Urbancraft: Stakeholders' Symphony

Harmonizing Community, Designers, and Developers in urban spaces by serious game setting

Urban design faces the challenge of coordinating among **stakeholders** with diverse backgrounds and interests, making it difficult to satisfy everyone. Additionally, **climate** change is becoming an increasingly critical issue, with more policymakers aiming for new projects to meet zero-carbon standards.

Based on this research question, The initial vision is to propose a tool that helps different stakeholders(community, architects, real estate) think about trade-offs when it comes to urban space innovation. Specifically, it is about **enviro-responsive form** VS **social needs/ energy efficiency/ maximal buildable area**.

leeside: a digital twin of Leeside, to allow visitors of the website to explore **different policy decisions**.

Imagine **city leaders** using this tool to inform policy decisions by understanding the trade-offs when making policy changes. What happens when you turn 50% of vacant land into parks, or repurpose industrial lots for housing?
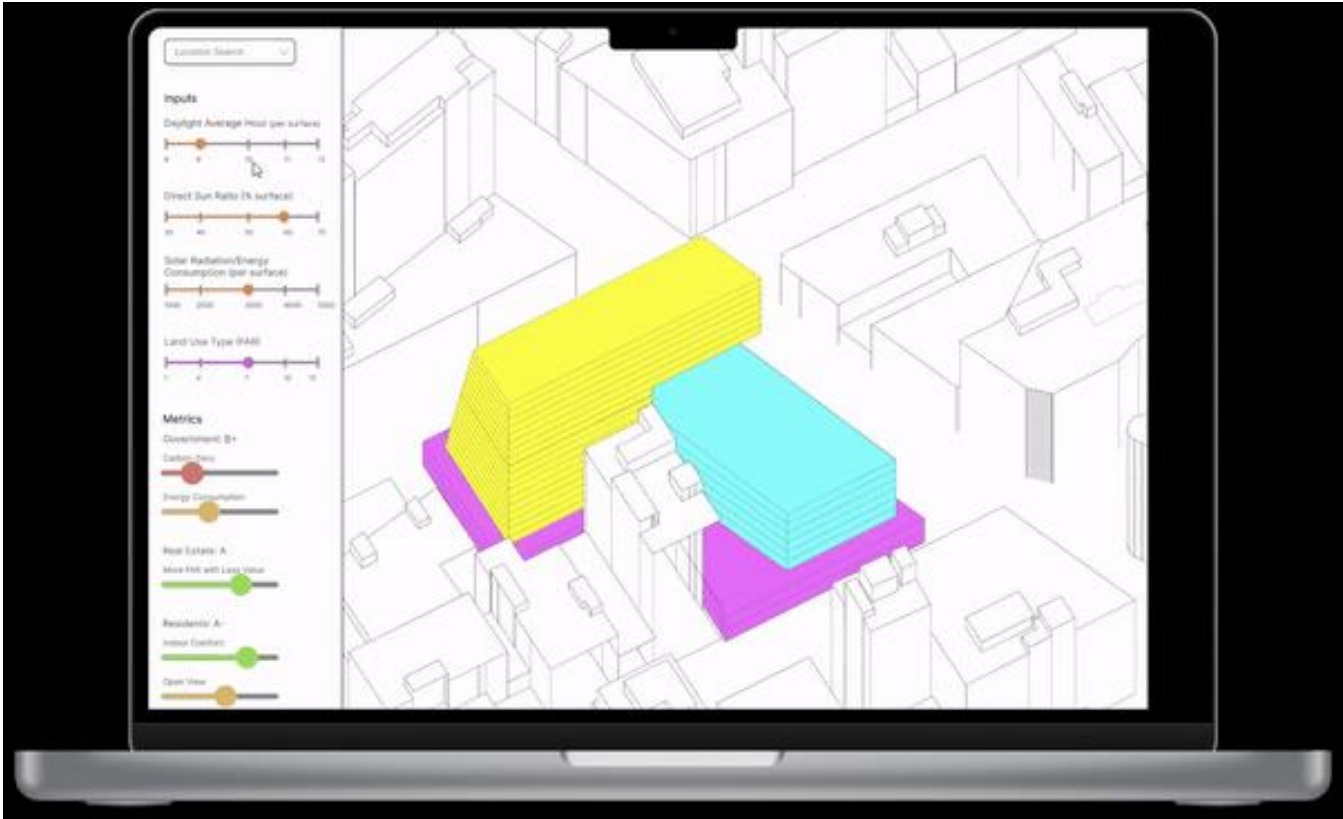
initial userface prototype

Can **community** participates into design process?

