# Portfolio


## Introduction

WeClass is an app specially created for Chinese students to send digital classmate notes to friends. In China, almost every student would give away their classmate notes to their classmates, on which they will write contacts and wishes. And WeClass bring this to the era of social network by providing a tool for students to create classmate notes of their own style and share in their circles.

## User Interface

During the design process, I conducted surveys with my potential users to get a better understanding of their needs and tastes. And I referred to these results when designing the user interface.

## Features

To enhance the spreading of the classmate notes created by the users, lots of features are developed. Below are just some of them.

**Styles**

Your favorite stars, cartoon characters ... Just pick the one you love!

**Type and Draw**

Words not enough? Draw something to express your wishes!

**Share and Rank**

Share the classmate note to every social network. Who is more popular? Check the ranking!

# **We**Class UI/UX Design

WeClass is an app specially created for Chinese students to send digital classmate notes to friends. WeClass bring classmate notes to the era of social network by providing a tool for students to create classmate notes of their own style and share in their circles. I did careful user study and deep user interview for this app, and applied the results to the feature design and UI/UX design.

# Club Registration Service Website UX Prototyping and Testing

Firstly, we created a low fidelity prototype by sketching and ran a user test with several target users.
The results are shown below.


Home Screen

I cannot find the register button.

Where is the register link? I can't find it.

Create Page

What does 'explanation' mean?

The 'file' button seems to ask me to upload the file.

Should I click 'save and next' after I add a question?

Settings Page

'Change the cover', which cover?

I can't figure out the meaning of 'change the cover' and 'color schemes' .

Release Page

'How to download the QR code?

Personal Page

Where is the 'release' button?

Secondly, we created a high fidelity prototype on the basis of the results from the last step.
Then we use the eye tracking system to get a deeper understanding of the user.

| | 寻找注册按钮 | 首页向下浏览 | 拖拽方式创建报名表 | 第二步完成情况 | 第三步选择二维码 | 找到个人页面 | 管理页面测试 | 删除报表 | 退出账号 |
|---|---|---|---|---|---|---|---|---|---|
| 用户一 | 在header之间多次浏览，最后想到了在“更多”里 | 没有向下浏览 | 使用点击方式 | 受到旁边报名表的干扰，点击了提交按钮 | 由于技术原因没能测试 | 很快找到个人页面 | 由于技术原因没能测试 | 尽管有兼容性问题，但还是找到了删除按钮 | 很快找到 |
| 用户二 | 尝试点击创建，结果弹出“请先登录”，最后才尝试点击“更多” | 没有向下浏览 | 使用点击方式 | 并没有创建题目，右侧的提交按钮也没有对视线造成干扰 | 由于技术原因没能测试 | 尝试点击“账号管理”来进入个人页面 | 由于技术原因没能测试 | 很快找到了删除按钮 | 很快找到 |
| 用户三 | 找了很久都没有找到，并且有些不快 | 没有向下浏览 | 使用拖拽方式 | 受到旁边报名表的干扰，点击了提交按钮 | 由于技术原因没能测试 | 尝试点击“账号管理”来进入个人页面 | 由于技术原因没能测试 | 找了很久都才找到删除按钮 | 很快找到 |

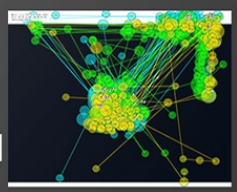
The upper image records all the user behaviours on each step of the test. It's easy to analyze the universial problem with this form.

Problems analyzed from Attention Heat Map and the Solution

There're something on the bottom?

Solution

I will add a down arrow at the lower part of the page to encourage you to scroll down.



How can I find the 'register' faster?


Solution

I will add register form right on the page so that you don't have to look for it any more.

The form on the right have too much attention!

Solution

I will diable the form input and remove the submit button.

## Club Registration Service Website UX Prototyping and Testing

This project is designing one of the products from my projects. In the design process, we made full use of the prototyping tools and testing tools, and in the end, a product which is excellent in UE was developed. Lo-fi prototype-testing-hi-fi prototye-test-eye track test, through these steps, our understanding about user needs and user behaviours was improved step by step, and the product was evolving too.

