

Project Proposal

Developing Online Melodious Instruments Shop

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1 Problem Statement

In the context of the **pandemic**, the family-owned instruments local shop was forced to close their physical business and is now anticipating e-commerce as a auxiliary or alternative sales channel. Research has shown that the pandemic adversely affected small and localised sellers, while larger online shops with diversified products gained more profits. This highlights the pandemic indicates a **necessary shift from brick-and-mortar retail to e-commerce**. However, customers may feel online instruments **intangible**, which may distract them from actually buying them. Moreover, the increasingly competitive pressure of current e-commerce platforms requires more exquisite designs to attract consumers' shopping desires.

Our project aims to develop an attractive **online instruments shop mall for a family-owned shop** to alleviate the aforementioned problems. Firstly, our project has **essential functions** for online shopping. Secondly, to give customers **immersive shopping experience**, our project employs the usage of **3D instruments preview** and instruments playing games in our website. Thirdly, our project is original in allowing customers to interact with 3D models to **customise** their preferred instruments, which have not gained much prevalence in current e-commerce. That is why our project is imperative for the family-owned local shop during the pandemic; otherwise, they will lose market and profits.

2 Vision

Our vision is an **Online Instruments Shopping Website** run a family to cater to their customers in terms of **functionality, security and reliability**. We will deliver a website shipped with basic shopping functions and distinctive features **tailored to our client's particular needs and long-range goals**. In regards to **functionality**, online ordering, 3D preview, and customisation can make the instruments more attractive to clients' customers, and **Machine Learning (ML) based instruments recommendations and recognition** can better identify clients' customers' preferences by analysing the big statistics. Moreover, our project enhances the **security** by using encryption methods and implementing a rights management system that endows our clients and their customers with different functionalities. The **reliability** of our project can be ensured by manual and automatic testing. Furthermore, by incorporating Chinese and Western instruments, the website aims to serve as a communication channel between different cultures. These remarkable features compared with the previous walk-in shop and current e-commerce can potentially contribute to more profits even in the context of pandemics.

3 Benefits and Deliverables

The **deliverables** of our project are a **cloud-based online instruments selling website with source codes and detailed documents**.

- For our clients (the family who run the retail), the **staff portal** allows them to organise, modify, prioritise, update, track orders and add new items for sale in the system. Moreover, they can change how sales are handled due to the pandemic.
- For our clients' customers, the **public customer portal** allows them to view the company profile, view and post **blogs**, shop products for sale, place and manage orders, see the order status.
- For both clients and customers, they can communicate with each other, switch the language between English and Mandarin, view the online sites of public customer portal by accessing this cloud-based website with **functionality, security and reliability** via computers and mobiles.

Furthermore, our **new capabilities** that distinguish our website from others are shown as follows.

- **Originality:** **3D instruments preview; 3D instruments customization;** play instruments games online; blog.
- **Advanced technology:** Instruments recommendations and recognition based on **ML**.
- **Added Value:** Develop a website with two themes, **eastern and western instruments**, which enhances communication between different cultures since music does not have boundaries.

We are firmly convinced that our team is equipped with the problem-based learning and soft and technical skills necessary to meet users' specific requirements. With our deliverables equipped with the above features, our clients can avoid the costs of decreasing profits.

