

Forum8 Tokyo Symposium



MULTI-USER ONLINE DESIGN ENVIRONMENT (MODE)



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Collaborative Design Thinking through Gamification

The term of gamification might sound novel however its use dates back to the beginning of the last century. In 1912 Cracker Jack, a snack brand, started to give toys as a gift in their boxes. Although gamification in this research is meant to be 'collectively productive', with this instance its focus might seem on the marketing domain that is to encourage for more 'consumption'. However, by and large, gamification is described as the use of game design elements in non-game contexts. Depending on familiarity, there are varying common assumptions towards gamification. The following paragraph informs us on what gamification is and is not.

First of all, gamification is not turning everything into a game. The purpose of gamification is not to pull us out of reality but rather finding what is not boring in an activity that usually requires collaboration and engagement. This is neither to say that they are 'serious games' which are used as training and learning environments such as in military and education. The focus of simulations in serious games is on testing the abilities of learners and on improving their skill sets in a virtual environment similar to real conditions. On the other hand, game theory is to mathematically analyse decision-making 'strategies' or individual 'choices', whereas gamification may be helpful to improve collaboration for 'a choice' and encourage involvement in 'a strategy'. Also, points, badges and leader-boards (PBLs) are irrepressibly penetrating into every aspects of our daily lives in tandem with the growing use of social media. PBLs are one of the most common game elements however they are not sufficient with regards to what games and game design can provoke. We can gamify a situation by thinking like a game designer, which is different than being a game designer.

Admittedly, games play a major role in societies being shaped by the 21st century culture of gadgets and devices. Use of online games is constantly in increase as a business and marketing strategy to motivate people in engagement and sharing. Huizinga's description names the boundaries of engagement in play and play environments as the Magic Circle in which once you enter, "it is sacrosanct for the time being", i.e. the game rules matter most not the real world. In order to invite the player into the Magic Circle, game elements should be designed properly to prompt engagement together with aesthetics that contributes to the whole experience which we look for. Game elements are classified differently but we use here the one which separates them as dynamics, mechanics and components. It does not necessarily require using

all elements but integrating ones that will be most efficient in motivating player engagement. Mapped as a pyramid, dynamics are placed on top while mechanics and components step behind them respectively. A list of dynamics may include constraints, emotions, narrative, progression and relationships. This exercise further looks into dynamics as a map to use in explaining a conceptual framework for gamifying an open-collaborative design systems. Further studies will look into mechanics and components under which the number of elements is higher.

Introduction

Mass housing has constituted a major concern for city dwellers, especially with the increasing numbers of city dwellers, resulting in increases in population densities and limitations of urban land resources. It has, at different levels, become a major topic of discussion, politically as a form of nation building, economically in search of ways to provide affordable housing to the masses and using housing as a form of investment, and socially to develop community bonds and identity.

Mass housing, as the name suggests, is intended for the masses. Participation in building design can come in many forms. Most of the time, urban planners have invited government officials, and even the public community, to be involved in the projects to provide better knowledge of the locals. In the context of housing, there are cases, such as Okohaus by Frei Otto, NEXT21 by 13 architects owned by the Osaka Gas Corporation, La Meme, and Zilvervloot by Lucien Kroll, that demonstrate the possibilities of participation of the occupants. However, the main industry is still in such a top-down state that the occupants do not have much input in the design process. In conventional design of high-rise mass housing, developers will plan based on their experience and market analysis. They will then proceed with their design based on their visualization and realize it in a profitable and cost-effective manner. In order to provide efficient and affordable housing, modular systems and fabrication techniques are adopted. Developers and architects even developed standards to further enhance the efficiency and fitness of housing products. This has not only suppressed creativity and opportunities for innovation in the housing industry, it has also changed the notion of the home in modern living.

Collaboration poses an enormous challenge, especially in the mass housing context. As spatial preference is very personal, conflicts are sure to arise and are mostly difficult to resolve. This is usually because the decision-making models in current practice are all 'black box', in which the control unit is closed and often fixed. In order for collaboration to work, the decision model should be a 'glass box' instead, in which the decision variables and parameters are open and transparent.