# Interactions in Immersive Collaborative Virtual Environments

## DESCRIPTION

Collaborative Virtual Environments (CVE) provides a space in which people can interact with each other, often over distance. CVEs are used in different scenarios, such as education, training or social entertainment. Immersive CVEs add immersive sensory feedback to common CVEs and therefore provide a feeling of being in another space. In addition, immersive CVEs allow interactions that are not possible in the real physical world, such as 3D drawing in space. This project focuses on the development and investigation of new interactions that enhance the human capabilities in immersive CVEs.

## PROJECT ACTIVITIES

**IDEATION**

*Exploration* - We used brainstorming to list down everyday life activities and behaviors that have a collaboration aspect then created categories and ranked those categegories after the impact that our system could have in the categorie's scenarios (see figure 1).

*Problem* - We took the three highest rated categories, looked at their scenarios and brainstormed problems, that occur in those scenarios. Then we draft if and how our system can solve these problems.

*Literature Research* - In parallel, we conducted literature research to find related work and technology that we could be used for our work, such as leap motion for han.

**IMPLEMENTATION** (using openFrameworks):

*Head tracking* - We shifted from the Oculus Rift DK1, which only provides the head's rotation, to a commercially available Microsoft Kinect camera for tracking the user's head. Thus we are able to provide 6 degrees of freedom.

*Mesh Creation* - We used two cameras for tracki his model can be compressed and sent over to the remote user, who perceives it through the Oculus Rift.

**Environment Modeling**

To provide the users an environment to exist in, we created a 3D model of a room and chairs using Rhino (see figure 2).

## PICTURES

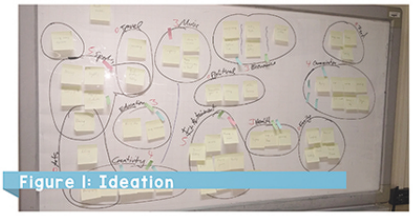


Figure 1: Ideation

Figure 2: Virtual Environment

## PROJECT OUTCOME

**Example Application**

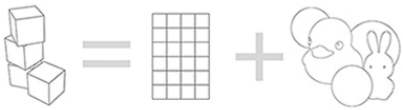
Entertainment was one of our highest rated categories. We found out that some games could cause physical collesion,which can be solved in CVE. We developed a small game to investigate: The two players, maybe geographically seperated, put on their Oculus Rift and sit in the immersive CVE like they are face-to-face (see figure 3). When the game starts, objects appear on the table to be caught. The fastesr user will get points for catching the object. Since in reality they could collide and may withdraw their hands, here the hands will pass through each other. Then it is interesting to investigate, if they react the same way, due to their visual feedback, or not. We plan to explore this in the future with real users.

Figure 3: Study scenario


## Interactions in Immersive Collaborative Virtual Environment

The project was led by Suranga Nanayakkara from MIT Media Lab, collaborated with researchers from SingTel, thesecond largest wireless company in Asia. In this project, we designed a system in virtual reality environment to boost collaborative experience in an immersive way. Using C++ and OpenFrameworks, I completed the gesture recognition and the 3D environment

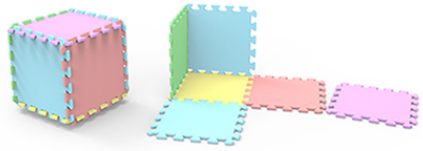
## Benefit



4 Mats Boxes  An area of 2.16 $m^2$  4 boxes of toys

According to our calculation, 4 mats boxes can cover an area of 2.16 square meters, which is enough for a kid to play on. When traditional package leaves you harmful waste, MATS BOX gives your kids a safe, colorful environment for playing.

## How



Compared to the traditional design of express package, MATS BOX is simple, light and recyclable. The material is nontoxic foam which absorbs impact without the need for infilling. When the toys arrive home, the express package can be used as mats to protect the baby. In the whole process, pollution, waste and material consumption are reduced greatly.

