Research Plan

Individual Project Semester 6
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Technical Solution for Accurate Printability Assessment of 3D Models.

Problem/Opportunity

I am conducting an individual research to gain new insights and information that can be directly applied in my group project. The specific parts of the project are still unclear or unknown to me, prompting the need for further investigation. Specifically, my research aims to develop a technical solution that can accurately assess the printability of 3D models across multiple file formats.

Research Questions

How can a technical solution be created to accurately assess the printability of 3D models across multiple file formats?

Sub-questions:

What are the technical requirements for creating a system that can accurately assess the printability of 3D models?
What are the key criteria for evaluating the printability of a 3D model, and how can they be quantified?
What are the best practices for analyzing the geometry, topology, and other features of a 3D model to determine its printability?

Research Methods

To answer the research questions, I will be using the following research methods:

Library research strategy

Available product analysis: To identify existing solutions and products related to 3D model printability assessment. Expert interview: To gather insights from experts. Interviewing the technical part of the stakeholder team. Literary study: To review relevant literature and publications related to 3D model assessment and 3D printing.

Field research strategy

Documented analysis: To analyze the existing documentation provided by the stakeholder on the existing solutions for printability assessment.

Lab research strategy

Unit test: To test the accuracy and effectiveness of the proposed solution, and ensure the solution still works after changes.

Showroom research

Peer review: To get feedback from the other group members – also involved with the group project.

Deliverables

At the end of the research, I intend to deliver a technical solution that can accurately assess the printability of 3D models. The solution will cover the key criteria for evaluating the printability of a 3D model and the best practices for analyzing the geometry, topology, and other features of a 3D model to determine its printability. The proposed solution will be implemented and used for the group project.

Time Estimation

The research is expected to take approximately 6-8 weeks to complete, including data collection, analysis, and solution development. The unit test will take additional time to ensure accuracy and effectiveness.