PM Report

20.03.2023

Cserich Philipp – Project Lead

Boigner Thomas – Project Member

Maurutschek Fabian – Project Member

Siegl Bernhard – Project Member

LITHOZ®

Project - Team

1.

Cserich Philipp *[Project Leader]*

"Application of user interface practices and assurance of a good user experience."

UI - Design

UX - Design

2.

Boigner Thomas *[Project Member]*

"3D preview of the printed layers and whole parts."

3D Viewer

3.

Maurutschek Fabian *[Project Member]*

"Quality assurance through git hub actions, pull request and unit tests."

Testing

4.

Siegl Bernhard *[Project Member]*

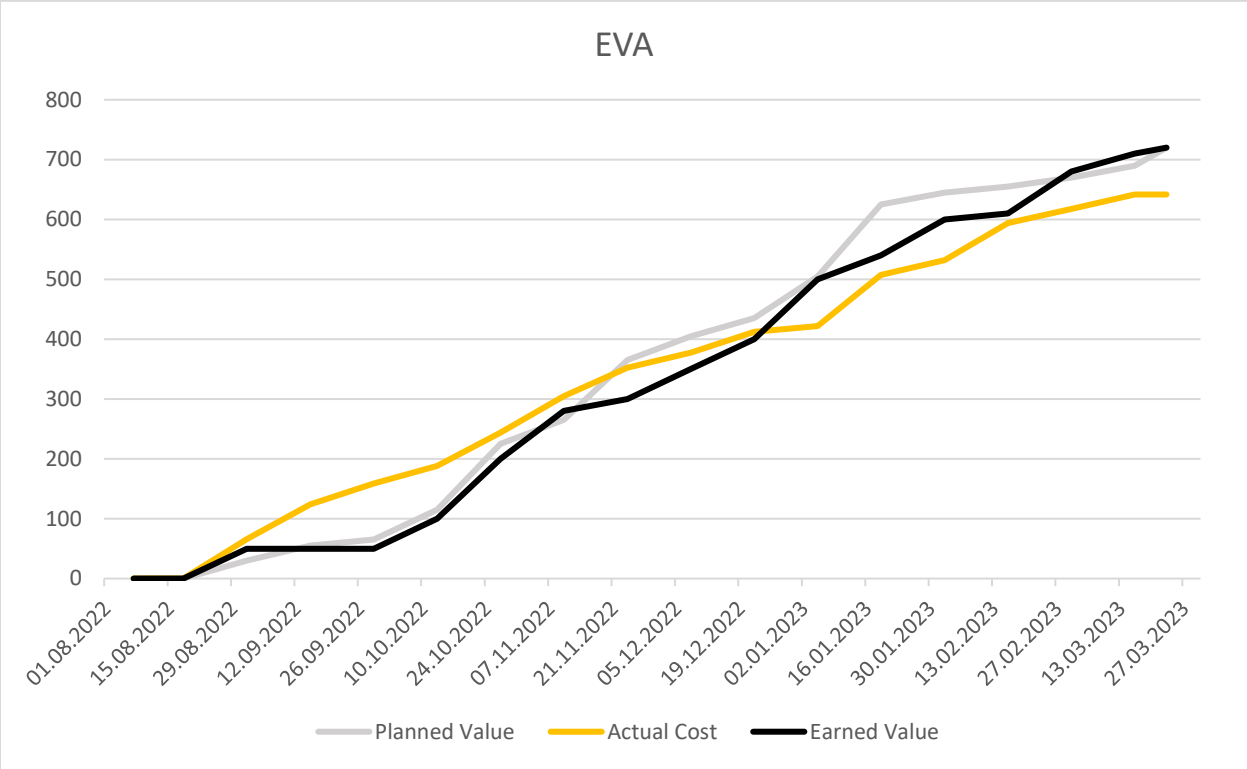
"Connection to the 3d printers and handling of the web requests with MQTT."

Web Request Handling

Printer Connectivity

MQTT

EVA


EVA
800
700
600
500
400
300
200
100
0
01.08.2022
15.08.2022
29.08.2022
12.09.2022
26.09.2022
10.10.2022
24.10.2022
07.11.2022
21.11.2022
05.12.2022
19.12.2022
02.01.2023
16.01.2023
30.01.2023
13.02.2023
27.02.2023
13.03.2023
27.03.2023
Planned Value
Actual Cost
Earned Value

Project environment analysis

1. Technical Environment:

- Techstack:

What programming languages are used?