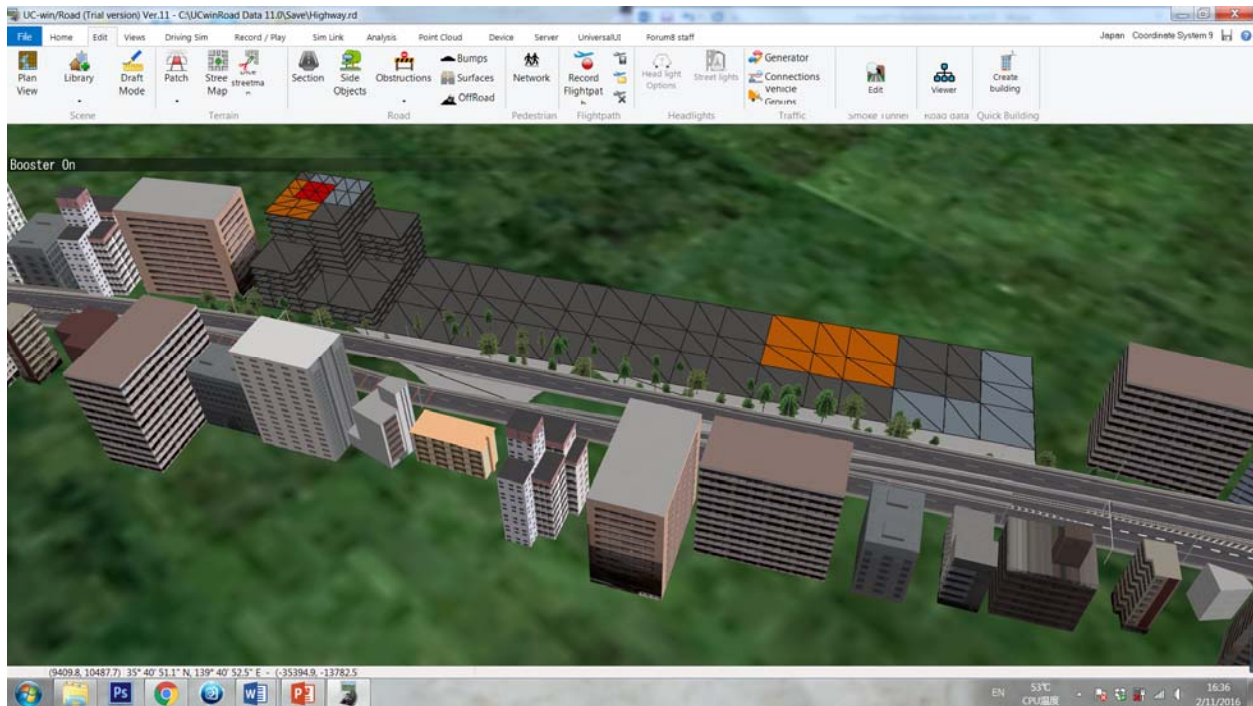
To find a means to achieve collaboration between the various stakeholders and the architects is not simply to create a digital platform for them to communicate. This could easily be accomplished with technology or a social network platform. The main objective is to understand how mass housing design can be 'simplified' into simple rules and parameters for

the stakeholders to engage in the design process easily. The various stakeholders in this research are given higher priority than the occupants. BIM is currently only focusing on higher authorities, such as government personnel, developers, and contractors. Occupants who are actually the 'real clients' are usually not involved.

Design Brief

You will play the role of a new immigrant who has just brought a his/her family to a new flourishing city. The setting is as follows:

The year is 2020. You are trying to find a new place to settle down with your family. A flourishing city caught your attention, and the city mayor is providing an attractive incentive to the new residents. You decided to try your luck in this city and build your dream home here. The city designer provides you with MODE to design your living space online. Your mission is to use ModRule, a newly innovated system, to achieve your dream home as much as possible. There is one challenge given by the city designer and the mayor, though; you also have to make sure the rest of the community who are also new residents like you achieve their dream as well. You are also provided with UC-win/road, a state-of-the-art simulation software that is linked to ModRule to visualize the entire outcome. GOOD LUCK!!!



Objective

The aim of this exercise is for you to become eloquent in the use of computational architectural design techniques. Through the process of 'playing', you shall be able to explore ideas, analyse data, present and communicate design concepts electronically in an elegant and aesthetic manner by exploring a variety of parameters of their design.