Can users play and organize blocks by themselves based on metrics they consider instead of preprocessing all data and demonstrate directly?

Can different stakeholders play the interface at the same time and get to learn trade-offs from each other?

block by block_minecraft

Phase1:Choosing Roles and Sites

Players start by selecting a role: community member, architect, or developer, and choose one of three sites(downtown Brooklyn/ Long Island City/ South Bronx) for their game session. This decision determines their subsequent gaming experience and interface layout.
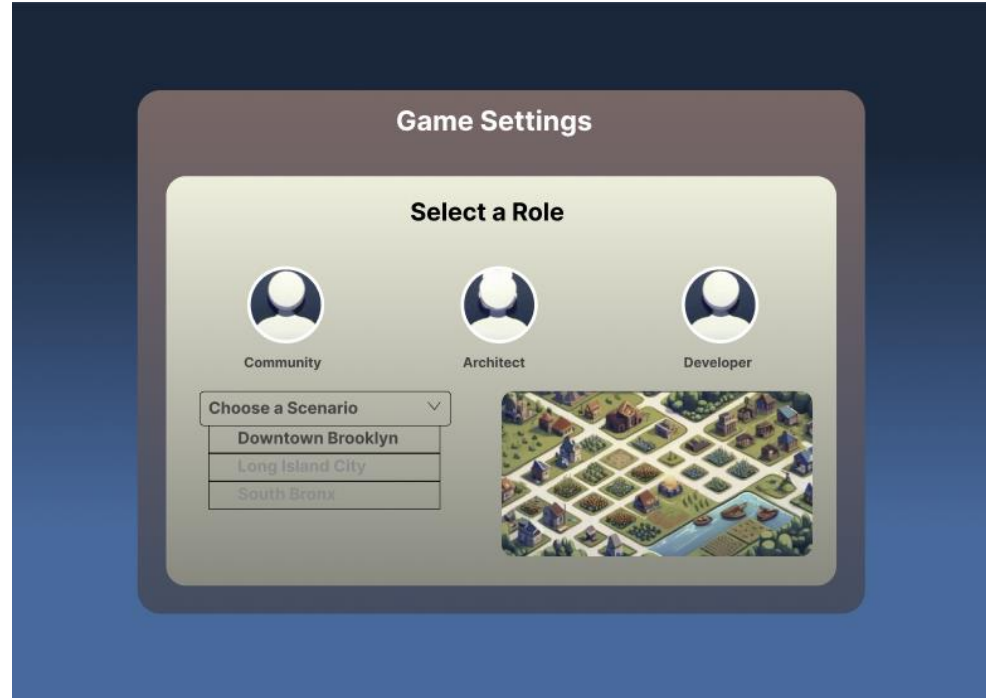
Phase2: Interface Overview

Regardless of the chosen role, common elements in the game interface include a 3D rendering of the context and a toolbar on the left side. The toolbar contains colored blocks representing different building programming/public space, allowing players to design buildings, roads, and public spaces on their selected site.

