Yu Meihao

#Digital
Media
Technology

Portfolio

Yu Meihao

Sex:
Female

University:
Communication University of Zhejiang

Major:
Digital Media Technology

Degree:
Bachelor of Engineering
(To be awarded in June 2024)

Awards

National Third Prize in The 13th China College Student Service Outsourcing Innovation and Entrepreneurship Competition

First Prize in the 20th Zhejiang University Students Multimedia Design Competition

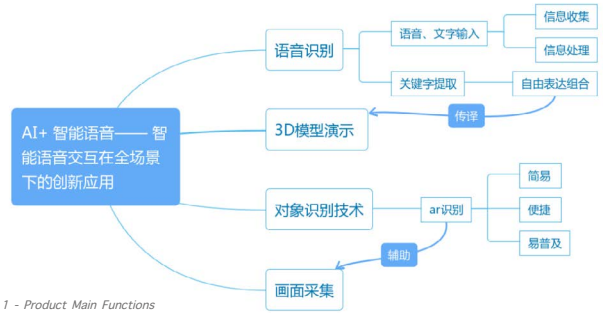
Bronze Prize in the 18th "Taozhan Cup" ICBC College Students' Extracurricular Academic and Technological Works Competition in Zhejiang Province

Final Excellence Award of Young Artists AR Creation Support Program of EZXR Advanced Tech . Xinyuan Station

Catalogue

01 Ear-AR

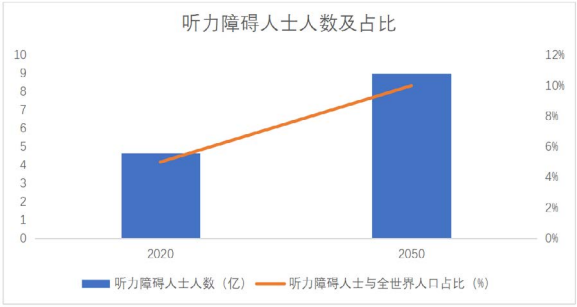
Assistance System for Hearing Impaired Groups Based on Intelligent Speech and 3D Model



1 - Product Main Functions

1 / PROJECT OVERVIEW

This product applies multi-medium technology such as picture recognition, voice extraction, text-action matching, etc. Through the convenience and easy recognition of AR technology and object recognition technology, it converts the information that is difficult to be recognised by the hearing-impaired people such as voice and text into sign language that is easy to be understood by the group, and it also comes with real-time communication in sign language, reversed conversion of sign language to text, etc., so that real-time communication between multi-lingual groups can be achieved while facilitating the hearing-impaired group. This will facilitate real-time communication between multilingual groups and make it easier for these groups to integrate into social life.



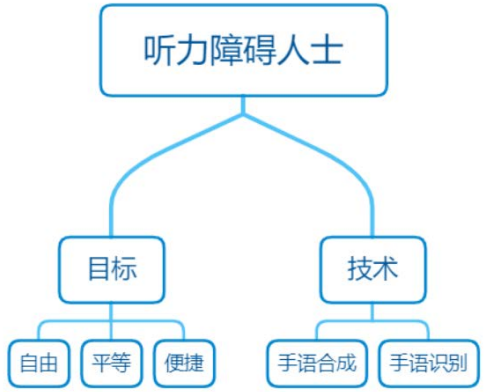
2 - Number and percentage of persons with hearing impairment

1.1 / PROJECT BACKGROUND

For the hearing impaired, the following goals are desired for information communication:
There are two technical aspects involved in achieving this goal:

#1 SIGN LANGUAGE RECOGNITION, using cutting-edge image sequence analysis technology to develop a set of sign language recognition algorithms, launched the "Sign Language Translator".AI Sign Language Translator uses an ordinary camera as a sign language acquisition device.

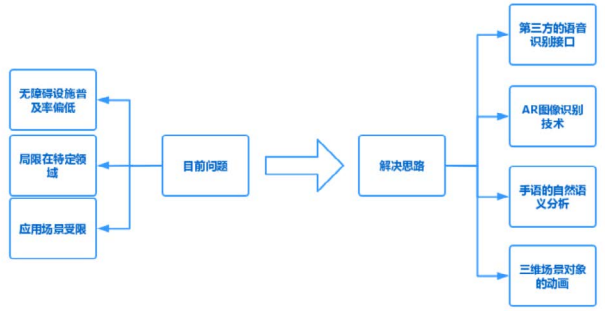
#2 SIGN LANGUAGE SYNTHESIS, relying on high-performance computers for background computing, is able to translate sign language expressions into text in real time. For the user, there is no need to carry any additional device, just face the camera to complete the normal sign language expression, you can get the recognition result back from the interpreter.



3 - Analysis of Information Communication Needs of People with Hearing Impairment

1.2 / OLUTION IDEAS

We will realise the overall solution idea through the following areas
(1)Sign language text resources through third-party speech recognition interfaces
(2)Information acquisition of natural objects through AR image recognition technology
(3)Text-to-sign language action mapping through sign language-based natural semantic analysis and disambiguation techniques
(4)On-demand loading and dynamic rendering of animations of 3D scene objects for smooth display of sign language

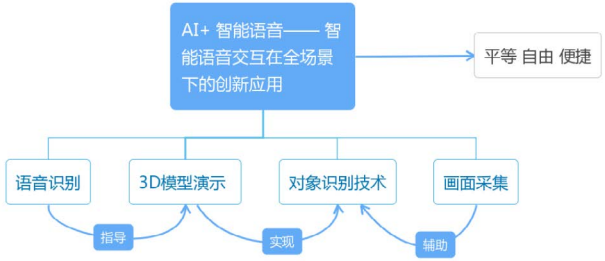


4 - Solution ideas

2 / DESIGN PROCESS

This system also pays more attention to realising the most fundamental need of the hearing impaired - communication. By means of sound capture, picture capture and motion capture, it re-establishes a bridge between the hearing impaired and the interpersonal society, and realises real-time communication based on extracted information and big data, so as to make the hearing impaired feel equal, free and convenient.

2.1 / TECHNICAL PROGRAMME DESIGN



5 - Project realisation programme

There are two key points that need to be realised in order to make Intelligent Voice Interaction (IVI) accessible to both hearing and non-hearing impaired people:

#1 CONVERSION OF SPEECH INFORMATION TO MODELLED SIGN LANGUAGE

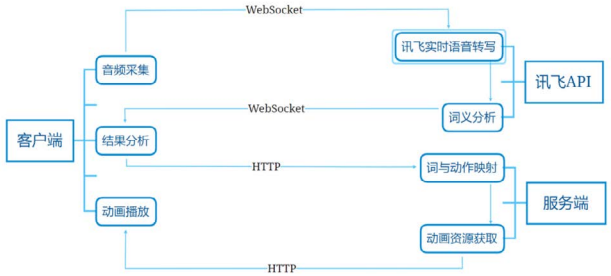
The non-hearing-impaired person expresses the stage to the hearing-impaired person, using the device's audio-capture capability and server arithmetic to convert the audio into text, which is then converted into sign language movements and displayed.

#2 HUMAN SIGN LANGUAGE TO SPEECH MESSAGE CONVERSION.

The stage of expression from the hearing-impaired person to the non-hearing-impaired person uses the device's image-capture capability, which is uploaded to a server for analysis and converted into a textual presentation.