Vue, CSS, HTML, TypeScript, JavaScript, Dockerfile, Shell

- Security:

What security measures have been implemented?

Invalid data won't be used for the printer.

2. User Environment:

- User demographics:

Who are the users of the web interface?

The clients that use the 3d printers.

- User expectations:

What features and functionality do users expect?

A functional web interface to control the 3d printers.

3. Business Environment:

- Competitive landscape:

Who are the competitors and what are their offerings?

We do not have any competition at the moment, because we specifically create the interface for the company.

Rollout procedure

According to the original requirement specification of our project, we have officially fulfilled all 7 DODs. Being:

- Basic Components
- Form Components
- Test Setup
- Panel and Layout components
- HTTP implementation
- MQTT implementation
- Prototype

Additionally, our project is usable in each and every one of the pre defined user stories :

- As a company who bought several printers, I want to be able to control the printer's behaviour from everywhere in the world. [DONE]

- As a company who bought a Lithoz 3D printer, I want to control it from the Display on the printer. [DONE]

- As a company who bought a Lithoz 3D printer, I want to view all parts of the currently printed Object [DONE]

- As a company who bought a Lithoz 3D printer, I want to modify the printing process in Realtime [DONE]

Report on Features Deployed

3D printer controls

The 3D printer controls allow the users to start and stop the printing process and change parameters that control the 3D printing process. The input fields for the parameters are split between 5 panels: the dispenser panel, the coating panel, the vat panel, the heating panel and the expose panel.

Project selection

In the project selector the user can select a project and then change project specific settings in the tune parameters tab. These settings are displayed in a formular component, a component that can display input fields for different data types. In this panel there is also a numpad that is used for input on a touchscreen.

Language selector

In the project settings a language can be selected. This setting changes the static text in the Lithoz 3D printing web UI. Currently English and German are the only two languages available.

Layer view & 3D viewer

The layer view shows all the layers of the printed component in an 2D view. Users can see where the printing process currently is and preview the upcoming layers. The 3D viewer displays a 3D object of the component that is currently printed. The user can move the component around and zoom in and out.

Procedural directory

8. Purposes of data processing:

The main purpose of the data processing in the “3D Web Interface” project is to allow users to control and monitor their 3D printing processes remotely via a web-based interface.

8. Types of personal data processed:

The following types of personal data may be processed as part of the “3D Web Interface” project:

- Contact information (e.g., name, email address)

- 3D printing activity data (e.g., print job status, print history)

8. Legal basis for processing personal data:

The legal basis for processing personal data in the “3D Web Interface” project is the consent of the user, as well as the performance of a contract with the user (i.e., the use of the 3D printing services).

4. Data recipients:

The following categories of recipients may have access to the personal data processed in the “3D Web Interface” project:

- Employees of the company responsible for the “3D Web Interface” project, who need access to the data for the purposes of maintaining and improving the service.

- Third-party service providers, who may be contracted to assist with the development and maintenance of the “3D Web Interface” project. These service providers are required to adhere to strict confidentiality obligations.

5. Data retention:

Personal data processed in the “3D Web Interface” project will be retained for as long as necessary to fulfill the purposes outlined in this procedural directory, or as required by law.

6. Data subject rights:

Users of the “3D Web Interface” project have the following rights with respect to their personal data:

- The right to access their personal data and request a copy of it.

- The right to request the rectification of any inaccurate or incomplete personal data.

- The right to request the erasure of their personal data, subject to certain exceptions.

- The right to object to the processing of their personal data in certain circumstances.

- The right to request the restriction of the processing of their personal data in certain circumstances.

- The right to request the transfer of their personal data to another controller in a structured, commonly used, and machine-readable format, subject to certain exceptions.

7. Data protection measures:

The following measures will be implemented to protect the personal data processed in the “3D Web Interface” project:

- Encryption of personal data in transit and at rest.

- Implementation of appropriate access controls to ensure that only authorized personnel have access to personal data.

- Regular testing and monitoring of the security of the “3D Web Interface” project.

8. Data protection officer:

The company responsible for the “3D Web Interface” project has designated a data protection officer (DPO) to oversee the compliance with GDPR and other data protection regulations. Users may contact the DPO with any questions or concerns regarding the processing of their personal data.

KANBAN

Our Project team uses **GitHub Projects** to keep track of changes and the working progress.