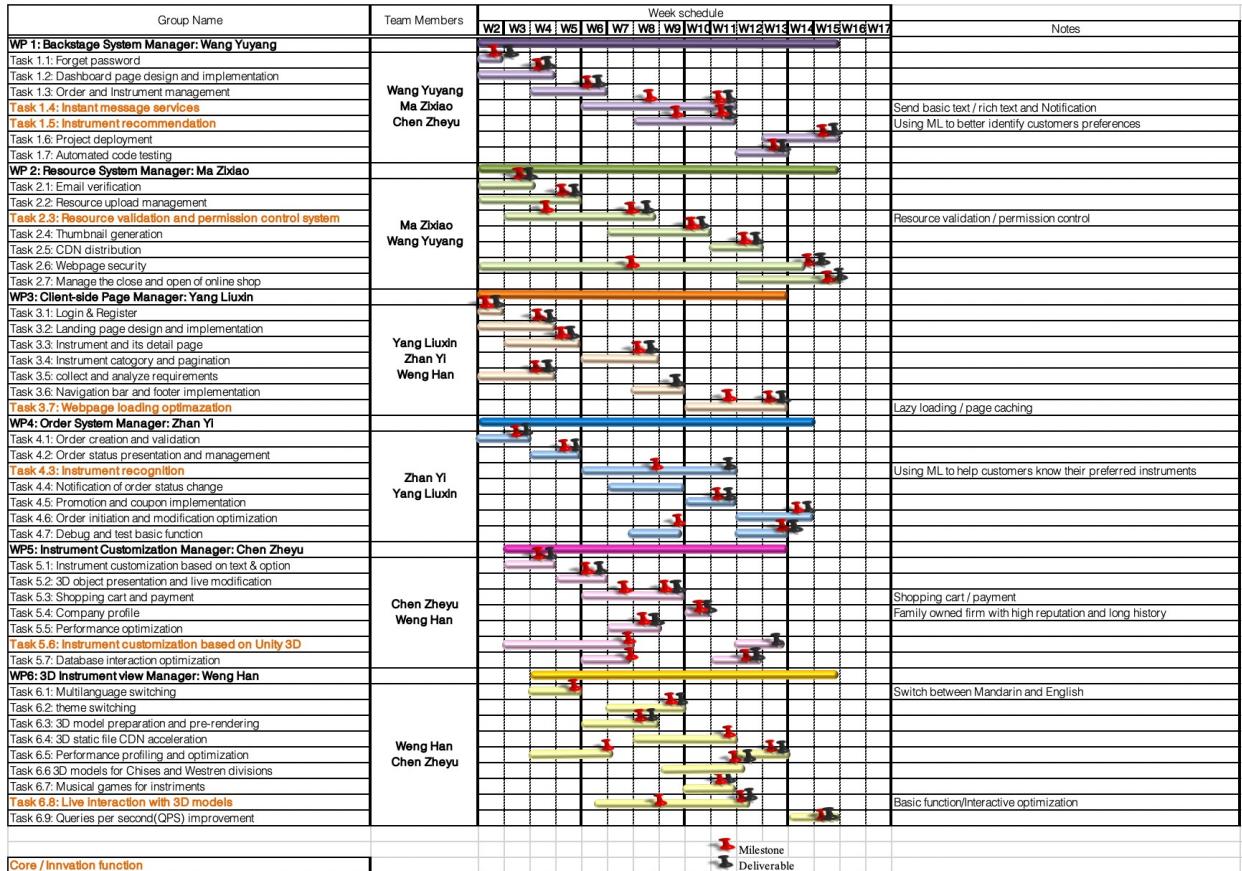
4 Success Criteria

Our team will deliver a workable software that **achieves the expectations** of and **gets positive feedback from stakeholders before the deadline** and **under budget**. Some success criteria are listed below.

- Criteria related to **project management**
 - The milestone serves as an indicator of progress. The final deliverable handover to the client will be well documented and completed by May 30th, 2022, within the allocated budget.
 - Get feedback from our clients (the family who owned the retail) every two weeks and improve our work based on their requirements to guarantee their satisfaction.
- Criteria related to **deliverables**
 - Both the clients and their customers can perform the functionalities mentioned in the "Benefits and Deliverables" section.
 - Both the clients and their customers can use the website securely and reliably.

5 Plan

The following Gantt chart illustrates our detailed plan, but we still embrace potential changes during development to cater to our client's requirements.



This project will be developed by our team's internal staff using **Agile** method. We will use GitLab for project management and keep in contact with stakeholders to ensure their satisfaction. The project will be delivered by May 31st within the allocated budget.

6 Project Budget

Our team requires £2080 to deliver the online instruments selling website with high quality in time, including non-recurring and monthly recurring cost.

Expenditure Details	Personnel Salary	10M Bandwidth	Server	Cloud Storage
Cost in Pound	£2000	£50	£20	£10

A Features and Originality

This appendix illustrates our features and originality that make the project more distinguishable.

A.1 3D Instruments Preview

The project is featured with the 3D instruments display, adding to its attractiveness. The following figure presents the implemented 3D instruments preview).