2.2 / CONVERSION OF SPEECH INFORMATION TO MODEL SIGN LANGUAGE PROGRAMME

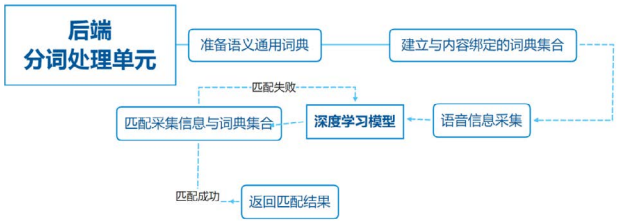
The conversion scheme used for our project has the following general flow.



6 - Flowchart of conversion of speech information to modelled sign language

2.2.1 / IMPLEMENTATION PROGRAMME

In order to get the ambient audio from the bottom, the recording device was read using Android Studio to capture it from the Android OS level of our AR device. After getting the raw audio data encoded accordingly and interoperating with Unity, you can give Unity the ability to capture ambient audio.



7 - AssetBundle file structure diagram

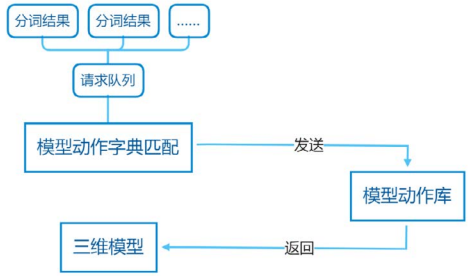
2.2.2 / TECHNICAL ANALYSIS AND OPTIMISATION OPTIONS

(I) OPTIMISATION SCHEMES FOR SPEECH-TO-ANIMATION CONVERSION EFFICIENCY

#1 PHONETIC SEGMENTATION

8 - Flowchart of Speech Segmentation

#2 MAPPING OF WORDS TO 3D MODEL ACTIONS



9 - Flowchart for mapping words to 3d model actions

#3 CONTEXTUAL ASSOCIATION METHODS TO OPTIMISE CONVERSION EFFICIENCY

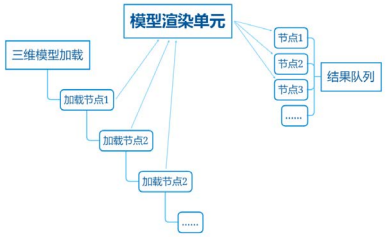
10 - Flowchart of the context association method for optimising conversion efficiency

(II) OPTIMISATION OF THE DATA REQUEST AND LOADING PROCESS - DYNAMIC ON-DEMAND LOADING

#1 MODEL-ANIMATION DATA SEPARATION REQUEST METHOD

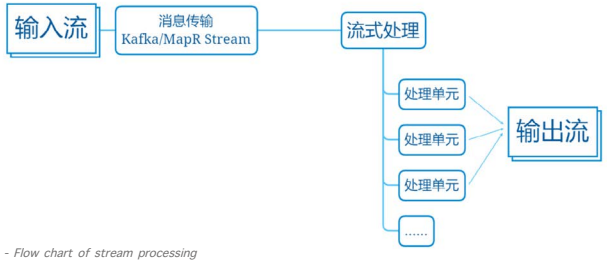
11 - Model-animation data separation request method

#2 LOAD-ON-DEMAND MECHANISM



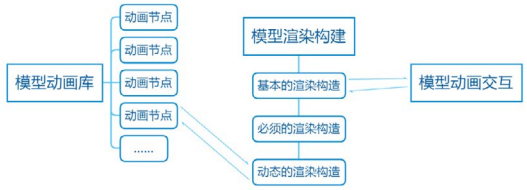
12 - Asynchronous request-response mechanism

#3 FLOW PROCESSING METHODS



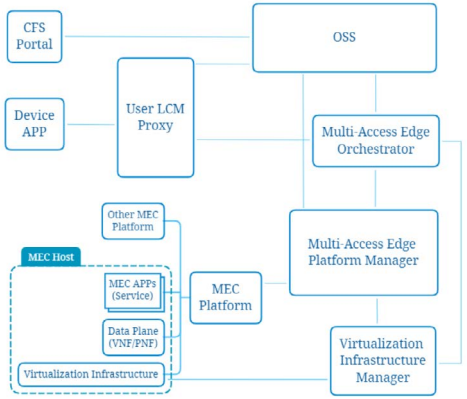
13 - Flow chart of stream processing

(III) LATENCY OPTIMISATION SCHEME FOR MODEL LOADING AND RENDERING PROCESS - MULTI-GRANULARITY CACHE REUSE



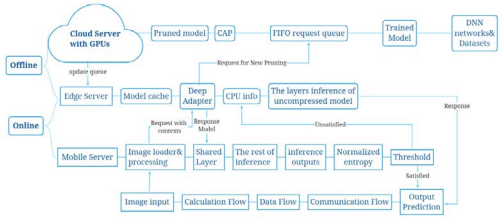
14 - Multi-Granularity Cache Multiplexing architecture diagram

(IV) OPTIMISATION OF COMPUTING RESOURCES FOR MOBILE DEVICES - MOBILE EDGE-BASED COMPUTING OFFLOADING



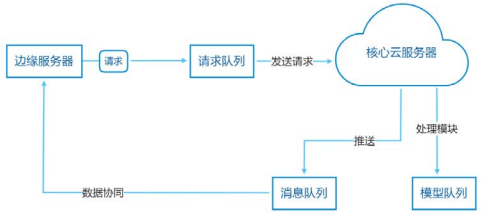
15 - Mobile Edge Computing (MEC) architecture diagram

2.3 / CONVERSION OF HUMAN SIGN LANGUAGE TO SPEECH MESSAGES PROGRAMME



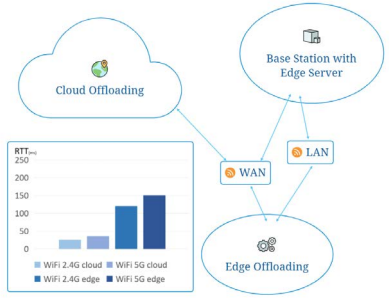
16 - DeepAdapter framework diagram

2.3.1 / CURRENT VIABLE OPTIONS



17 - Collaboration between edge servers and cloud servers

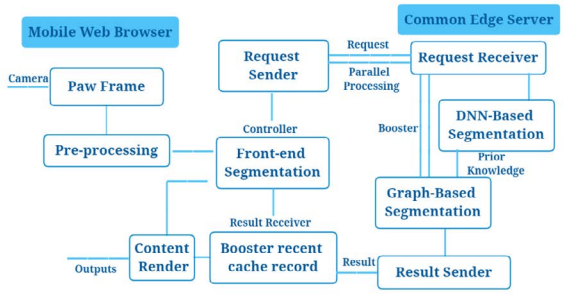
2.3.2 / CHALLENGES FACED DURING MODEL PROCESSING AND SOLUTIONS



18 - Cloud server-based edge offloading

2.3.3 / CHALLENGES FACED DURING ACTUAL COMMISSIONING AND SOLUTIONS

(I) SOLUTIONS



19 - EdgeBooster Segmentation Structure

3 / SPECIFIC TECHNICAL REALISATIONS

The whole project is based on the development of AR glasses for Android platform. In order to balance the accessibility of the underlying hardware and the expressiveness of the 3D model and its animation, we choose Android Studio and Unity3D as the development tools.

3.1 / OVERALL FUNCTIONAL DESCRIPTION

Our products mainly use 3D models and their movement information as the carrier of sign language confidence, to achieve the recognition of objects, voice information recognition, and the transformation of human movement recognition to model movement information, and further realise the two-way interaction between the hearing impaired group and the external information.

#1 OBJECT IDENTIFICATION

20 - Functional diagram of item identification

When the user scans the item through the item capture box of the ar device, the corresponding information of the item will appear, and at the same time, our 3D model character will make the introduction of the item in sign language, so that the user can quickly and conveniently understand the information of the specified item.