Phase3: Role-Specific Interfaces and Metrics

The game interface varies by selected role, with **different metrics reflecting each role's needs**. For instance, the architect's interface displays **climate-related evaluation criteria**, such as energy consumption and outdoor comfort, while the developer's interface focuses on maximizing economic benefits, and the community participant's interface highlights metrics for community equity and gentrification avoidance.
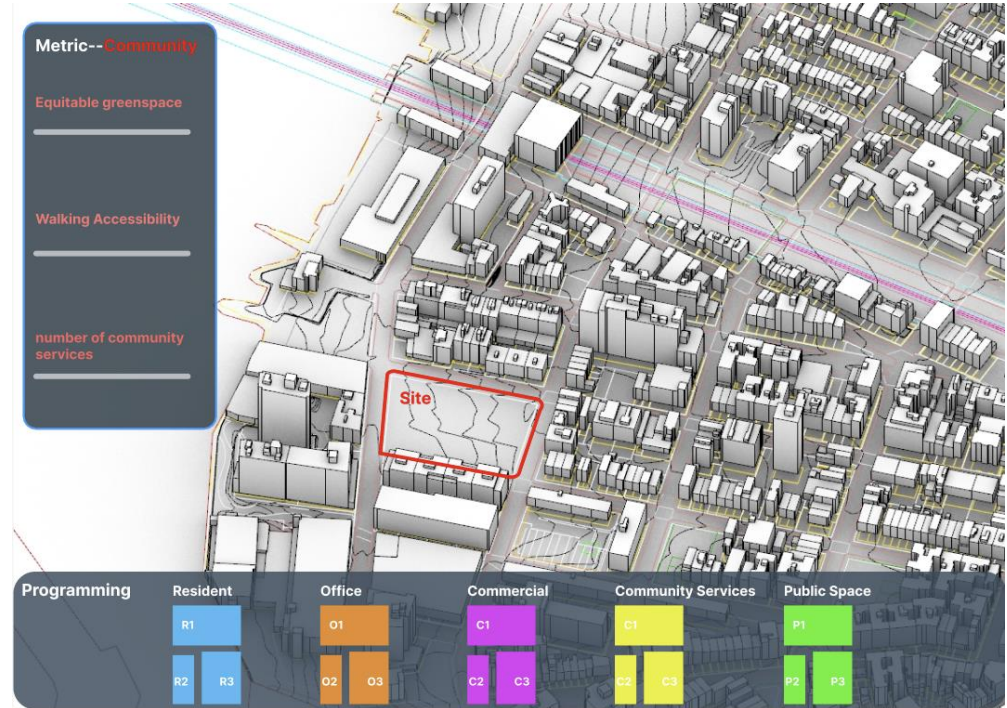
Community-role users'interface
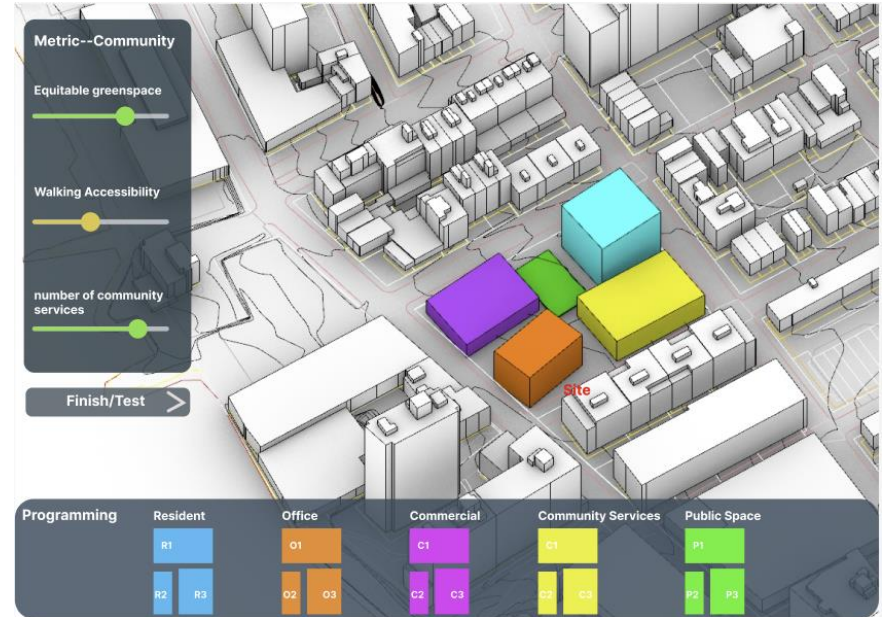
Architect users'interface
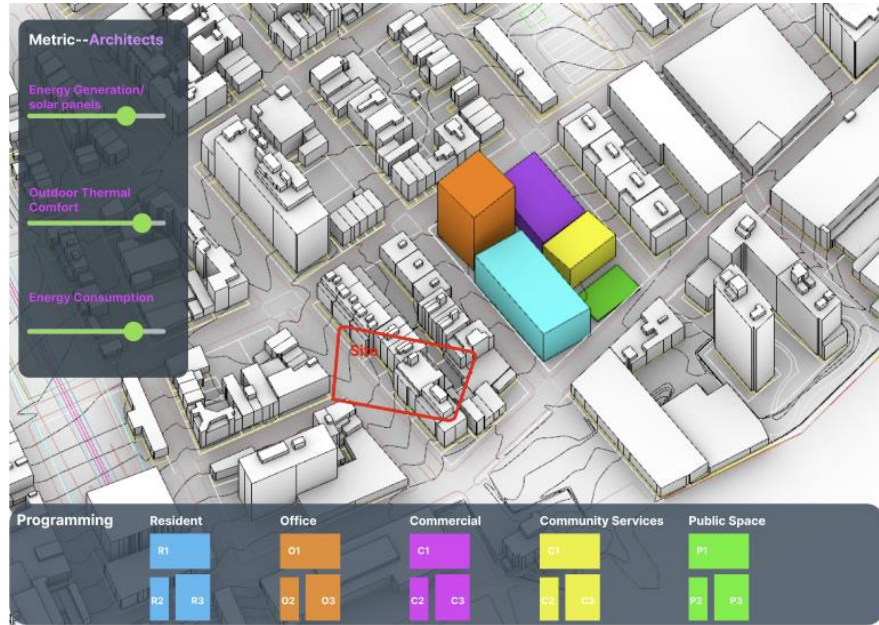
Real Estate users'interface

