LEGO virtual design platform

Introduction

As VP Development at Lego North America, our team's goal is to create an innovative experience that allows LEGO fans to design their own creations online, thanks to a 3D viewer and an interactive parts catalog. The project aims to provide an immersive platform where creativity and technology meet, giving users the tools they need to build, modify and share their models with complete freedom.

As part of the competition, each team will have to propose an intuitive and engaging interface, respecting several design and functionality criteria. The aim is to design a solution that facilitates navigation and part assembly, while making the experience as fun and fluid as possible. Proposals should take into account visual, ergonomic and technical aspects, to ensure that users of all ages can get to grips with the software quickly and enjoy the interaction.

It's not compulsory to integrate all the optional features listed: what's essential is to present a coherent vision that optimizes the user experience. Innovation and creativity will be key criteria in the evaluation of projects, as will the ability to meet the expectations of LEGO fans, whether novices or enthusiasts. Teams will be able to experiment with different approaches to UX/UI

design, 3D integration and interactive content management, resulting in a solution that pushes the boundaries of play and imagination.

Objective

The aim is to create an immersive and intuitive experience for users to design LEGO creations online. Each team will have to present its models and explain its design choices. The main deliverables are a 5 minutes presentation video with models and the visual support of the presentation in the form of a PDF. More details are given at the end of the document.

Requirements from LEGO North America Sales Department

Teams must integrate all mandatory features and choose at least 4 optional ones. The important thing is to present a coherent, fluid experience.

Mandatory Features

LEGO Parts Catalog

The website must integrate a complete parts catalog, structured intuitively and easily accessible to users. This catalog is a centralized database of all available parts, with detailed information on each one, such as part numbers, dimensions, materials, compatibilities and prices.

The organization of the catalog should be designed to enable fluid and efficient browsing. A classification by category (type of part, brand, use, compatibility, etc.) will be implemented to facilitate the search and exploration of the various parts. An advanced search engine will enable users to quickly find a part based on keywords, dynamic filters and a customizable sorting system.

Catalog accessibility should be optimized for different media (computers, tablets, smartphones) thanks to an ergonomic, responsive interface. Each product sheet must include clear visuals (high-definition photos, technical diagrams) and a precise description to help users make their choice. A download option for PDF data sheets could be considered for offline consultation.

Key points : Clear organization, ease of searching and adding parts to the shopping cart and 3D visualization interface, visually engaging interface.

3D Visualization Interface for Construction

The 3D visualization interface should enable users to assemble LEGO parts in a fluid and intuitive way. It should include simple manipulation of 3D objects, with ergonomic controls for turning, moving and zooming on models.

Users should be able to assemble parts using realistic connections, with a guidance system to avoid assembly errors. A preview mode should offer a global view of the construction from different angles.

The integration of realistic textures and shadows may also enhance the visual experience and construction accuracy. A project save and resume option could also be created to enable users to work on their creations over the long term.

Key points: Intuitive controls, precise and flexible construction, visual quality, realistic assembly.

Shopping Cart and Purchase System

The shopping cart should offer efficient and intuitive management of the items selected by the user. Adding and deleting items should be simple and dynamic, with automatic updating of totals and delivery charges.

A clear interface should display prices, quantities and any customization options. The integration of a secure payment system and delivery options adapted to different regions will be essential to guarantee a smooth shopping experience.

A “favorite parts” section could be added to enable users to save frequently used items and find them again more quickly.

Key points: Fluidity of the purchasing path, simplicity of adding to the shopping cart, easy integration with payment options, security and clarity of the process.

Optional Features (minimum of 4)

Sharing on social networks

Allow users to share their creations on their favorite social networks (Facebook, Instagram, X, TikTok, etc.).

Key points: Smooth sharing process, integration with major platforms, attractive preview generation.

Musical ambience

Enable users to play music during their sessions on the platform.

Key points: Personalization of playlists, integration with streaming services, positive impact on user experience.

Mobile application and adaptability

Develop a dedicated mobile application and guarantee a fluid experience on all types of devices (PC, tablets, mobiles). The interface will need to be ergonomic and adapted to tactile interactions.

Key points: Fluid navigation on mobile, iOS and Android compatibility, intuitive design.

Tutorials with hints and levels

Offer interactive tutorials with progressive hints to guide users according to their level of experience (beginner, intermediate, advanced).

Key points: Clarity of instructions, structure of help levels, accessibility of learning.

Low-cost rewards system

Implement a rewards system to build user loyalty, offering badges, successes or exclusive content without incurring high costs.

Key points: Originality of rewards, impact on user loyalty, ease of implementation.

Parental controls and product recommendations

Integrate parental controls to secure the experience of younger users and offer product recommendations tailored to the user's creations.

Key points: Easy access to settings, relevance of recommendations, browsing security.

Subtle incentives to return

Implement mechanisms that encourage users to return to the platform, such as personalized notifications or themed construction challenges.

Key points: Originality of the incentive, subtlety of the reminder, long-term user engagement.

Augmented reality (AR) mode

Integrate functionality allowing users to view their LEGO creations in augmented reality via their camera.

Key points: Realistic immersion, intuitive interaction, compatibility with different devices.

Real-time collaborative mode

Enable multiple users to collaborate on the same creation in real time, with a fluid synchronization system and editing rights management.

Key points : Smooth collaboration, efficient synchronization, easy communication between users.

Story mode and guided scenarios

Offer narrative challenges where users must follow a fictional or historical scenario to build specific models with objectives to achieve.

Key points: Immersion, diversity of scenarios, user motivation.

Deliverables

Each team must submit a visual aid in PDF format and a 5-minute video presentation containing :

- A description of the selected storyboards
- Presentation of the final visuals
- Major application flows
- A demonstration of the interface and main functionalities
- Explanation of UX/UI choices

A tool such as loom can be used to record your presentation. Both deliverables (PDF and video) must be sent to xavierlarouche99@gmail.com before the deadline with files named this way: teamname_video and teamname_pitchdeck.

Additional information

It is forbidden to use V0 or any other AI generator. Teams using these tools will be automatically disqualified.

Questions can be asked via Discord through this channel https://discord.com/channels/1085360050958241852/1339034404076650537.