#2 SPEECH RECOGNITION

21 - Speech Message Recognition Functional Diagram

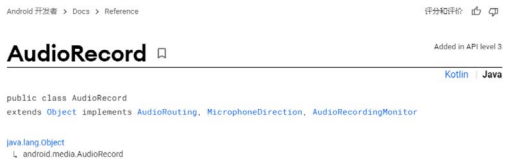
When a hearing impaired user communicates with a hearing person, if the hearing person doesn't understand sign language, it will limit the transmission of information to a great extent. Therefore, after receiving the voice information, our ar device will, through the already trained model, perform the segmentation of utterance, semantic parsing and other operations on the string of voice information, split it into individual words and display it to the hearing impaired user with the aid of the 3D model character.

#3 HUMAN MOVEMENT RECOGNITION

22 - Human Movement Recognition Function Diagram

3.2 / CONVERSION OF SPEECH INFORMATION TO MODELLED SIGN LANGUAGE

3.2.1 / ANDROID DEVICE HARDWARE LAYER AUDIO CAPTURE



23 - AudioRecod Voice Capture

3.2.2 / WEBSOCKET COMMUNICATION CLIENT CONSTRUCTION

24 - WebSocket Class

3.2.3 / XUNFEI REAL-TIME SPEECH TRANSCRIPTION

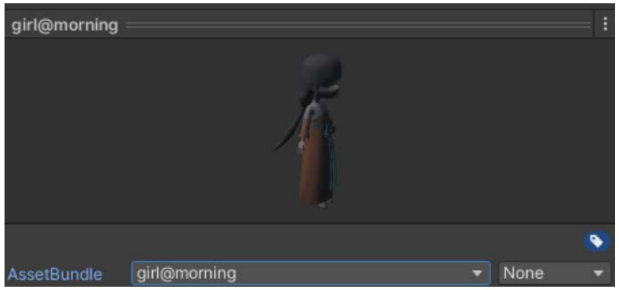
The transcribed content can be obtained by sending a specific format of audio stream to Xunfei's real-time speech transcription API from a WebSocket client. To ensure the accuracy of the recognition results, we only take the final results of real-time transcription for analysis and action matching to ensure the reliability of sign language actions.

3.2.4 / WORD AND ACTION MATCHING

The most critical technical difficulties of word and action matching lie in the storage of data and the calculation of mapping relations. In the choice of server, we adopt linux system server as the data storage and calculation terminal.

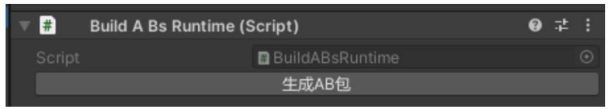
3.2.5 / SERIALISATION AND DESERIALISATION OF ANIMATED DATA

Unity3D provides AssetBundle serialisation solution to serialise any Unity resource file.



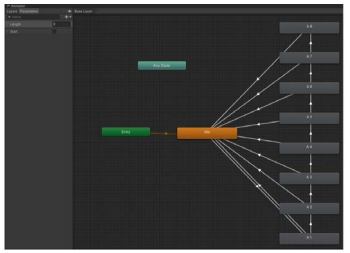
25 - Serialisation resource file naming

Also inheriting the Editor class in the script allows you to edit the unity editor to a certain extent.OnInspectorGUI allows you to write UI to the Inspector window, where we draw a button and bind events.

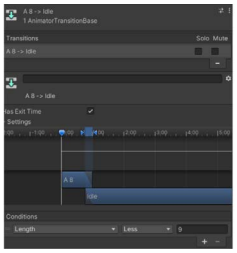


26 - Serialised File Upload Server

3.2.6 / CONSTRUCTION OF DYNAMIC ANIMATION STATE MACHINES



27 - Construction of dynamic animation state machine



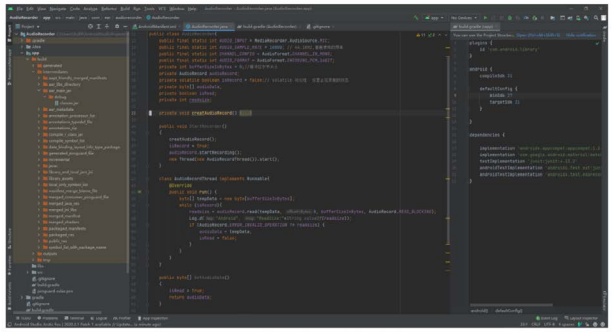
28 - Animated Clip Link

Connect the first animation clip that needs to be played, and have each clip linked to the standby animation.

3.2.7 / DYNAMIC ON-DEMAND LOADING

The states of the animated state machine are of finite length, and to play states of arbitrary length, we need to use the AnimatorOverrideController to dynamically change the states of the state machine and their playback animations.

3.2.8 / PRESENTATION OF PROJECT DOCUMENTS



29 - Project file display

3.3 / CONVERSION OF HUMAN SIGN LANGUAGE TO SPEECH INFORMATION

Human sign language needs to be converted into computer-computable data through steps such as lens capture and offset calculation.

3.3.1 / PREPARATION OF SIGN LANGUAGE RECOGNITION MODEL FOR TRAINING

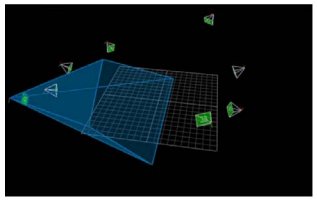
#1 EQUIPMENT USED TO TRAIN THE MODEL

Vicon is an optical motion capture motion capture system from OML in the UK. It is the world's first optical system designed for motion capture and rewrites what motion capture systems have traditionally covered.

#2 SOFTWARE USED TO TRAIN THE MODEL

The two main software packages used to acquire, process and present test data using the Vicon Optical Motion Capture System are Vicon Nexus and Vicon Polygon.

#3 MOTION CAPTURE



30 - Motion Capture Screen

Create a new database

Create a new model for testing

When the marking points were attached, the subject was allowed to stand with both arms slightly open in the test area, and the static standard pose was captured with the Vicon camera as the static skeleton data of the model

Capture a series of human body movements, and after the capture is complete, remove possible interference points frame by frame, and then save it as a model movement file

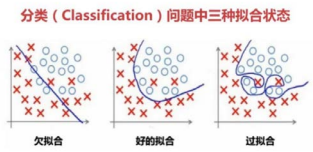
Because changes in the limb can lead to coordinate shifts, the information about the coordinates of the human body's light points captured by the calibration sensors is saved as an ordered sequence and finally stored in a database

3.3.2 / TRAINING PROCESS OF SIGN LANGUAGE RECOGNITION MODEL

The training of the sign language recognition model is divided into four steps: matching training of individual word actions, separation training between multiple word actions, sentence-to-sentence separation training, and further processing of the training results:

(I) MATCHING TRAINING FOR SINGLE WORD ACTIONS

#1 PREVENTING OVERFITTING AND UNDERFITTING



31 - Three states of the fit

#2 TRAINING PROCESS

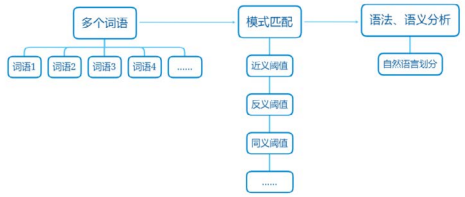
1.Checking Data
2.Evaluate the Framework and Get an Imperfect Baseline
3.Overfitting
4.Regularization
5.Parameter Fine-tuning
6.Further Increase in Accuracy

(II) SEPARATION TRAINING BETWEEN MULTIPLE WORD ACTIONS

#1 PATTERN MATCHING TECHNIQUES

#2 SEMANTIC GRAMMAR

Continuous action recognition accuracy.