Phase 4: Play/Experiment

Users for different roles are able to drag different scale and colored boxes on interfaces and test out their execution. There will be **specific limitations** for users, such as minimum/maximum area for each programming.
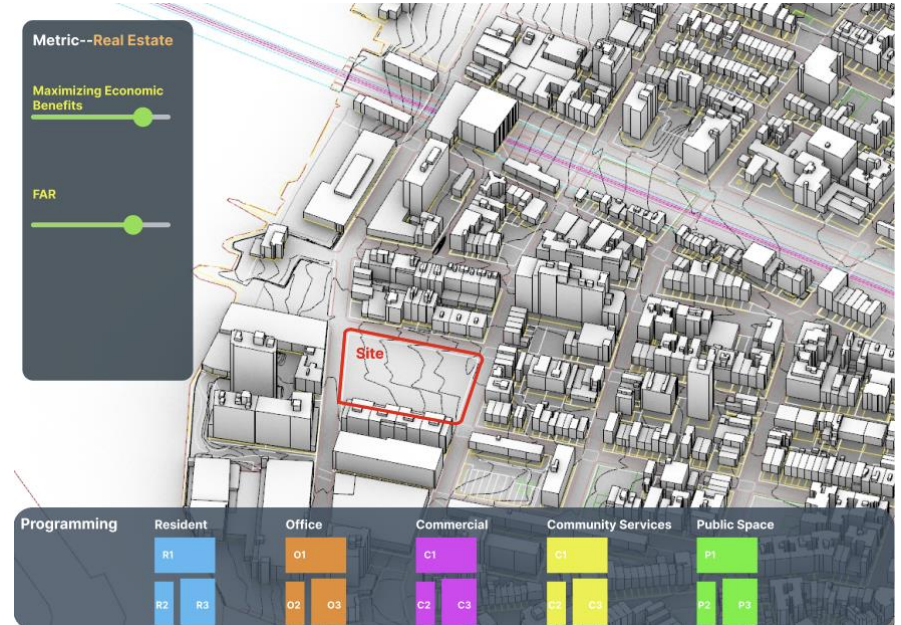
In this phase, users can **only** see the metric/evaluation based on respective stakeholders' view.