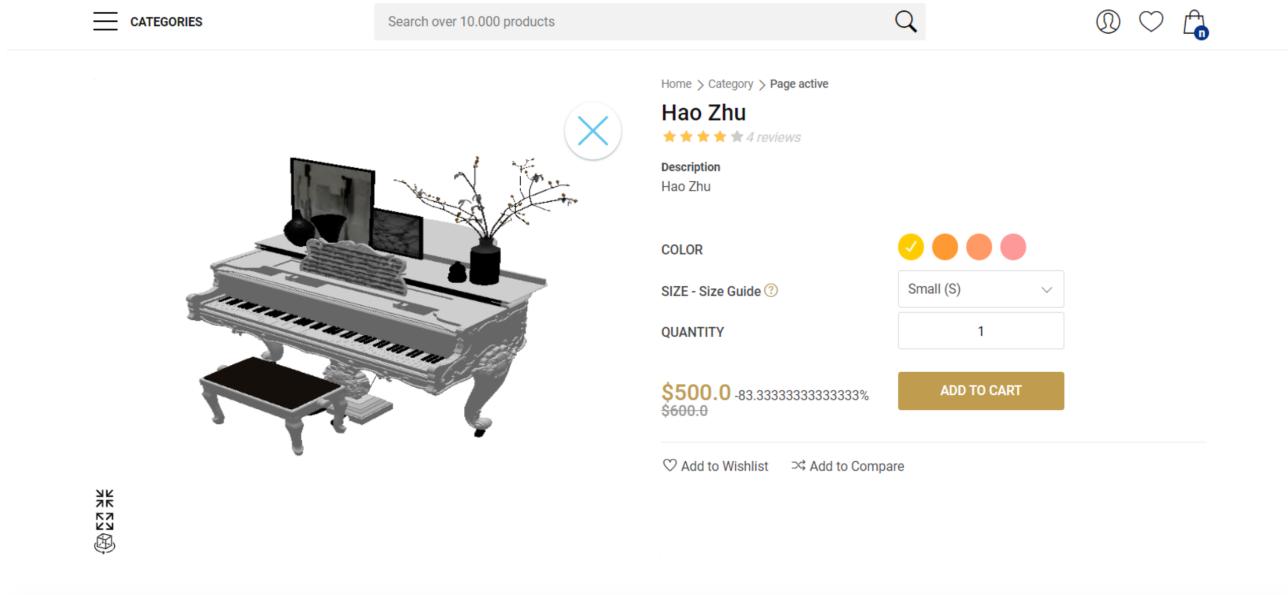


Figure 1: 3D Instruments Preview (already achieved)

A.2 3D Instruments Customization

The project allows users to interact with 3D models and customize their preferred instruments and save the customized model for further ordering and delivery. The following figures presents the how users can split and color different parts of the model and then amalgamate to their preferred instruments.

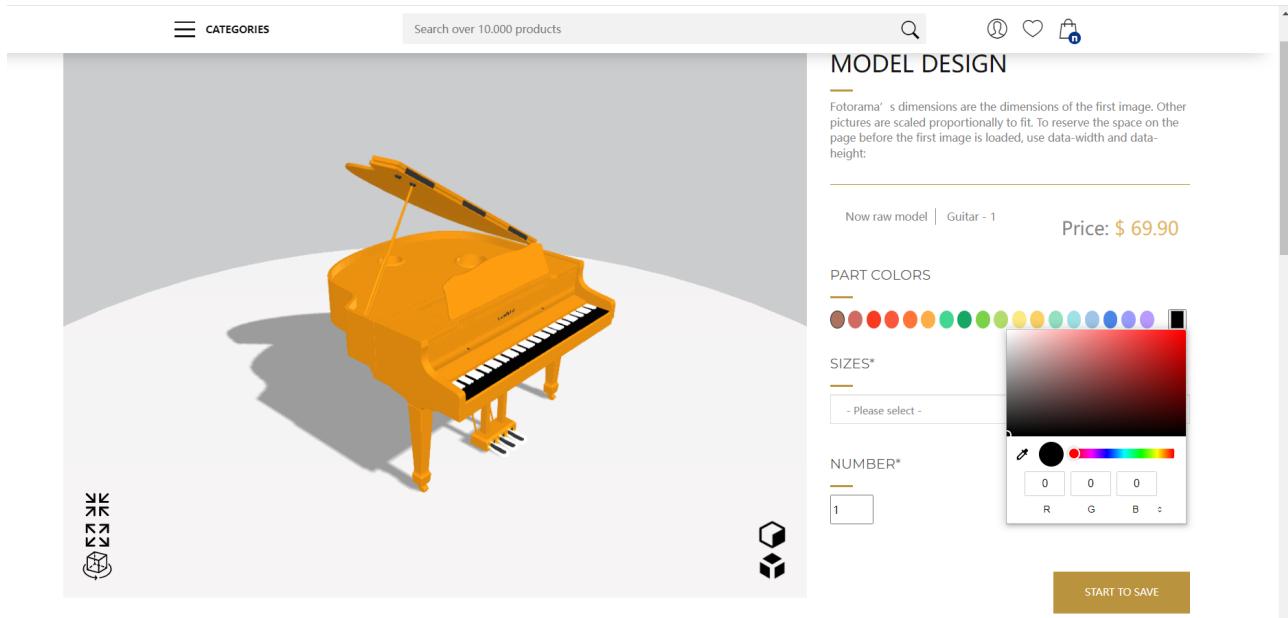


Figure 2: 3D Instruments Customization (already achieved)