32 - Multi-word Separation Training

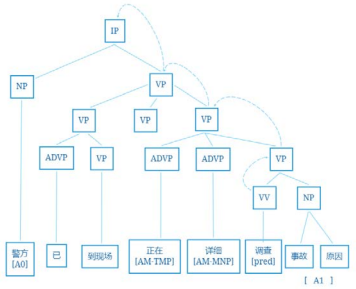
(III) SENTENCE SEPARATION TRAINING

#1 SYSTEM GRAMMAR

#2 SYNTACTIC ANALYSIS

33 - Syntactic analysis

#3 SEMANTIC ANALYSIS



34 - Semantic analysis

3.4 / SCENE RECOGNITION IN VUFORIA

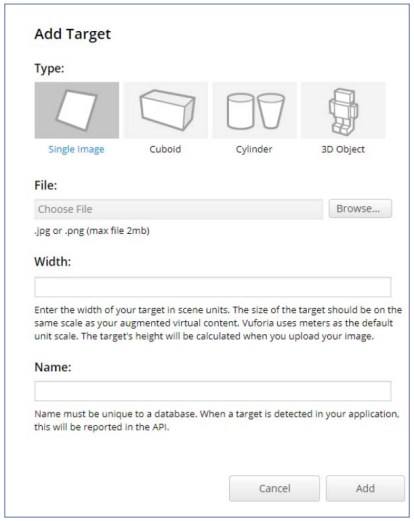
3.4.1 / SETTING UP THE DEVELOPMENT ENVIRONMENT

As of Unity version 2017.2, Unity has included the vuforia collection, so all we need to do is open the unity project and install it via the Package Manager.

35 - Development environment setup

3.4.2 / OBTAINING RECOGNISED MODELS

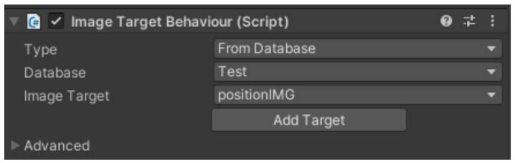
The objects to be recognised, such as images and models, are uploaded to Vuforia's servers, where they are analysed and scored to determine whether the material is usable and to generate a recognition model for the user to download.



36 - Models for obtaining identification

3.4.3 / UNITY RECOGNITION PROCESS

Vuforia, as a plug-in for Unity, provides recognition methods and event response methods. Generate an object in Unity and add the corresponding Target Behaviour component, import the downloaded recognition model into it, and you can complete the basic construction.



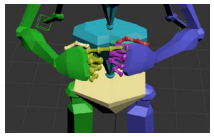
37 - Unity Recognition Process

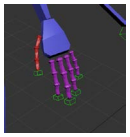
3.5 / 3D CHARACTER MODEL DESIGN AND ENGINEERING FILE PRESENTATION

We use 3ds Max to make the model, after the completion of the production of the binding of 3ds Max comes with Biped skeleton, model animation using the way to add keyframes, with reference to the teaching video of sign language to create word animation, composed of the model action library, the following is the model as well as the skeleton of the diagram to show:

38 - Full body view of the 3D model

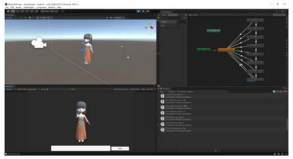
39 - 3D model half





40 - Skeleton view of the character model

41 - Project back-end engineering files



42 - Demonstration of backend model actions

4 / SELF-ASSUMPTION PORTION

THIRD AUTHOR

hair (after)

body (after)

clothes (after)

RESPONSIBLE SECTION:

MAJOR:

#1 Complete the design and production of character models according to the requirements of the team.

#2 Produce sign language movement in the form of K-frame animation to improve the content of sign language movement library.

OTHER:

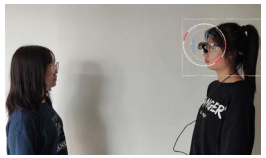
Participation in the production of the final defence PowerPoint and presentation video.

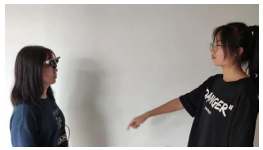
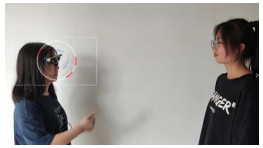
5 / ACHIEVEMENTS DISPLAY







Scan QR code

02 "I Know the Asian Games"

WeChat Mini Program

1 / PROJECT OVERVIEW

This WeChat Mini Program is based on the theme of the "Hangzhou Asian Games" and aims to promote the Asian Games. Its purpose is to integrate various aspects of the Asian Games, such as dynamic updates, Asian Games characteristics, and events, and provide users with information about the Hangzhou Asian Games. It also allows users to publish personal updates and like content, providing an interactive platform for all users interested in the Asian Games.

19th Asian Games
Hangzhou 2022

MAIN FUNCTIONS:

1)Real-time updates on various Asian Games dynamics
2)Asian Games volunteer registration
3)Introduction to Asian Games star athletes, history, Asian Games culture, etc.
4)Introduction to Asian Games venues and events, allowing users to mark the events they want to watch
5)Publish updates and like other users' updates
6)User personal interface and personal information display

2 / FRONT-END IMPLEMENTATION

2.1 / DESIGN OF ASIAN GAMES DYNAMIC MODULE

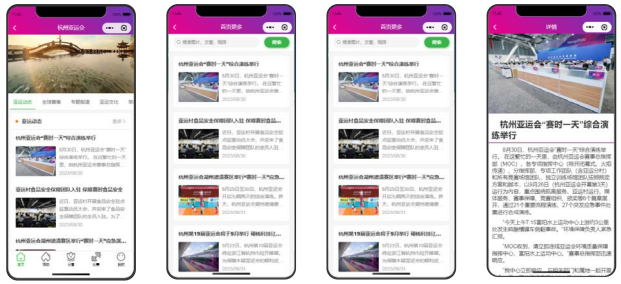
2.1.1 / FUNCTION DESCRIPTION

This module mainly displays various dynamic updates before and after the Asian Games, and divides dynamic messages into 5 parts, namely "Asian Games Dynamics", "Global Events", "Special Reports", "Asian Games Culture", and "Host City".
This module uses navigation bars, linear layouts, and card layouts. Clicking on different keywords in the navigation bar can quickly reach the specified part of the scrolling view. Clicking on a specific card can jump to the information detail page. Clicking on "more" can jump to the corresponding information collection page of each part.
In the collection page, users can enter keywords in the search box at the top and click the search button to get information cards that cover the keywords. In the collection page, clicking on a specific card can jump to the information detail page to view the specific information content.

2.1.2 / DATA COLLECTION

字段名称	数据类型	说明	备注
_id	string	每个记录独有的标识	每个_id 都具有唯一性
id	number	为集合内第几个数据	
title	string	新闻标题	
time	string	发布时间	
url	string	新闻配图	
info	string	新闻简介	
content	array	新闻内容	

2.1.3 / INTERFACE DISPLAY



2.2 / DESIGN OF ASIAN GAMES VOLUNTEER REGISTRATION MODULE

2.2.1 / FUNCTION DESCRIPTION

This module is used for Asian Games volunteer registration, including event volunteers and city volunteers. After the user fills out the registration form, the data of the registration form will be transmitted to the corresponding collection in the database.
This module uses forms and carousel pictures. Users can enter their name, ID number, mobile phone number, and specific address. They can also choose their gender, ID type, location, and volunteer type. Users who are not authorized to log in cannot register. The registration form must be filled out completely, otherwise it will be an invalid registration form, and the information will not be transmitted to the database collection.
Users can see their submitted registration form in their personal interface.