Community-role users'interactive interface when testing ideas

Architects users'interactive interface when testing ideas

Real Estate users'interactive interface when testing ideas

Phase 5: Design Review Board

After completing their design and clicking 'finish,' players enter the 'Design Review Board' phase, where they see their work's metric analysis from the perspectives of the other two roles. This is presented in a **radar diagram**, showing the overall score and helping players understand how their design balances the needs of different stakeholders.
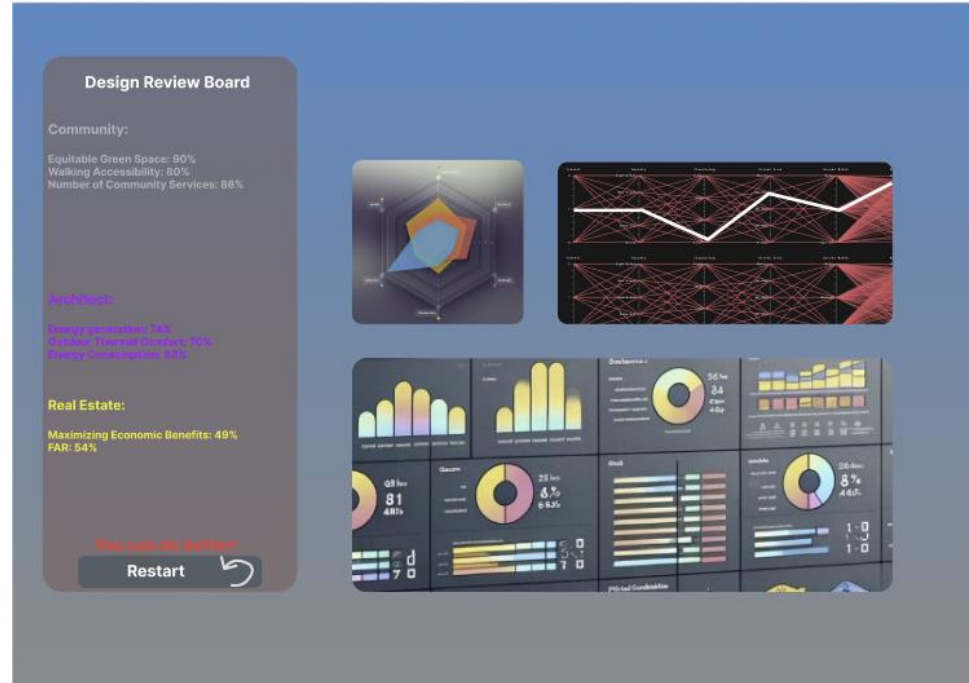
Phase6: Redesigning and Experiencing Trade-offs

Players have the option to **restart** the game, taking on a different role or attempting a new design with the same role. This process deepens the player's understanding of the considerations that different roles bring to the design process and teaches how to make trade-offs in architectural design.
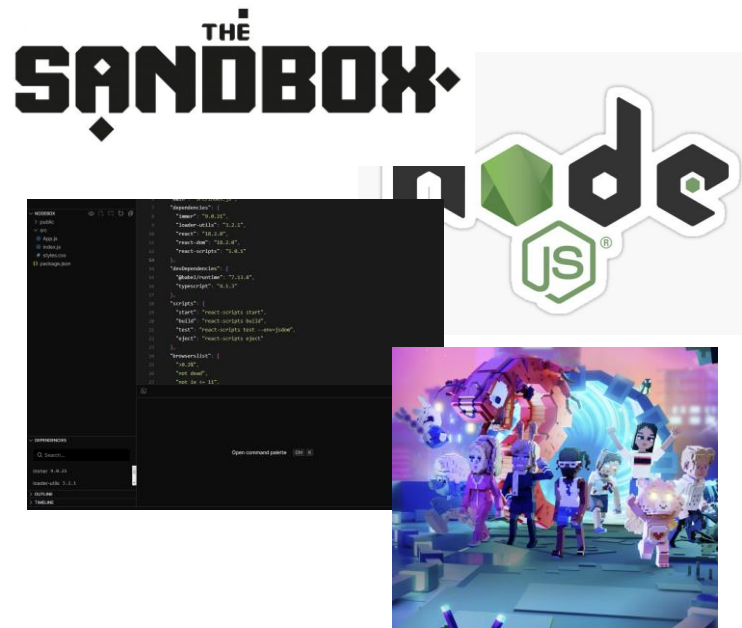

serious_game_prototype

Back-end
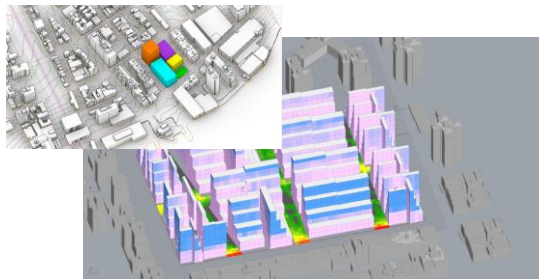
Preprocessing data:
pre-generate all options with
respective metric; all design space;
evaluation system

Front-end

Build the interface:
import json data;
using node.js/sandbox to build
website interface