.

CMSC5716 Web-based Graphics and Virtual Reality

Year 2016/17

Group Project Specification

A. General Information

1. Group Formation

Three to Four students form a group and work together as a team.

2. Objective

The main objective of this project is for students to better understand the concepts related to 3D computer graphics via applying techniques in the development of 3D web-based or VR applications. Therefore, in this project, you are required to propose idea of your own in using latest 3D web-based graphics or VR to enhance the presentation, interaction and/or user experiences of a specific application.

Based on your idea, you have to develop a prototype system to realize and demonstrate it at the end of the project. You can choose any available tools or technologies in your prototyping process, e.g. WebGL, X3D technologies or Unity Game Engine. Other web-based graphics technologies can also be considered, however, lecturer's approval is required.

The final result of your project should demonstrate the following:

(i) Your idea is technically sound with the latest technology
(ii) Obvious benefits to the selected web application
(iii) Enhancement in user experience after applying 3D graphics/VR

3. Assessment

Five aspects of assessments will be used

Assessment	Percentage in the whole project
Project Proposal	15%
Presentation	20%
Final Project Report	30%
Prototype Demonstration	25%
Peer Voting	10%

First, every group of students will be required to submit a proposal to explain

their project idea. During writing of proposal, you have to design the purpose, objective and scope of your project. It is important your proposed idea fits well to the objective of the project, and we encourage applications or themes related to your own studying or working environment. Moreover, notice that your idea and scope should be able to be realized within the course period with the technologies introduced in this course. More details for preparing the proposal can refer to Section B.

Based on the proposal, students should start working to implement the proposed graphics application, so that the **prototype** can help to demonstrate your idea properly. At the end of the course, you are required to submit **a report** and give **an oral presentation** about the final result of the project. More details regarding the preparation of the final report and presentation can be found from Section C and D respectively.

In case that you have adopted part of the code or certain 3rd-party library to assist your prototyping, please indicate it in your reports and include it in the reference list.

All students in the same group will normally receive the same marks for the whole project. However, the lecturer reserves the right to use “Intra-group Assessment” to review the marks under special circumstances.

B. Preparation of Project Proposal

Your group should prepare a simple proposal of 3-5 pages (excluding references or appendix) which includes:

1. Project title and list of group members
   Select a title for your project that could clearly reflect the content of your work.
2. Introduction
   What is the application you are going to work on?
   Any related background of your proposed idea or application?
   What is the benefit of applying 3D technologies in your application?
3. Objectives
   What is the scope of the project?

What are the issues/problems to be addressed?
What is the expected outcome or deliverable of the project?

4. Preliminary System Design
   How will you implement your system?
   Is there any preliminary design of the prototype system?
   Is there any preliminary experimental or trial results?
5. Responsibilities of Team Members
   Role of each team member and his/her expected contribution to the project.
6. References
   All the referenced articles, publication and web sites

Assessment Criteria
i. Content (e.g. Clear and strong motivation and system design)
ii. Novelty and creativity of the proposed application
iii. Practical value of applying 3D graphics/VR to the proposed application
iv. Organization, grammar, presentation and style of writing

C. Preparation of Final Project Report

Your group has to complete the final project report as a team with 20-30 pages (not including references or appendix). It is expected to be an extended version of your proposal.

Suggested Sections in Final Project Report
1. Introduction
2. Objectives
3. Major Features of the System
   What are the major highlights in your application?
4. System Design and Implementation
   How is the system structure?
   What are the major components in the system?
   How are the components being implemented?
   Any special techniques are employed in your implementation?
5. Discussion and Conclusion
   Apart from a summary, you can also discuss the limitation of your system an possible improvements in the future.
6. Responsibilities of Team Members

7. References

Assessment Criteria
i. Content (e.g. adequacy and clarity in explaining the system structure and implementation processes)
ii. Prototyping the application according to the proposed idea
iii. Organization, grammar, presentation and style of writing
iv. Attractive and novel features are presented

D. Preparation of Group Presentation
a. 15-minute presentation maximum*, plus 3-min Q&A and Live Demo
*Presentation will be stopped immediately when the time is up.
b. The optimum number of slides is around 20-25 slides, but it is NOT a MUST.
c. Put slide number on the lower right corner
d. It is necessary for every member to present in the 15-min time slot

There is no specific format required in the presentation slides, you may base on the content in the final report and choose the most important parts to present.

Assessment Criteria (weighting put inside the brackets)
i. Content (e.g. adequacy and clarity in explaining the system structure and implementation processes)
ii. Motivation, creativity and discussion related to the presented system (25%)
iii. Presentation skills (20%): fluency, clarity, time control, handling Q&A

E. Live Demonstration
It is required that your prototype system to be demonstrated after or during your group presentation. A limit of about 3 minutes will be given. Therefore, you should prepare a well-organized scenario to show the most important features in your system before the demonstration starts.

F. Peer Voting
We will introduce a voting during the final presentation. Each group has to vote the best 3 projects from other groups after all presentation finished. Marks will be granted according to the percentage of votes received.
For example, there are 11 groups in total; therefore, every group will at most receive 10 votes from other groups. If a group receives 10 votes, it will get

100% marks in peer voting (i.e. 10% in the project). If a group receives 9 votes, it will get 90% marks; 8 votes for 80%; and so on so for.

G. Deadline of Submissions

a. Group Member List, including the name and e-mail address of the contact person (Week 3-5: < 6 Feb 2017) by email to TA
b. Project Proposal (20 Feb 2017) via elearning
c. Group Presentation Material (3 Apr 2017 and before the first presentation starts, submit one hard copy to lecturer)
d. Final Project Report (3 Apr 2017) via elearning
e. Peer Voting (on 3 Apr 2017 at end of the class) via form filling

Any submissions via e-mail to TA Dr. Kin-Chung Kwan should go to (kckwan@cse.cuhk.edu.hk) before the submission deadline.