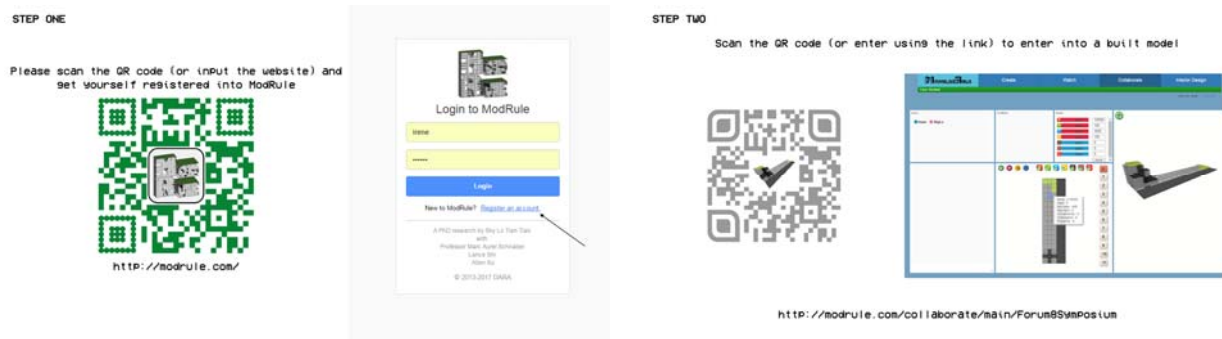
Phases

This exercise is organized into three phases, each stage will adapt and reconfigure the explorations of the last. The first phase will be to setup your personal goals and achieve the spatial targets individually. Phase two will demand you to look at other collaborators and negotiate solutions for any conflicts occurred. Phase three will be visualizing your ideas into a 3D environment.

Phase one: Setting up

In the first phase, you setup your goals in ModRule, and do simple selections based on the parameters of the model.

- Explore how your goals will be affecting your decision making
- Explore possible strategies to work around the parameters to achieve your goals



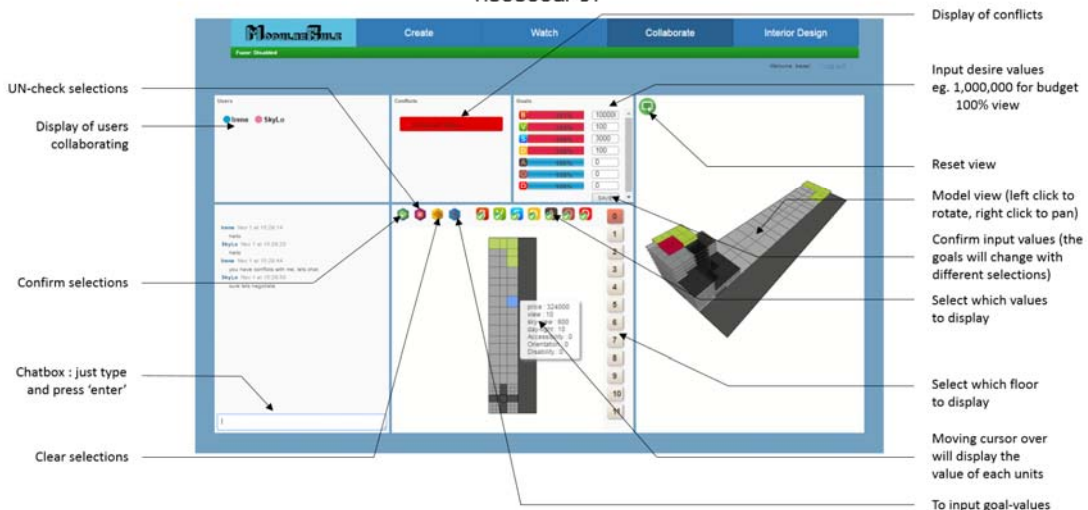
Phase two: Collaboration

In the second phase, you work with other players to achieve a collective satisfactory outcome.

- Negotiate the various parameters that can or cannot compromise to fulfil everyone's goal

STEP THREE

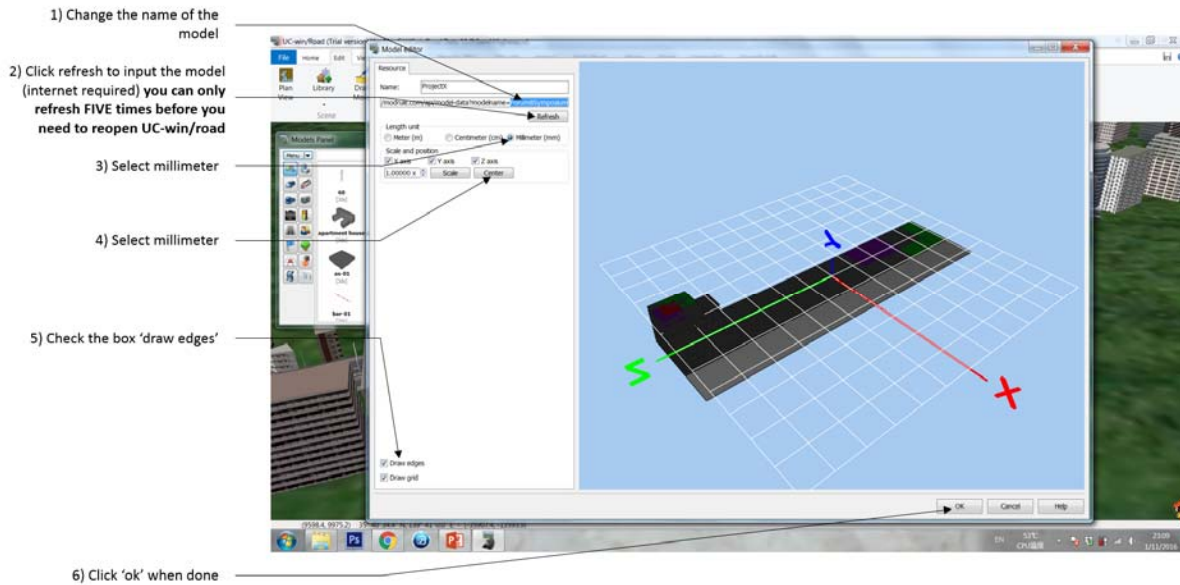
Enter your desired values at the goal. Make selection at the Plans to achieve at least 80% of your goals. DO NOT go over which will affect other residents. If conflicts occurs, it is your duty to resolve it with the other party. You make seek help with the designer if necessary.