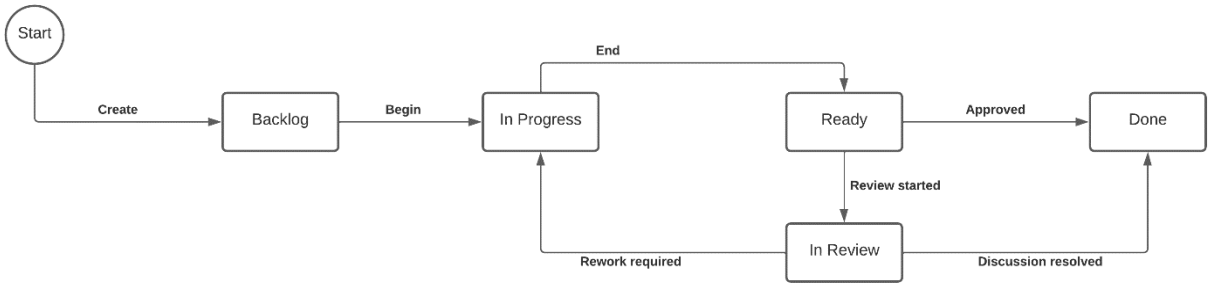
Since we use **GitHub** for version management, it is the best option to use its built-in Kanban tool.

	GitHub Projects	Trello	Jira
GitHub integration *(Issues & Pull Requests)*	✓	✓	✓
Free to use	✓	✓	X
Assigning groups	X	X	✓
Automated card movement *(On closed PRs)*	✓	X	✓
Export feature *(To pdf…)*	X	✓	✓

Board structure:

Person – Issue relations:

Controller	Person in charge of the issue
Reviewer	Person who reviews the issue and decides whether it is finished.



The GitHub Projects board has 5 separate stages of work.

1. **Backlog**	Issues that nobody is working on
2. **In Progress**	Issues that are incomplete, but somebody is currently working on its implementation.
3. **Ready**	Issues that are finished in the controllers' eyes
4. **In Review**	Reviewer has an idea for a better solution but it has not been discussed yet
5. **Done**	Issue has been approved by the Reviewer and is officially done

The issues can move between stages in the following ways:

Create –	An issue enters the Backlog
Begin –	An issue moves from Backlog to In Progress
End –	An issue moves from In Progress to Ready
Review started -	An issue moves from Ready to In Review
Approved –	An issue moves from Ready to Done
Discussion resolved -	An issue moves from In Review to Done
Rework required -	An issue falls back from Review to Read

Lithoz Kanban

Backlog | By priority | By size | + New view

Filter by keyword or by field

Backlog 0

In progress 0

Ready 0

In review 0

Done 121

Spg_2223_diplom_lithoz #38
Layout generell/Layout bei Referenzgroessen
2 - Large | #47 | bug | enhancement

Spg_2223_diplom_lithoz #63
Round value to 2 decimal places
invalid

Spg_2223_diplom_lithoz #1
Feature/set up application

Spg_2223_diplom_lithoz #7
Feature/vuetify theme
enhancement

Spg_2223_diplom_lithoz #6
seperating svgs
enhancement

Spg_2223_diplom_lithoz #11
Feature/mockup polish

Spg_2223_diplom_lithoz #8
Feature/components button

Spg_2223_diplom_lithoz #13
Feature/components

Spg_2223_diplom_lithoz #19
Feature/components

Spg_2223_diplom_lithoz #18
Development

Spg_2223_diplom_lithoz #12
Create Action-Pipeline with Vite
#19

Spg_2223_diplom_lithoz #27
Feature/component testing buttons (#24)