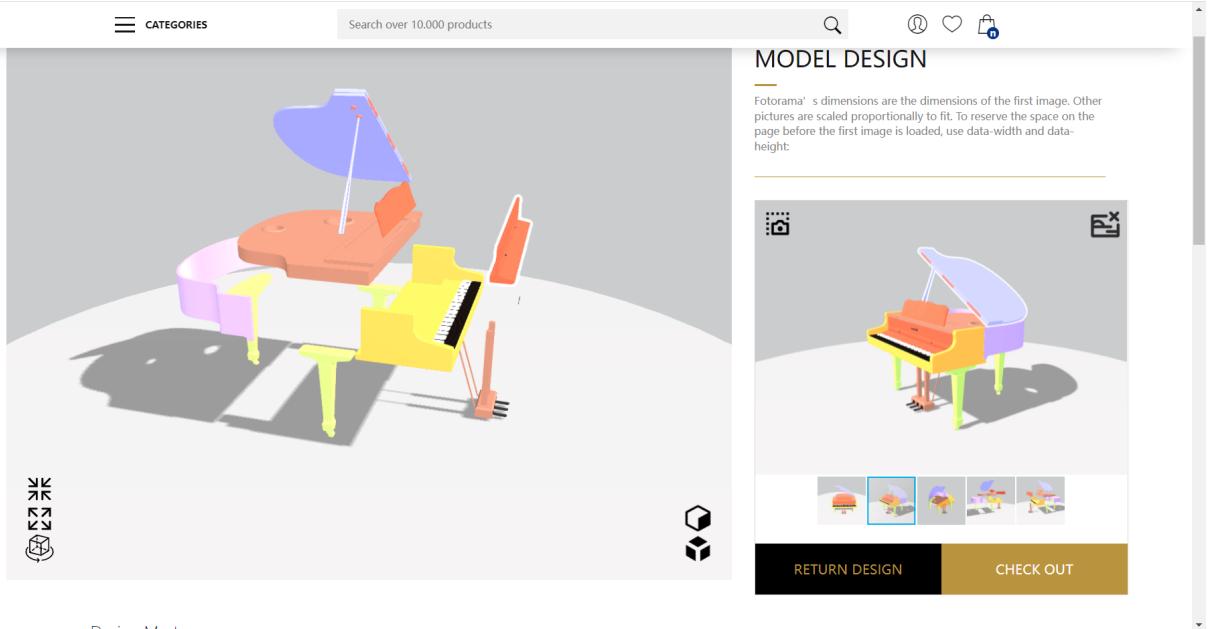


Figure 3: Customize Separate Parts (already achieved)

A.3 Chinese and Western Musical Instruments

The project displays Chinese and Western musical instruments in the separate zone to attract potential customers from different cultural backgrounds. The following figures shows the shopping zone specially designed to promote Chinese instruments.