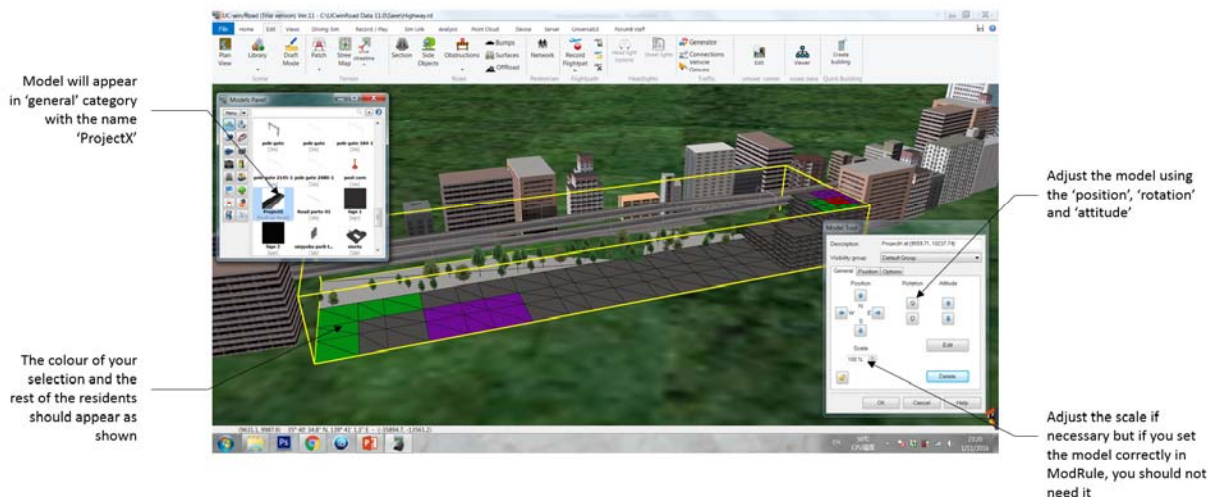
Phase three: Visualisation

In the third and last phase, you will use the ModRule information and input it into UC-win/road and build-up the model into a 3-dimension landscape.

- Work with UC-win/road and build with 3D model
- Simulate a walkthrough or drive through the built environment

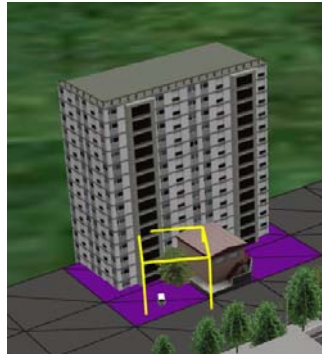


Put the model into UC-win/road and position it onto the selected site



Learning Outcome

Upon completing this exercise, you will have the knowledge to establish a multi-user online design environment (MODE) through the use of ModRule and UC-win/road. You will have sufficient skills in using digital systems and software to apply them in other works. The gamification, parameterization, negotiation, modeling in this exercise will not only give you great insights into digital design process but also the complexities in collaboration design thinking. The use of gamification can be applied to many other aspect of research and would be the most beneficial learning outcome for you.



Assignments & Quizzes

Design & develop a building for multiple types of families

Process

How do you provide interchangeable building components yet keeping the cost effectiveness of the construction?

Family A & Family B selected the same spaces, how do you resolve this using the existing or new parameters?

How do you think this design process attracts users to participate? What are the qualities? What additional features should be added?

Model

Which grid composition provides the optimum design for variation, spatial negotiation, & support translation into practical floor plans?

How do floor plan layouts provide a dynamic & changes over time outlook?

What are the various spaces that can be included in the planning stage providing the users more decision-making options?

Technical

How can building performance information be integrated, how does it relate to users?

How are utilities & services incorporated in the planning stage while maintaining a flexible design?

Application

What is the role of the architect in this design process & how are they different/similar to a conventional design process?

How can Virtual Reality for users contribute to the design participation process?