Spg_2223_diplom_lithoz #17
Feature/mockup polish

Spg_2223_diplom_lithoz #10
adding extra functional component

Spg_2223_diplom_lithoz #2

Feature/components layer image panel

Spg_2223_diplom_lithoz #3

Enhance Testpage

enhancement

Spg_2223_diplom_lithoz #20

Feature/components

enhancement

Spg_2223_diplom_lithoz #22

Feature/project setup

Spg_2223_diplom_lithoz #24

Feature/component testing buttons

Spg_2223_diplom_lithoz #25

Adds basic combobox

Spg_2223_diplom_lithoz #28

Feature/internationalization

enhancement

Spg_2223_diplom_lithoz #51

Maschinenbezeichnung CF8500 bitte austauschen

nitpick

Spg_2223_diplom_lithoz #26

Feature/flawfix

bug

Spg_2223_diplom_lithoz #44

Development

Spg_2223_diplom_lithoz #14

HC Layout Komponenten

1 - Urgent 2 - Large #47

Spg_2223_diplom_lithoz #62

Feature#36/v container

Spg_2223_diplom_lithoz #64

Feature/open job

Spg_2223_diplom_lithoz #65

Fix textsize and progress bar of the run panel

Spg_2223_diplom_lithoz #67

CORS Troubles

bug enhancement

Spg_2223_diplom_lithoz #68

Feature/toggle 3d viewer

Spg_2223_diplom_lithoz #66

Cleaning and Translation

documentation enhancement

Spg_2223_diplom_lithoz #75

Feature/post commands + Better Lists

enhancement

Spg_2223_diplom_lithoz #69

Feature/dispenser expertview

Spg_2223_diplom_lithoz #79

Bitte horenso als collabortaor hinzufuegen!

question

Spg_2223_diplom_lithoz #72

HTTP Integration

enhancement

Spg_2223_diplom_lithoz #15

Panels

2 - Large #47 enhancement

Spg_2223_diplom_lithoz #21

Icons

3 - Medium 3 - Medium info

Spg_2223_diplom_lithoz #32

Slider vom Coating Overlay funktionieren nicht (Docker)

4 - Low 5 - Tiny bug

Spg_2223_diplom_lithoz #36

v-container in nicht-layout-komponenten unnoetig

3 - Medium 4 - Small bug

Spg_2223_diplom_lithoz #34

"Vacillating" Feld verhaelt sich wie Button

5 - Tiny bug

Spg_2223_diplom_lithoz #37

MachineInteraction.vue: v-cols addieren sich nicht auf 12

nitpick

Spg_2223_diplom_lithoz #31

Nach startup.sh keine Icons

#40 bug

Spg_2223_diplom_lithoz #5

Bug: MaschineDescription is not responsive

#19 bug enhancement

Spg_2223_diplom_lithoz #4

Internationalization fix

bug enhancement

bug enhancement

Spg_2223_diplom_lithoz #78

wizard23 als collaborator hinzufuegen

question

Spg_2223_diplom_lithoz #33

Typos

nitpick

Spg_2223_diplom_lithoz #23

Kleinigkeiten - Flaws

#26

Spg_2223_diplom_lithoz #35

"Globale" v-container Breite/App Hoehe

#40 enhancement

Spg_2223_diplom_lithoz #53

Formular reset button is biiiig

bug

Spg_2223_diplom_lithoz #55

Add "Fake" Form to screwdriver menu

enhancement

Spg_2223_diplom_lithoz #16

Formular Komponenten

enhancement

Spg_2223_diplom_lithoz #52

Coating Overlay: Buttons nicht aligned, 2 der Buttons verschwinden

bug

Spg_2223_diplom_lithoz #54

TestExposure + Formularcomponents

enhancement

Spg_2223_diplom_lithoz #43

Feature/panelfixes

Spg_2223_diplom_lithoz #56

Feature/expertview

Spg_2223_diplom_lithoz #47

Feature/btn scaling

enhancement

Spg_2223_diplom_lithoz #49

Feature/formating fix

Spg_2223_diplom_lithoz #42

Bugfix/routing

Spg_2223_diplom_lithoz #41

Squash formularcomponents

enhancement

Spg_2223_diplom_lithoz #48
Feature/modelviewer scaling

Spg_2223_diplom_lithoz #29
Feature/formular components
enhancement

Spg_2223_diplom_lithoz #30
Feature/routing
enhancement

Spg_2223_diplom_lithoz #40
Feature/dockerfile fix
bug

Spg_2223_diplom_lithoz #39
Feature/tune parameters

Spg_2223_diplom_lithoz #46
Feature/expert view

Spg_2223_diplom_lithoz #59
Fix textfield slider

Spg_2223_diplom_lithoz #60
Update package-lock.json
documentation enhancement

Spg_2223_diplom_lithoz #61
Remove "public" from img sources
nitpick

Spg_2223_diplom_lithoz #58

+ Add item

+ Add item

+ Add item

+ Add item

+ Add item

Physical Meeting Protocol - 28.09.2022

Start: 13:20

End: 14:30

Participants

- Reiner Bachleitner
- Michael Gollner
- Richard Gradischnegg

Team

- Philipp Cserich
- Thomas Boigner
- Fabian Maurutschek
- Bernhard Siegl

Showcase - New's

- Model Viewer Pop-Up
- Button size
- formularcomponents -> Coat
- Option Menu -> Toggle Parameters
- Fine Tuning with Rows etc.