2.2.2 / DATA COLLECTION

字段名称	数据类型	说明	备注
_id	string	每个记录独有的标识	每个_id 都具有唯一性
_openid	string	用户身份标识	每个 openid 都具有唯一性
name	string	联系人姓名	
sex	string	性别	
id	string	证件类型	
idnum	string	证件号码	
phone	string	手机号	
region	array	现居住地	
add	string	详细地址	
volunteer	string	志愿者类型	具体的志愿者类型
style	string	志愿者分类	区分“赛会志愿者”和“城市志愿者”

2.2.3 / INTERFACE DISPLAY

2.3 / DESIGN OF ASIAN GAMES CHARACTERISTIC CONTENT MODULE

2.3.1 / FUNCTION DESCRIPTION

This module mainly displays Asian Games characteristic content, including "Asian Games Stars", "Previous Asian Games", "Volunteer-related News and Dynamic", and "Q&A".

This module uses step bars, card layouts, time axes, etc. In the "Asian Games Stars" and "Previous Asian Games" pages, clicking on the "up" and "down" buttons can quickly lock to the information card of a certain athlete or Asian Games. At the same time, the keywords on the step bar light up accordingly.

In the "News and Dynamic" and "Q&A" pages, users can enter keywords in the search box at the top and click the search button to retrieve information cards that cover the keywords. Clicking on a specific card can jump to the information detail page to view the specific information content.

2.3.2 / DATA COLLECTION

字段名称	数据类型	说明	备注
_id	string	每个记录独有的标识	每个_id 都具有唯一性
hash	string	数据标识	用于滚动视图区域的卡片位置锁定
name	string	亚运会名称	
time	string	时间	
url	string	相关图片	
info	string	相关内容	

Table 2-3 Data Collection: history

字段名称	数据类型	说明	备注
_id	string	每个记录独有的标识	每个_id 都具有唯一性
hash	string	数据标识	用于滚动视图区域的卡片位置锁定
name	string	亚运会名称	
url	string	相关图片	
person	array	个人经历	
highlight	array	高光时刻	

Table 2-4 Data Collection: star

字段名称	数据类型	说明	备注
_id	string	每个记录独有的标识	每个_id 都具有唯一性
id	number	为集合内第几个数据	
title	string	问题	
answer	array	回答	

Table 2-5 Data Collection: answer

字段名称	数据类型	说明	备注
_id	string	每个记录独有的标识	每个_id 都具有唯一性
id	number	为集合内第几个数据	
title	string	新闻标题	
time	string	发布时间	
url	string	新闻配图	
info	string	新闻简介	
content	array	新闻内容	

Table 2-6 Data Collection: news

2.3.3 / INTERFACE DISPLAY

2.4 / DESIGN OF VENUE AND EVENT MARKING FUNCTION MODULE

2.4.1 / FUNCTION DESCRIPTION

This module mainly displays Asian Games venues and events. In the event project, users can mark the events they want to watch and can also directly obtain the specific arrangement of the event.

This module uses grid layouts and card layouts. Users need to authorize login before they can use the marking function. After logging in, users can see the events they have marked.

2.4.2 / DATA COLLECTION

字段名称	数据类型	说明	备注
_id	string	每个记录独有的标识	每个_id 都具有唯一性
id	number	为集合内第几个数据	
title	string	场馆名称	
time	string	发布时间	
url	string	场馆配图	
info	string	场馆简介	
content	array	场馆内容	

Table 2-7 Data Collection: gym

字段名称	数据类型	说明	备注
_id	string	每个记录独有的标识	每个_id 都具有唯一性
title	string	项目名称	
kind	string	项目类型	
url	string	项目配图	
urlcon	string	赛程安排	
content	array	项目内容	
see	boolean	是否想看	用于标记

Table 2-8 Data Collection: game

2.4.3 INTERFACE DISPLAY

2.5 / DESIGN OF PUBLISHING AND LIKING FUNCTION MODULE

2.5.1 / FUNCTION DESCRIPTION

This module allows users to publish Asian Games-related updates in their friends circle, and the published content will be directly displayed in the publishing hall interface. Users can like the updates they like, and each update can be accompanied by a picture.

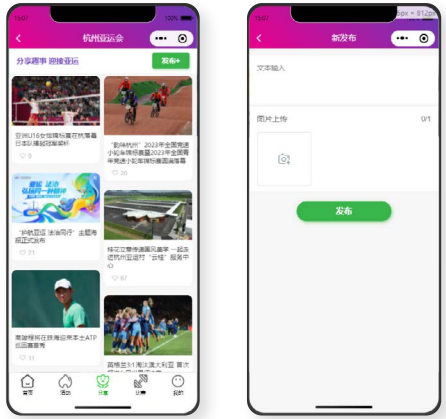
This module uses a waterfall flow layout, forms, etc. Users need to authorize login before they can use the liking and publishing functions. After logging in, users can see their own publications and the number of likes they have received.

2.5.2 / DATA COLLECTION

字段名称	数据类型	说明	备注
_id	string	每个记录独有的标识	每个_id 都具有唯一性
_openid	string	用户身份标识	每个 openid 都具有唯一性
id	number	为集合内第几个数据	
title	string	发布内容	
url	string	发布配图	
love	boolean	是否喜欢	用于点赞
num	number	点赞数量	

Table 2-9 Data Collection: share

2.5.3 / INTERFACE DISPLAY



2.6 / DESIGN OF USER INTERFACE FUNCTION MODULE

2.6.1 / FUNCTION DESCRIPTION

This module displays the user's personal interface. Users can authorize login. Users who are not logged in cannot see personal information. After logging in, users can see their personal information, modify information, personal publications, and submitted registration forms.

This module uses forms, grid layouts, modal boxes, etc. When the user logs in, the system will check whether the user already exists in the database user collection. If not, it is a new user, and user data will be added for the new user. If it exists, no operation will be performed.

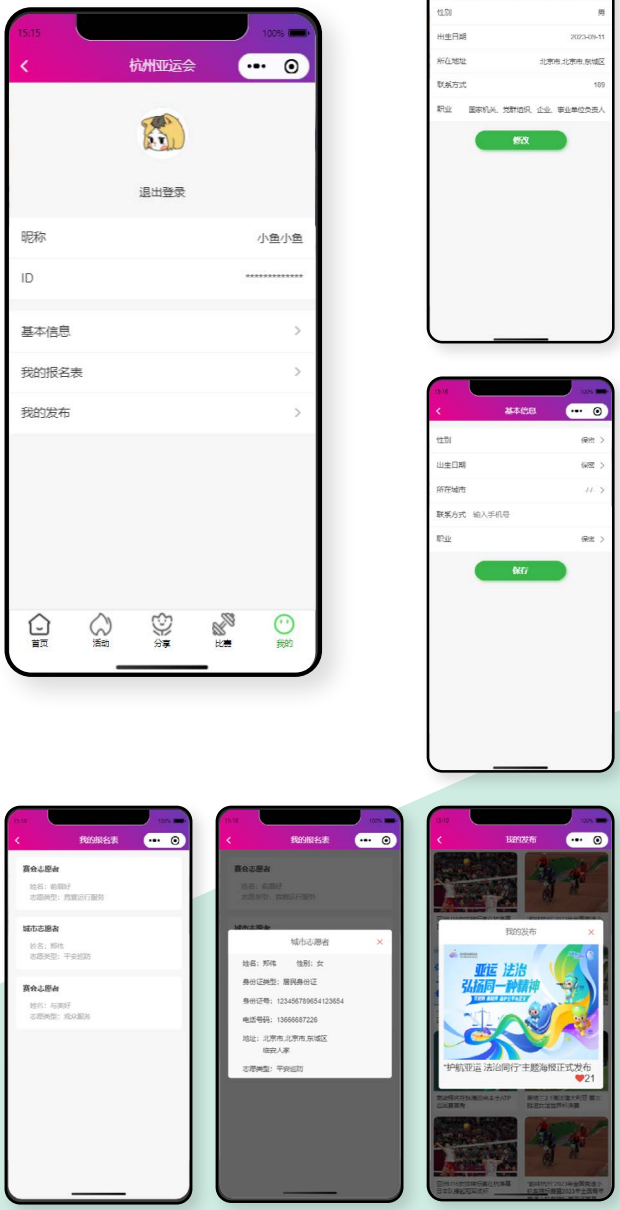
In the information modification interface, all contents of the form must be filled out. If it is not filled out completely, it cannot be modified.

