Computer Graphics (CE) Project

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Course No: 514770

1. Project

The purpose of project is to design and develop a computer graphics program using graphics theory and algorithms learned in this class. The software design should be able to be analyzed and developed according to the software development methodology. The project members should be less than 3, and if the group do not propose a design topic, the professor can give them the appropriate topic. The group must set the application field of computer graphics clearly, and set the design for the main algorithm, interface, graphics design, sound, and etc accordingly. It also conducts the evaluation and analysis to demonstrate that the project goal has been reached,

2. Topics

Students can freely choose project topics within the scope of applying the knowledge learned in this course. Examples are as follows

(1) Game or interactive graphics system
(2) Public data visualization (https://www.data.go.kr/) or RSS data visualization
(3) CG animation
(4) GPU Programming, etc.

3. Contents

The design contents should include the following.

(1) Goal : What is the problem you want to implement (solve)?
(2) Analysis : What are the existing technologies related to the proposal? What are the new items to be developed?
(3) Design : Describe the content of the proposal (block diagram, etc)
(4) Implementation : How can it be implemented? (software structure description)
(5) Evaluation : Test method and result analysis to verify the implementation

4. Considering Factors or Limitations for Project Design

It follows the basic design elements.

- Completeness: Need to fully reflect system requirements

- Safety: Require reliable operation of the system
- Performance: Response time is within the user's tolerance
- Aesthetics: UI needs aesthetic consideration
- Ethics: Reflecting personal information protection measures

(1) The design is based on the responsibility of the designer or established theory or methodology.
(2) Development platform: Using open-source graphics libraries such as Modern OpenGL, or Unity3D
(3) A project team can be formed with 3 or less students, and if a team is formed, task division and design development schedule are decided through a meeting.
(4) Create a final project report based on the given format
(5) Apply creative ideas to the system design as much as possible

5. Procedures

The basic procedure is as follows and can be modified as necessary.

(1) Team formation
(2) Draw up ideas and write up the proposal draft
(3) Functional specification
(4) Development schedule and task (role) division
(5) Concept design
(6) Detailed function design
(7) Data structure design
(8) Implementation (open library source can be used)
(9) Complement problems and modify design
(10) Test/Evaluation
(12) Final report

6. Evaluations

The points assigned for the design is 20% of this course, and the defailed evaluation are as follows.

- Creativity (idea) and Usability (20%)
- Whether to submit documents (specification, design, report) (30%)
- Actual implementation and demonstration (40%)
- Degree of cooperation between team members (10%)

7. What should be included in the final project report

The following must be included in the final project report, and the source code must be submitted together.

(1) Title: A sentence that can implicitly express the content of the project
(2) Author
(3) Design introduction
(4) Background knowledge
(5) Design and idea description
  - Describe the overall design and function of the project (ex. block diagram)
  - Development environment
  - System architecture
  - User interface design
  - Sound, graphics design
(6) Limitation elements
(7) Performance evaluation
  - method
  - data analysis
  - result
(8) Discussion and conclusion