Issues

- Scaling and buttons are cut off
- generally scaleability
- formularcomponent: when something changed from the default value - put it on
- bold

Features to try

- css grid/columns
- Focus on
- full hd grid layout
- expand collapse formularcomponents

Others

- 4.11.2022 - Intern Presentation / Quality Gateway

We get

- backend connection overview / API
- MQQT to get a status (GET)
- HTTP to execute (POST)
- remote connectivity to a host in their network for exploring
- (we can load everything as a json)
- centralize the HTTP requests (because they could change)

Next up

- Three Discord Meetings till Quality Gateway to ensure prgress Thursday 4pm every week
- till 4th November(expect first week)

Discord Meeting Protocol - 13/10/2022

Start: 16:00

End: 16:30

Participants

- Reiner Bachleitner
- Michael Gollner
- Richard Gradischnegg

Team

- Philipp Cserich
- Thomas Boigner
- Fabian Maurutschek
- Bernhard Siegl

Showcase - New`s

- new Buttons
- Expert View Coating

Issues

- Expert View Coating not binded yet to the Switch

Discussing

- Any Desk TCP Tunnel connection

Discord Meeting Protocol - 20.10.2022

Start 16:00

End 16:30

Participants

- Reiner Bachleitner
- Michael Gollner
- Richard Gradischnegg

Team

- Philipp Cserich
- Thomas Boigner
- Fabian Maurutschek
- Bernhard Siegl

Predefined topics

- Responsiveness (Lithoz 1 & 2 Größem)
- HTTP fetch (Fabian)
- Expertview view
- 3D viewer start Three.js
- Icons richtig eingefügt
- Size of all panels is now the same (full page components)
- Routing gefixt

Issues

- Numpad bug

Discussing

- mqtt explorer showcase
- Vue Axios/Http requests
- tcp tunnel to remote pc
- Check which mqtt confluence pages we have
- sdl loader

Outcome

- reworking requests
- lock svg

Discord Meeting Protocol - 27.10.2022

Start: 16:00

End: 16:30

Participants

- Reiner Bachleitner
- Roland Fischer
- Richard Gradischnegg
- Michael Gollner

Team

- Philipp Cserich
- Thomas Boigner
- Fabian Maurutschek
- Bernhard Siegl

Topics

- Bugfixes
- 3D Viewer toggleable
- Fabian auswahl job
- MQTT problems
- http endpoint explanations

Findings

- Multiple tcp tunnels are a premium feature of AnyDesk
- AnyDesk Version lower than 7.1 allows multiple tcp tunnels => try to downgrade
- Responses of the Http requests => new Issue
- opening a job should load the job settings in the tune parameters panel
- commands => implement all from the pdf - especially: light on/off
- projects/{id} should load the lists of the tune parameters panel

Next-Steps

- New Issues describe the goals until next Wednesday

Discord Meeting Protocol - 02.11.2022

Start: 13:30

End: 14:30

Participants

- Reiner Bachleitner
- Roland Fischer
- Richard Gradischnegg
- Michael Gollner

Team

- Philipp Cserich
- Thomas Boigner
- Fabian Maurutschek
- Bernhard Siegl

Topics

- MQTT + HTTP Connection

Issues

- Version
- Issues
- Heute Projektformularfixen
- MQTT
- Gelbe hinterlegung der ausgewählten Felder

Feedback

- Sofort melden bei problemen

Outcome

- Milestone vorstellung des Produkts FREITAG

Discord Meeting Protocol - 10.11.2022

Start: 4:00pm

End: 4:45pm

Participants

- Reiner Bachleitner
- Roland Fischer
- Richard Gradischnegg

Team

- Philipp Cserich
- Thomas Boigner
- Fabian Maurutschek
- Bernhard Siegl

Topics

going trough

- tune parameters
- default panel
- coating
- pull request to remove/work arround vuetify -> denied from us
- how to get layerview-pictures -> sill in progress

Findings

- Subscribe/Unsubscribe optimizable -> subscribe to all at once
- reset button with boolean
- use pull request tool to format code etc.
- 6102 - to "machine"
- 6101 - to "data"
- How do we get the machine name from the api? -> not implemented
- How can we find the Stop button? -> reset will transform into a stop button (abort)
- How do I know if im in the run state or loading state? -> running
- Where should we display the time on the interface? -> not at all, but possibly to display the time from the machine

Next-Steps

- mqtt implementation
- fixing few tiny flaws
- **2:30pm next thursday testing physically**

