containing three directories name src (for source code), doc (for the major document), misc (for all miscellaneous documents).
2. The src directory should contain all the source code (appropriately packaged – if necessary)
3. The doc directory should contain a single design document in either PDF format. It should contain the information specified below. Note it would not be an effective presentation of your design to take each item below, stack them one after the other and staple it together. You need to weave this information through your document in a manner that tells a cohesive story with prose guiding the reader and tying the sections together.
 - a) Title information, including the name of the project, the date of submission, a list of all the team members, effort (number of hours) put in by each team member, role played by each team member.
 - b) A short overview section describing the product and the features included.
 - c) VR Mockup Screens – Draw at least 4-5 the mock screens in an order of events of your VR Scene design using VR Sketch sheets. Each team member should come-up with their Mockup screens version and there should be a finalized overall mockup screen as part of the submission .i.e if the team has 5 members – this deliverable includes 5 individual mockup screen along with a final mockup screen used to develop the VR Scene.
 - d) Create a table summarizing flow of events in an order of action to be performed by the participant using Sequence diagrams and list of static and dynamic characteristics of the VR Scene.
 - e) In the misc document, you may put in all the miscellaneous management related documents. For example, design, effort planning, meeting minutes, etc.
4. Push your code into GitLab and provide access to TAs and Instructors