## Problem

30% of municipal waste comes from package material. And lots of them comes from express package. Nowadays, the express package for toy is usually made of materials like polyfoam, sponge and paper, which always goes into waste afterwards and is hard to recycle. The filler of the express package costs lots of material and cause a lot of pollution, too.

## Before

Express package with filler  Heavier Cost more in transportation  Different kinds of waste hard to recycle

## Now

Single material One step molding  Lighter Cost less in transportation  No waste

# MATS BOX *Express package for toy.*

***Mats Box*** is express package for toy transportation. The material is nontoxic foam which absorbs impact without the need for infilling. When the toys arrive home, the express package can be used as mats to protect the baby. In the whole process, pollution, waste and material consumption are reduced greatly.

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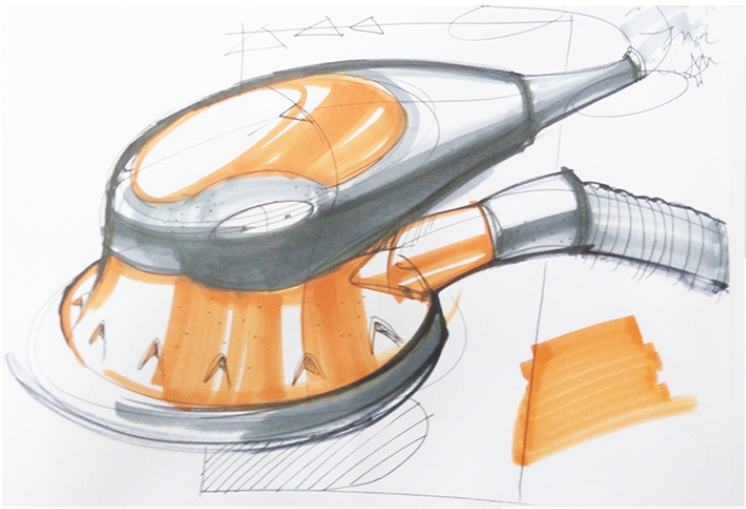
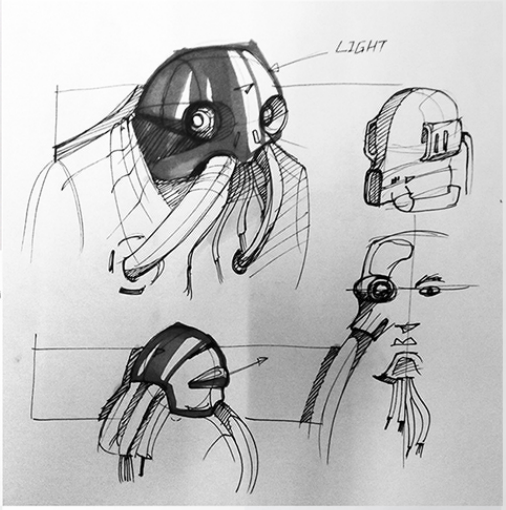
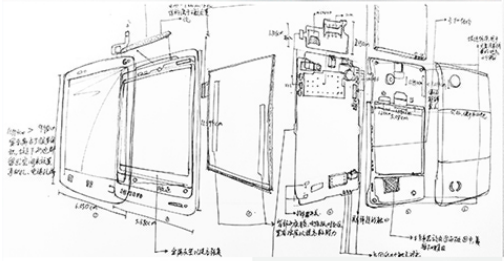
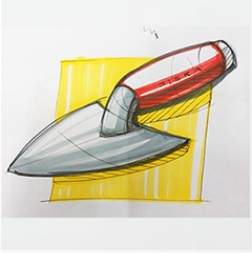
# Graphic Work





## Graphic Work

Apart from doing industrial design and technology projects, I will make some graphic works too. These include designing logos for my class and my websites, practising hand-drawing, drawing strctures, etc. In my point of view, the most important function of drawing is to express my thoughts about design.

## CGA(Computer Graphic Art)

In the process of learing industrial design, I mastered modelling, rendering and image processing software. I pursue creating vivid visual effects using these software. The helicopters in the two CGAs above are all rendered and adjusted in Photoshop according to the style of the whole image.