

3D Viewer Integration

Personal Information

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Brief Background Information

I am a B.Tech. (2nd year) student of Computer Science at Medi-Caps University, India. I have practiced writing code in Python, javascript, CSS, HTML and used Git as a version control system, Django framework for making Websites.

I have 2 years of experience in 3D printing with FDM technology, I used to design 3D models with [FreeCAD](#), [fusion360](#), and 3D Print those models so I have a good understanding of 3D models and their formats.

Projects

- Recently to get acquainted with the three.js library I have built this simple project to showcase a 3D model to the [webpage](#).

Repository Link: <https://github.com/msquare-2/3D-Animation>.

- To get my hands-on HTML, CSS, javascript knowledge and made [Whake A Mole Game](#), which in my free time I use to play and have a great feeling of playing a game which is made by me itself.

Repository Link: <https://github.com/msquare-2/Whack-A-Mole-Game>.

- What if someone is there for you that can read a text and you just enjoy listening to it And that's it I made [The Voiceinator](#).

Repository Link: <https://github.com/msquare-2/The-Voiceinator>.

- Created a custom video player using Javascript with functionality such as pause/play video, change playback rate and volume, skip +-10s, and switch between full-screen.

Repository Link: <https://github.com/msquare-2/Web-Video-Player>.

- I made a Medical Store Management System with Python, Django framework. This app has been in use in one medical shop, in which functionalities are:
 - Add dealer, medicine, employees, customers, and new purchases.
 - For management of dealers, medicine, employees, customers, and purchase.
 - View dealer, medicine, employees, customers, and all purchases.
 - For management of dealers, medicine, employees, customers, and purchase.

Repository Link: <https://github.com/msquare-2/Medical-Store-Manager>.

- I created frontend and UI for the 3Decorz site which was aimed to have an idea of defeating COVID-19 with the help of Innovative designs idea which can be used to prevent catching COVID-19 for example the idea is an open door without touching the handle.

Website link: <https://dc.3decorz.com/index.html>.

Project Information

Project Title: 3D Viewer Integration

Brief Project Summary

This project is to load 3D Models in PLY format from the CDLI database into the existing 3D Model Web Viewer using the Three.js library. The idea is to implement an RTI Viewer so that any CDLI tablet for which the PLY model is available has an easy-to-navigate option for the 3D viewer for that model. And finally comes Usability testing with the help of :

- Assessment Testing
- Comparative Testing

Detailed Project Description

Current Scenario

Now with Cuneiform: 3D Gallery we can view CDLI tablets in 3D view. And also users can interact with it but by adding responsiveness in the viewer we can provide 3D viewing functionality to a wider range as by **adding responsiveness**, Smartphone users can also interact with the 3D model very smoothly.

Interaction with a CDLI tablet in a 3D model viewer can be enhanced by adding some torque, acceleration, and friction while moving, rotating and all other interactions like those by just simply adding damping **option** true in orbit controls.

Lighting functionality can also be enhanced by adjusting values of ambient and directional light for a **better User Experience**.

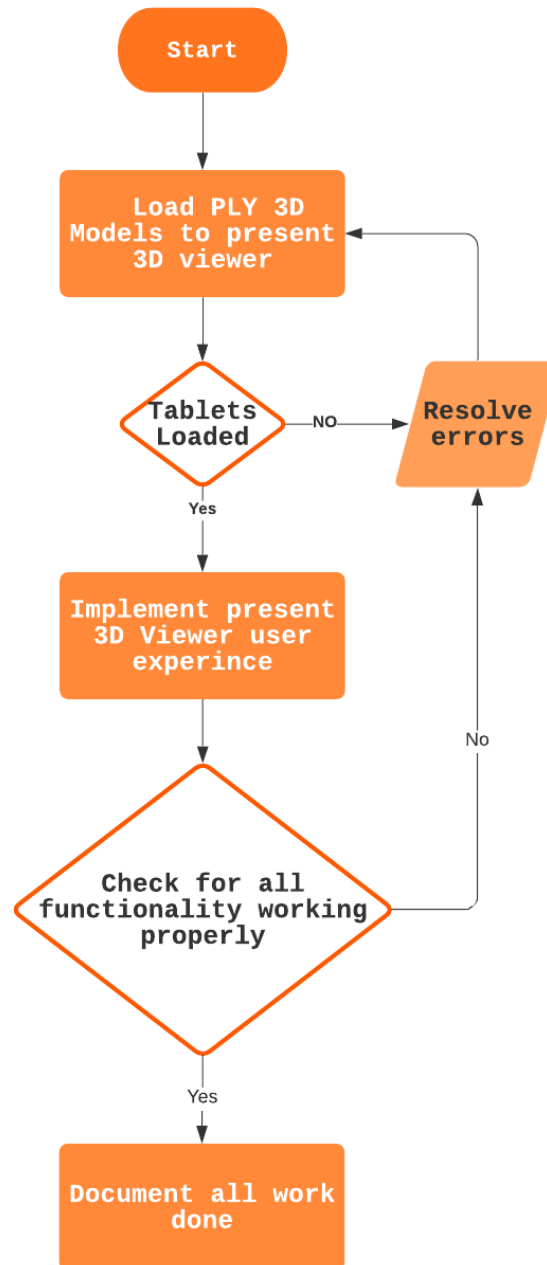
Easy to navigate option to the 3D viewer can be added to the artifact viewer for an artifact that has PLY model data available.