2.6.2 / DATA COLLECTION

字段名称	数据类型	说明	备注
_id	string	每个记录独有的标识	每个_id 都具有唯一性
_openid	string	用户身份标识	每个 openid 都具有唯一性
sex	string	性别	
birth	string	出生日期	
city	array	所在城市	
phone	string	手机号码	用于点赞
vocation	string	我的职业	
want2see	array	我想看	
mylike	array	我喜欢	

Table 2-10 Data Collection: userinfo

2.6.3 / INTERFACE DISPLAY



3 / CLOUD SERVICE IMPLEMENTATION

3.1 / CLOUD DATABASE DESIGN

This project uses the cloud development database provided by the WeChat Mini Program developer tool, which includes 14 database collections and a cloud function getOpenid. The cloud function is mainly used for information display, new publishing, information modification, etc., and data processing involves adding, deleting, modifying, and querying.

The basicBox001~5 collections are responsible for storing Asian Games dynamic information, the volunteerReg collection is responsible for receiving and storing volunteer registration forms, the star, history, news, and answer collections are responsible for storing characteristic content information, the gym and game collections are responsible for storing venue and event information, the share collection is responsible for receiving and storing user publications, and the userinfo collection is responsible for receiving and storing user personal information (including favorite publications and events).

The cloud function getOpenid is responsible for obtaining the user's openid in WeChat.

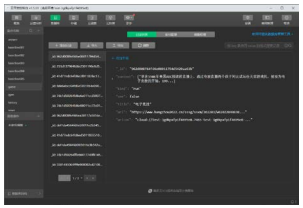
3.2 / CLOUD FUNCTION DESIGN AND IMPLEMENTATION

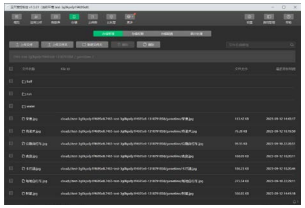
4 / MY CONTRIBUTION

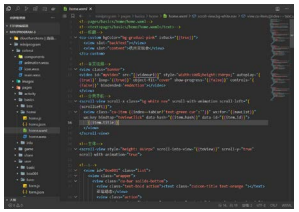
AS THE SOLE CONTRIBUTOR OF THE "I KNOW THE ASIAN GAMES" WECHAT MINI PROGRAM, MY RESPONSIBILITIES INCLUDED:

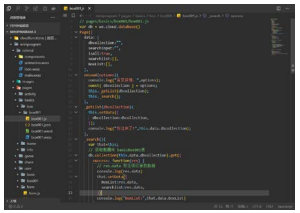
1.Completing the design and production of the entire WeChat Mini Program project, including the initial content design, interface design, material collection, code writing, and database connection and data addition.

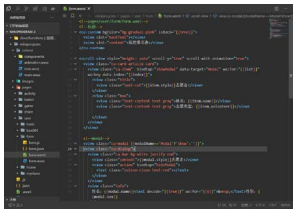
2.Ensuring the smooth operation of the WeChat Mini Program.