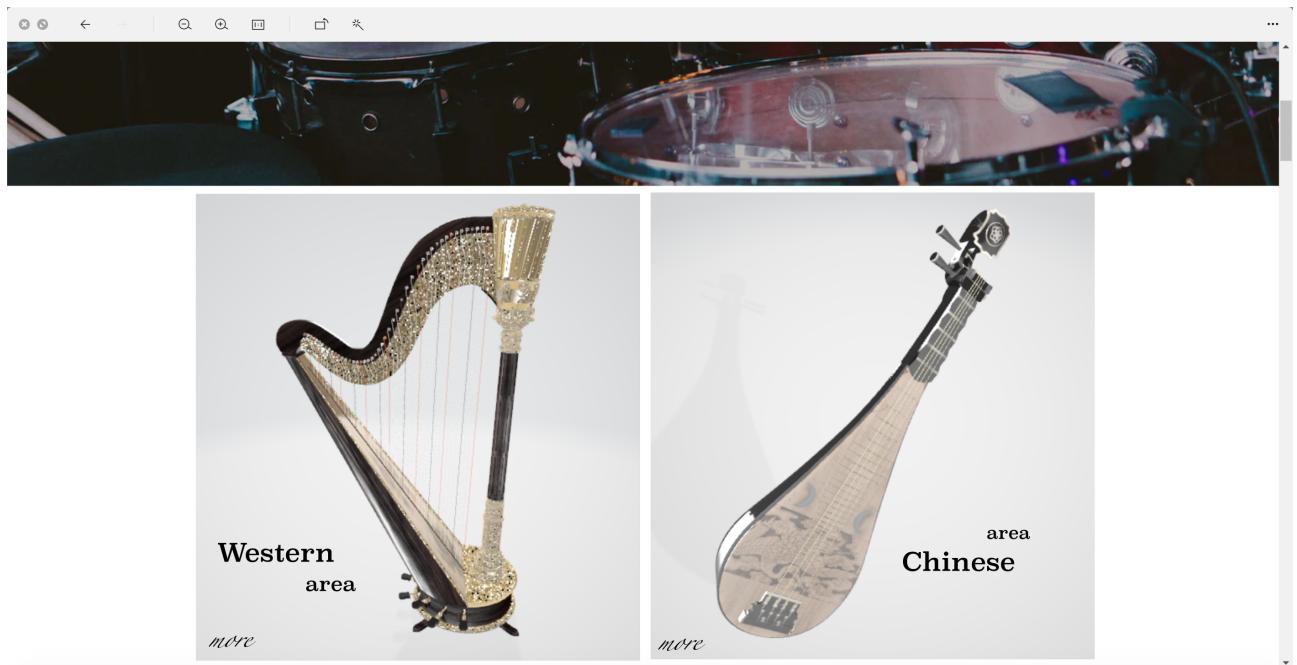


Figure 4: Particular Designed Chinese Instruments

A.4 Immersive Music Mini-Games

The project will develop games that allow users to play the piano and guitar in person, which gives them immersive shopping experience.

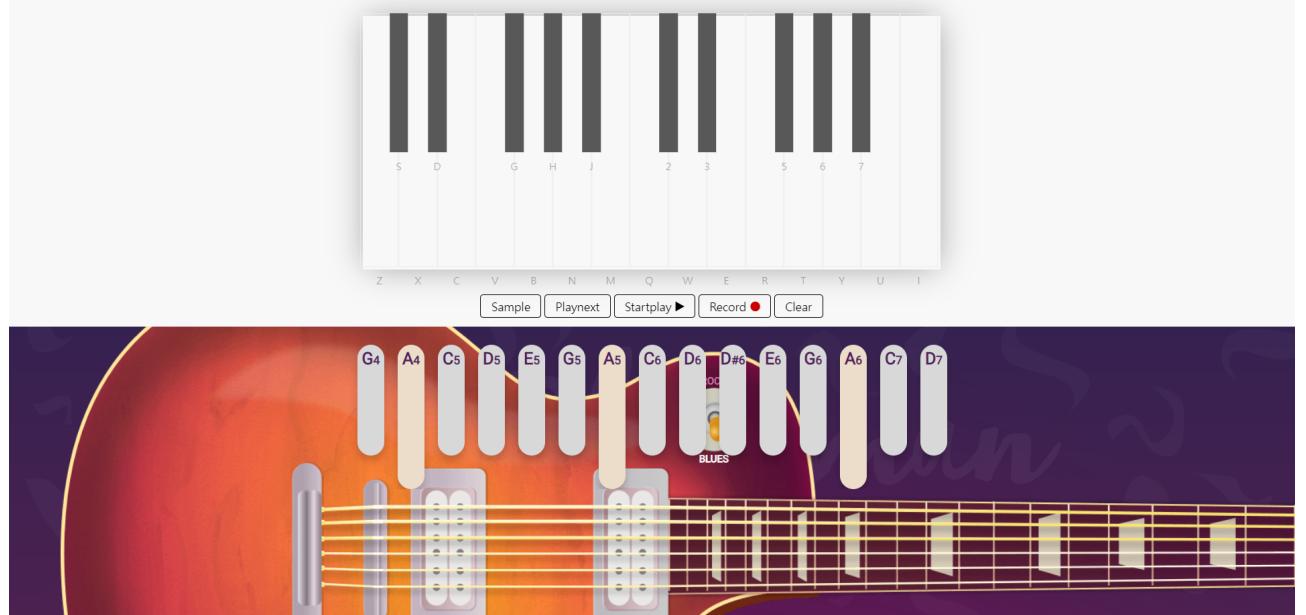


Figure 5: Immersive Music Mini-Games

A.5 Smart Instruments Recommendation

The project plans to enable intelligent instruments recommendation that better identifies users' interests (using Machine Learning).