Alternative separate RTI viewer could be made that has an interface that is harmonized with the new 3D viewer for a consistent user experience.

Implementation:

3D Viewer implementation

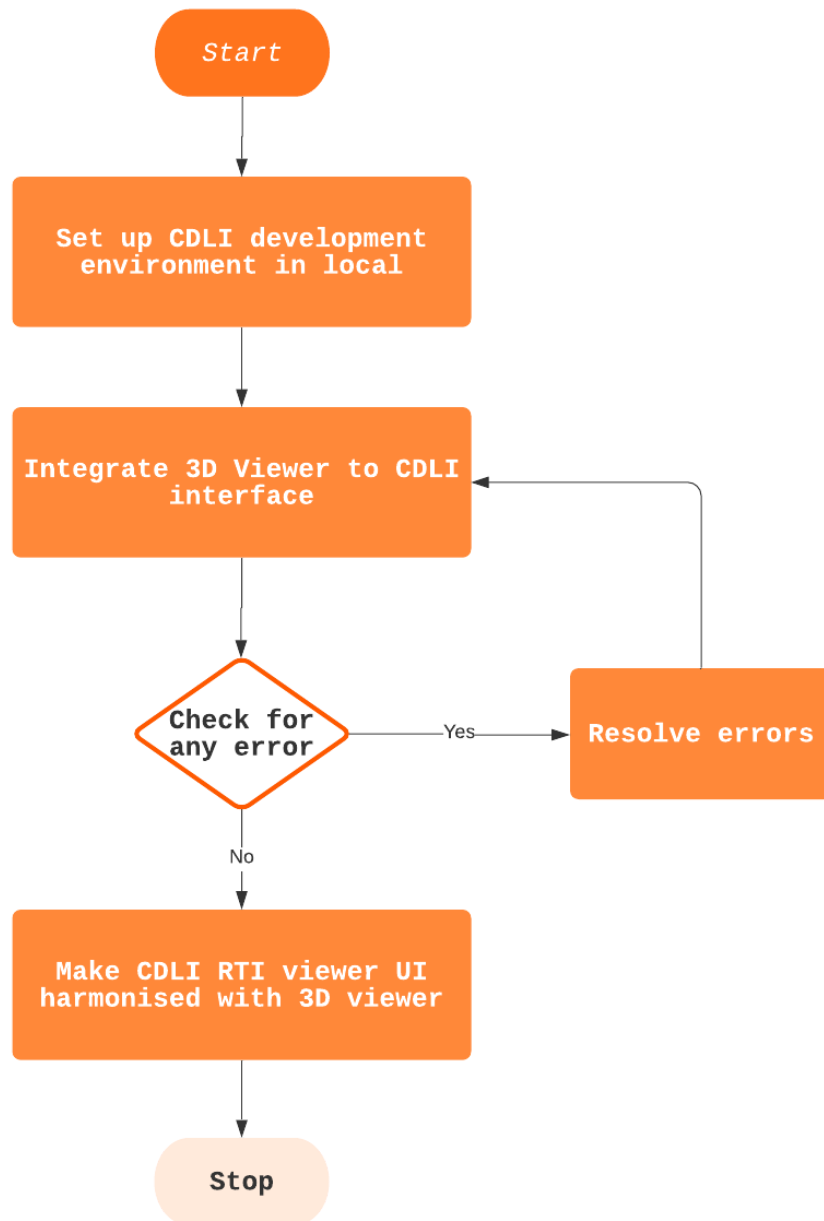
mustafa | March 23, 2021



Integration:

Viewer integration

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Timeline

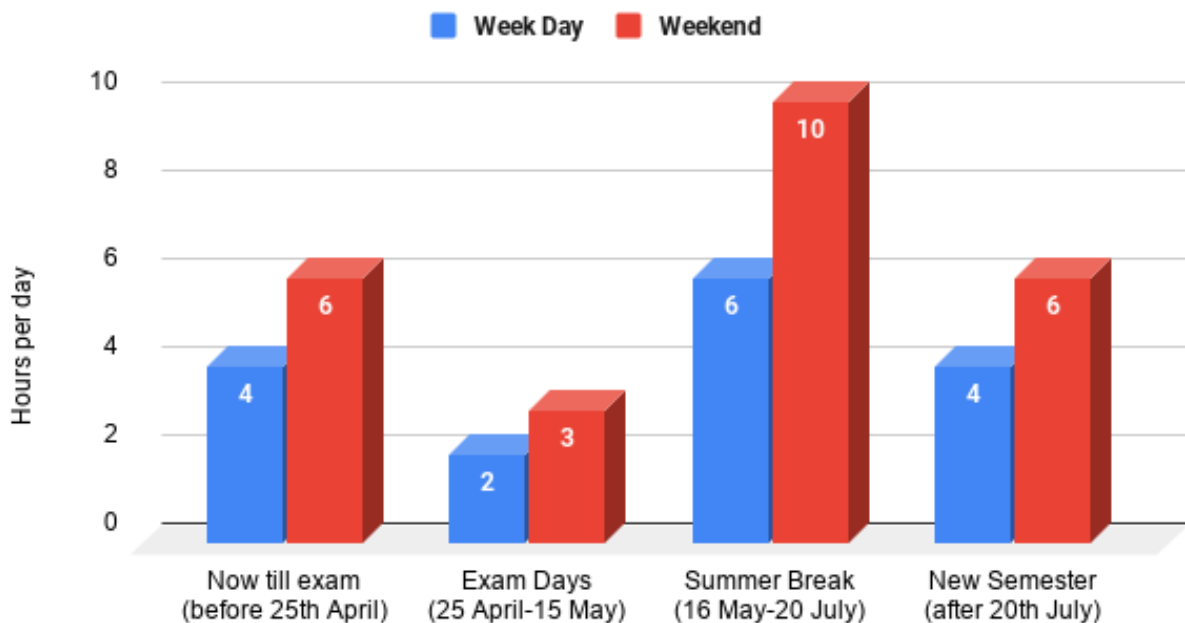
As an overview, 3D Viewer will be implemented first and then followed by loading tablets from CDLI database to 3D model Viewer in PLY format, Usability testing of implemented version, and deploying to CDLI interface.

- **Before Community Bonding Period(10 March - 17 May)**
 - Having interaction on the mailing list and Slack regarding important aspects of the project.
 - Understand PLY file format and its specifications.
 - Explore Threejs and PLYLoader.
 - Learn more about Integrating 3D Viewer and its specifications.
 - Set up, developer environment for CDLI on my local machine.
- **Community Bonding Period (17 May - 07 June)**
 - Plan out all meeting schedules with mentors for the coding round.
 - Discuss workflow with mentors.
 - Explore More about CDLI.
- **07 June - 02 July (25 days)**
 - Fetch tablets from the CDLI database in PLY format
 - Integrate present PLY format 3D models to the existing viewer.
 - Implement present viewer UI.
 - Check for all functionalities of Viewer are working well.
- **02 July - 05 July (3 days)**
 - Backup days for any backlog or pending task and preparation for phase I evaluation.
- **05 July - 10 July (5 days, Phase I evaluation)**
 - Create documentation on Github pages.
 - Submit all the work to the mentor.
- **10 July - 20 July (10 days)**
 - Integrate viewer to CDLI interface.
 - Link artifact single view page to 3D view page to navigate easily.
 - Check for all functionalities of Viewer are working well.
- **20 July - 23 July (3 days)**
 - Backup days for any backlog or pending task and preparation for phase II evaluation.
- **23 July - 28 July (5 days, Phase II evaluation)**
 - Create documentation on Github pages.
 - Submit all the work to the mentor.

- **28 July - 04 August (1 week)**
 - Make separate CDLI RTI viewer UI to match with 3D viewer UI.
 - Make sure to have a good user experience between the 3D viewer and CDLI interface.
 - Check for all functionalities of Viewer are working well.
 - Work on backlogs, testing, and bug fixes.
- **04 August - 09 August (5 days, Final evaluation)**
 - Create documentation on Github pages.
 - Submit all the work to the mentor.
- **09 August - 16 August (1 week)**
 - Add examples of 3D Viewer in Github pages.
 - Complete pending tasks, if any.

Time Availability

Time Availability



I will be able to dedicate 40 hours per week to the coding round.

During regular days from Monday to Friday, my college timings are 8:00 am to 4:00 pm IST. So, these days I am available for 4 hours after my college and, I am free on weekends during which I am free to work for 6 hours and that makes 26 hrs per week.

From 25th April to 15th May, I have my final exams during which I can spend 2 hours on normal weekdays and 3 hours on weekend days on my project that is 13 hours in total per week.

The community bonding period will start on 17th May, so my final exams will not be going to affect the timeline of my project.

From 16th May to 20th July, there will be holidays during which I will be available full time for about 40 hours per week.

My new semester will start from 20th July and therefore I can contribute 4 hours on weekdays and 6 hours on weekends as mentioned above.

Why CDLI?

I have always been fascinated by history and its stories of their civilization and CDLI is the only open-source platform where lots of researchers and scholars get access to a collection of information through artifacts in a result-oriented manner. There are several features that attracted me a lot to know about this organization including tools for understanding texts from artefacts is a very interesting feature. CDLI has a well-established community of great developers and this project will give me an opportunity to work with them. So, this project is going to be a great learning experience for me.

Why you?

I found myself fit for this project according to my skill set and interest. I also made the project "3D Animation" during the student application period so I have an understanding of the Three.js library. How to create scenes, Animations, Controls, renderers, and much more And I have a keen interest and good coding skills in Javascript, python, bash scripting, and frontend technologies. I will also actively contribute and maintain the code even after GSoC.