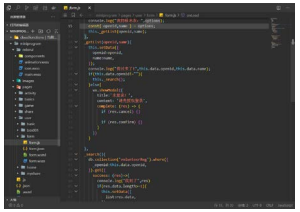


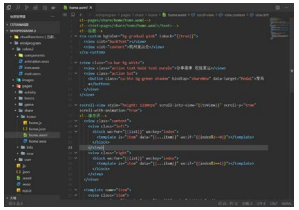


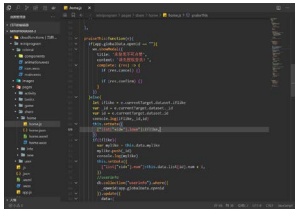


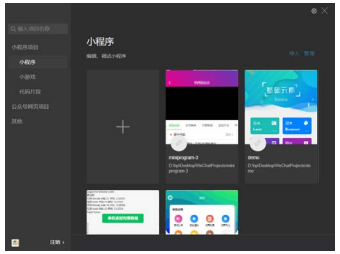


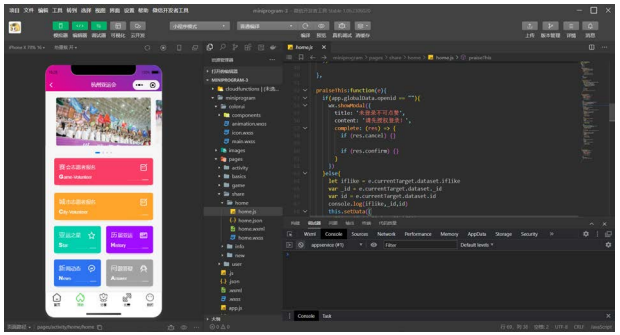






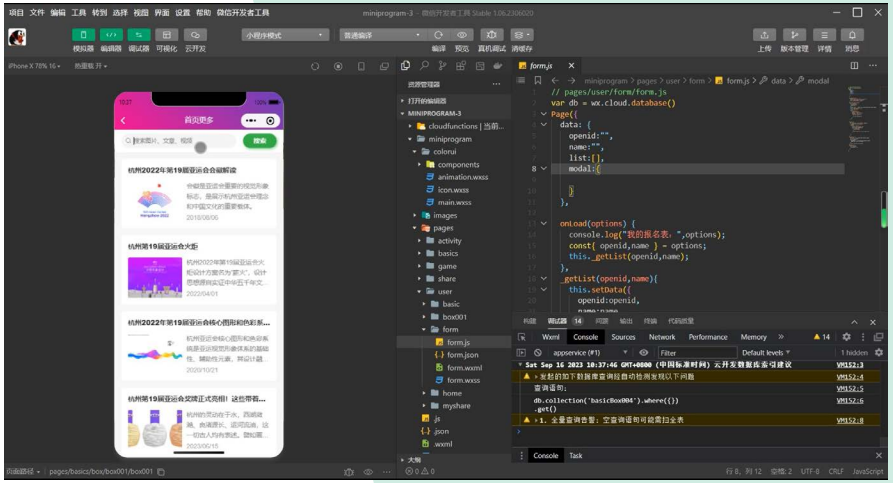


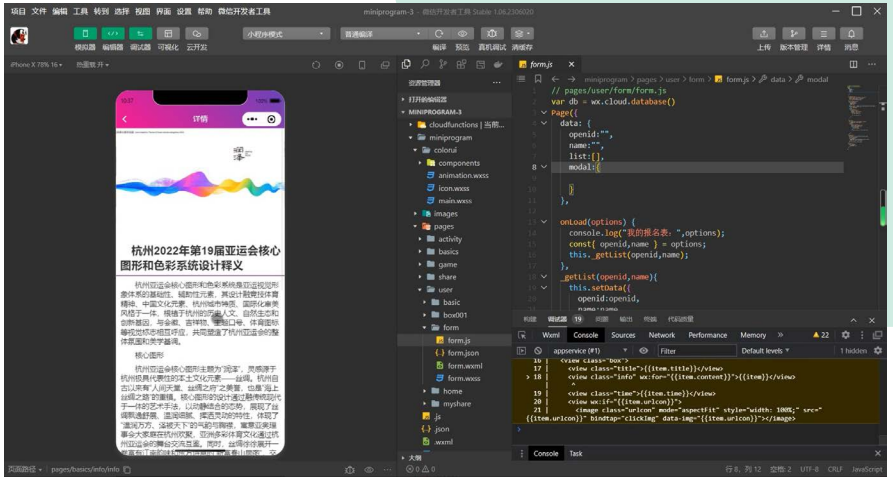


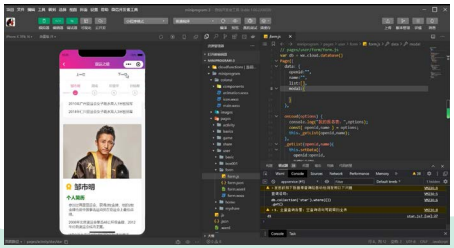


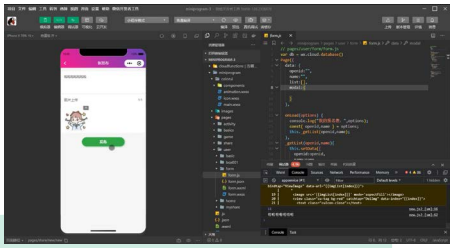
5 / ACHIEVEMENTS DISPLAY

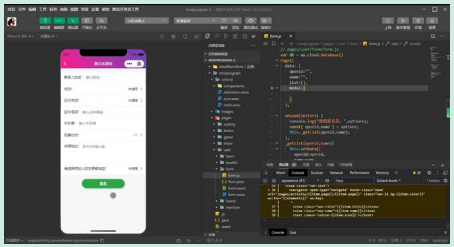
Scan QR code

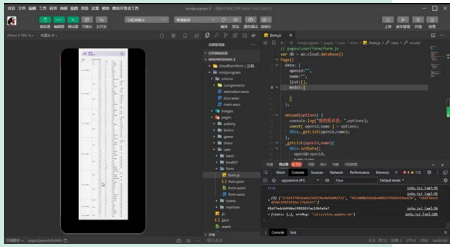


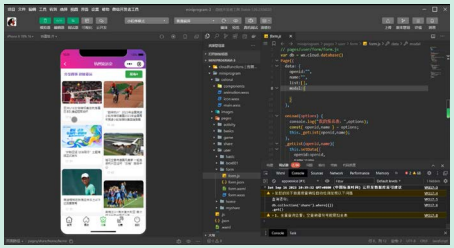


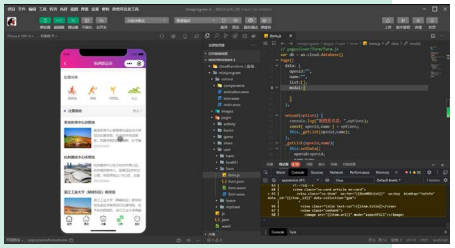


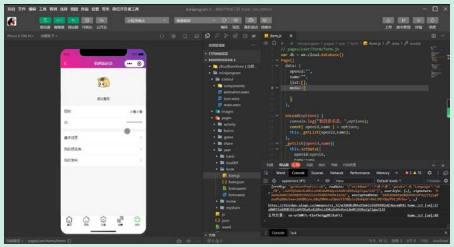


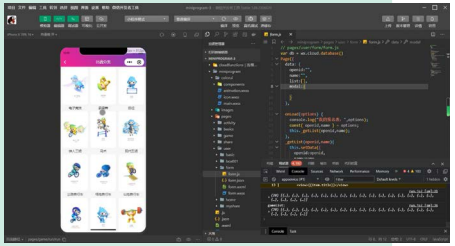


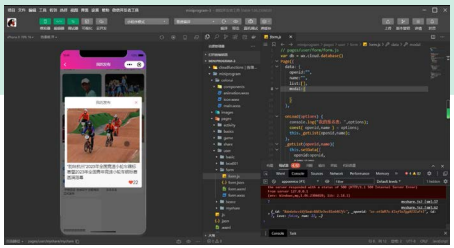


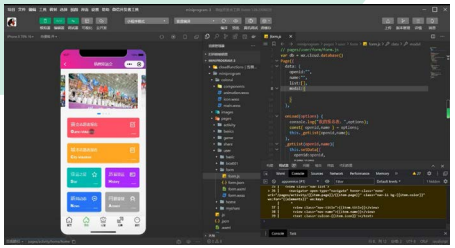












03

"No Scam in the World"

Game design

GAME FEATURES

EDUCATIONAL INNOVATION - Set aside boring knowledge quizzes and integrate knowledge into vivid stories, mark scams with clues, grasp the key and essence of scams, and express our firm zero-tolerance attitude towards scams through the story itself.

GAMEPLAY INNOVATION - On the basis of simulation experience and role-playing, reasoning is added, allowing players to gain anti-scam knowledge through their own intelligence and use replay to sort out the story and discover enlightenment.

SETTING INNOVATION - Technology is added, combined with the metaverse, and scams are fought intelligently in the intelligent campus, making it easy to understand and relevant to the present.

VALUE INNOVATION - Due to the development of the Internet, scamming has evolved into extremely difficult-to-handle and difficult-to-detect online scam cases, so we should use all our strength to curb the emergence and development of this crime.