Discord Meeting Protocol - 24.11.2022

Start: 4:00pm

End: 4:20pm

Participants

- Reiner Bachleitner
- Roland Fischer

Team

- Philipp Cserich
- Thomas Boigner
- Bernhard Siegl

Topics

going trough

- talking about issues we have with proxys
- port issues from our side

Discord Meeting Protocol - 01.12.2022

Start: 16:00

End: 16:30

Participants

- Reiner Bachleitner
- Roland Fischer

Team

- Philipp Cserich
- Thomas Boigner
- Fabian Maurutschek

Topics

- i18n translation
- Anydesk connection

Findings

- Rows in den ParameterForms zu Hoch
- Layer ranges nicht ausklappbar
- immer anzeigen
- keypad in Firefox geht nicht (größe der buttons)
- Layer Range auswählbar machen

Next-Steps

- parameter integration

Discord Meeting Protocol - 12.12.2022

Start : 16:00

End : 16:35

Participants

Raina Bachleitner Roland fischer

Team

Fabian Maurutschek Cserich Philipp

Topics :

- 3d viewer start
- MQTT connection
- layer view question
- UI Change showcase

Findings :

Eigene stl daten zur testung des 3d viewers : Stl posten - get stls id

Next steps

- Perfecting UI
- Implementing 3D Viewer
- Finishing mockup removal

Discord Meeting Protocol - 13.1.2023

Start : 16:00

End : 16:30

Participants

- Reiner Bachleitner
- Roland Fischer
- Richard Gradischnegg

Team

- Philipp Cserich
- Thomas Boigner
- Bernhard Siegl

Topics

Showing off

- responsivness
- gray buttons when disconnected
- gray, green numbers

Issues

- docker issues, cannot execute main.ts

Next-Steps

- merge on dev
- 3d viewer
- daily feedback with toDo list to work down via discord
- focus on basic things

Discord Meeting Protocol - 19.1.2023

Start : 16:00

End : 16:30

Participants

- Reiner Bachleitner
- Roland Fischer
- Richard Gradischnegg

Team

- Philipp Cserich
- Thomas Boigner
- Bernhard Siegl
- Fabian Marutschek

Topics

Showing off

- 3d viewer
- heating
- exposure
- showcase of their new updates

Discord Meeting Protocol - 26.1.2023

Start: 16:00

End: 16:30

Participants

- Reiner Bachleitner
- Roland Fischer
- Richard Gradischnegg

Team

- Philipp Cserich
- Thomas Boigner
- Bernhard Siegl
- Fabian Marutschek

Topics

- Cypress Testing with Cucumber
- Open points

Findings

- Backend endpoint is missing
- Can not connect to layer view
- Flexbox vs v-Grid
- Button calls resume

Next-Steps

- Add Cypress Tests
- Keep using V-Grid instead of flexbox

Meeting Protocol - 3.2.2023

Start: 13:30

End: 15:00

Participants

- Reiner Bachleitner
- Roland Fischer
- Richard Gradischnegg
- Michael Gollner
- Christian Aumüller

Team

- Philipp Cserich
- Bernhard Siegl
- Fabian Maurutschek
- Thomas Boigner

Topics

- presentation of our progress
- we will need the mock server in the future

Findings

- live viewer doesn't work
- expert buttons don't work

Next-Steps

- Clean up
- new Issues

Final Retrospective

Team

-) Finished all major features

-) Technical team compatibility

The technical skills of the team were used in all of their glory. *Design and functionality were married with each other as if they never have been separated.*

-) Unreliability between project members

-) Team morality nonexistent

After all of that work, the team was not able to maintain their original positive working morality.

Project partner

-) Backend Dev – *Slow*

API interfaces were developed in the same speed as our project proceeded to grow. This caused several issues and misunderstandings between the team and the company.

-) Frequent meetings

With our Meetings that occurred on every second Thursday, Lithoz was always in contact with our team and even the smallest problems could be easily avoided within a short time.

-) Good & Frequent feedback

Lithoz was trying to give us the best learning experience possible, because of that, they reacted fast and with great interest. Some of them even suggested code snippets by creating pull requests from their fork of the project's repository.

Learning experience

-) new Frontend env. *(Vue)*

-) working with a project partner

-) Creating production grade software

The project will be developed further in the future and every second of our time will be immortalized in their product. 3D printing Web interface has taught the team what it means to create a piece of software that will be used in greater scale.

Product Demo Video

Link :

https://youtu.be/qOcP9uK2Lh4