1 / PROJECT OVERVIEW

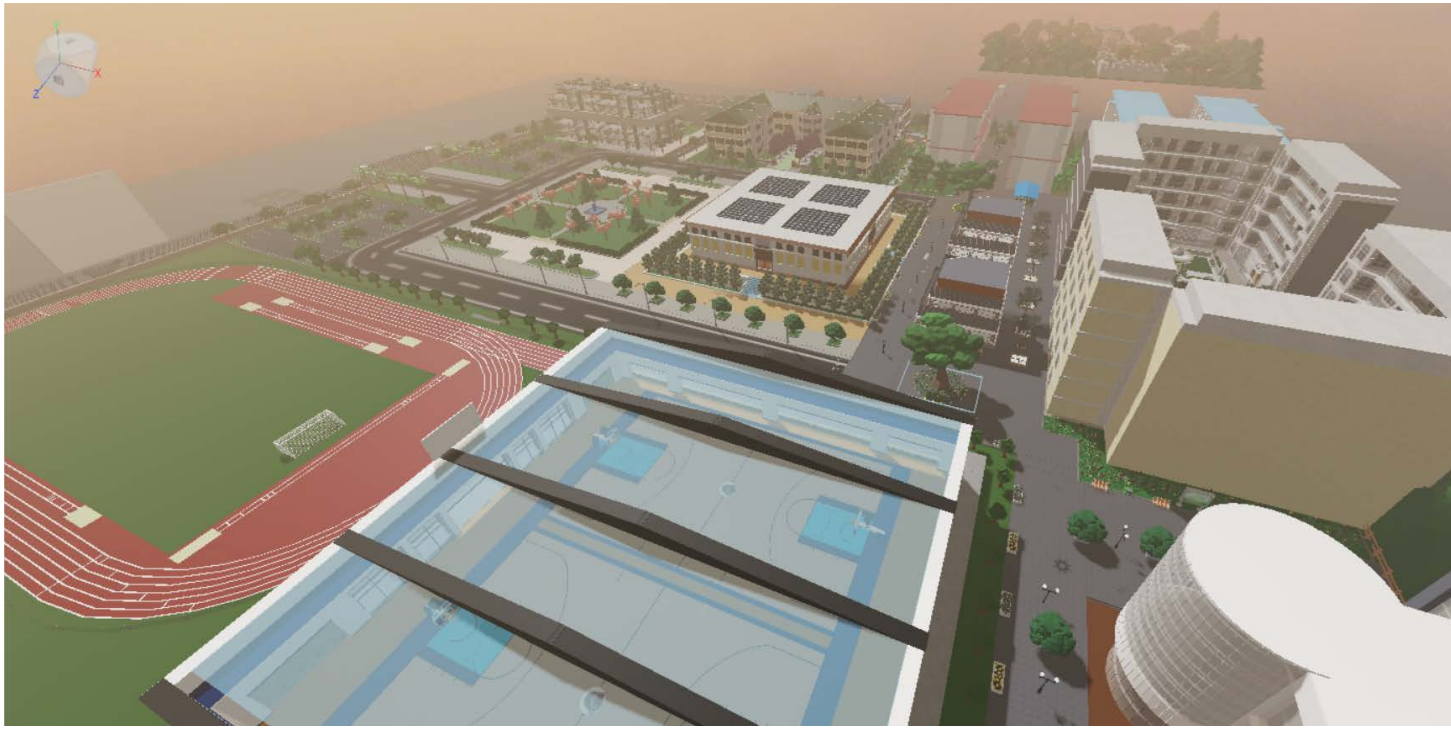
GAME THEME: ANTI-SCAM

GAME DESCRIPTION

This is an RPG casual education game that allows both single-player and multiplayer modes and is suitable for players of all ages. In the game, players will play the role of an anti-scam volunteer and, through finding clues, learn about scamming methods, help victims avoid scams, and gain anti-scam knowledge and experience through event replays, achieving educational goals.

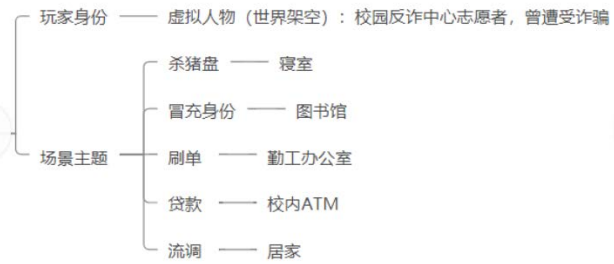
GAME BACKGROUND

In the Internet age, people can communicate with friends thousands of miles away without leaving their homes, and various convenient online services are all around us. However, society is simple, and people are complex. Behind the development of technology, various cunning scam traps are difficult to prevent.
Therefore, Robo Intelligent Campus has invested heavily in the development of anti-scam systems and anti-scam NONO, and established a campus anti-scam center to recruit volunteers to escort students' wallets.
Our protagonist is such a volunteer. She comes to the campus anti-scam center every day and, with the assistance of the system and NONO, timely destroys the conspiracies of scammers and drives scams out of the campus.
Today is also a day of fighting against scammers! Let's go!



2 / GAME DESIGN

1 - Game design diagram



2 - Background diagram of the story

刷单深渊

反诈预警系统 *弹框提示与案例任务*

重要重！系统检测到手机号码 133****9999 同学**黄莉**接到来电号码拥有的电话，通话时长达 79 分钟 35 秒！系统判定其疑似遭遇诈骗，请志愿者尽快核实情况。

任务 1：尝试给黄莉同学拨打电话

主人公：您好，您是黄莉同学吗？我是校园反诈中心的志愿者，系统判定与您通话 79 分钟 30 秒的号码存在诈骗风险，所以我来核实一下情况。

黄莉：我没有参与刷单！我没有被骗！你不要在这里胡说！

黄莉：你不要很我，我要出门了！

——电话被挂断

Nono：嘀嘀嘀！手机号码 133****9999 用户被骗可能性高达 95%！必须立刻阻止！请前往待定地，传送至信号中断点——**女生宿舍 603**！

任务 2：前往黄莉同学的宿舍

3 - Script 1

“杀猪”陷阱

Nono：滴滴滴！志愿者！茅盾得有警告你哦，请到茅盾指定领取特殊任务！

茅盾师：小张啊，前几天了解黄莉同学情况的时候，她提到她室友张秀的男朋友恋爱之后要次邀请张秀投资理财产品，但从没和他见过面，托警抓心张秀是不是遇到典型的“杀猪盘”诈骗行为，可能需要你去接触、观察一下。

主人公：好的，茅盾师。

茅盾师：“杀猪盘”诈骗手段情况多变、隐蔽性强。一定要谨慎，受害人对诈骗团伙大多有精神依赖，不要要进。

主人公：我会注意的，茅盾师。

任务 1：前往张秀同学的宿舍

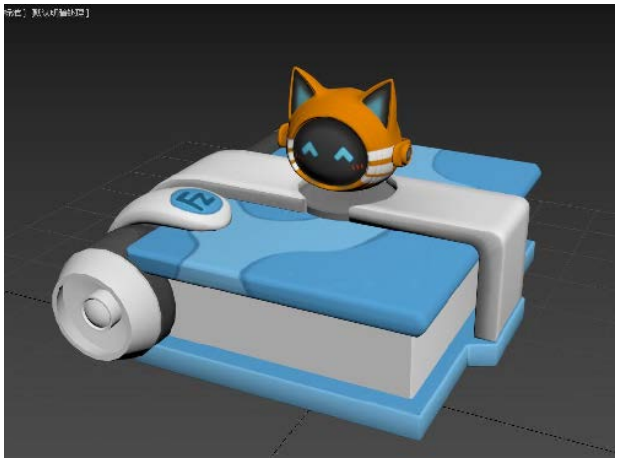
（黄莉已回到宿舍）

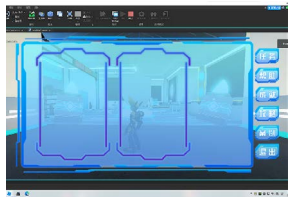
黄莉：你来了啊，来了解情况吗？有所茅盾师说让我要多关注一下张秀。

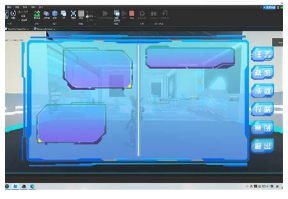
主人公：嗯嗯，张秀呢？自觉得张秀男朋友是个什么样的人？

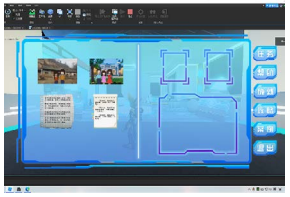
黄莉：张秀这个点也许是去食堂了吧，她男朋友好像是什么名牌金融大学的大学生，张秀在交友软件上认识的，对理财产品很有研究，有自己在投资理财，还邀请张秀一起。

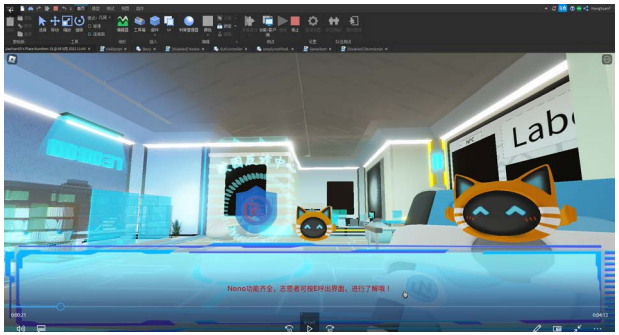
4 - Script 2

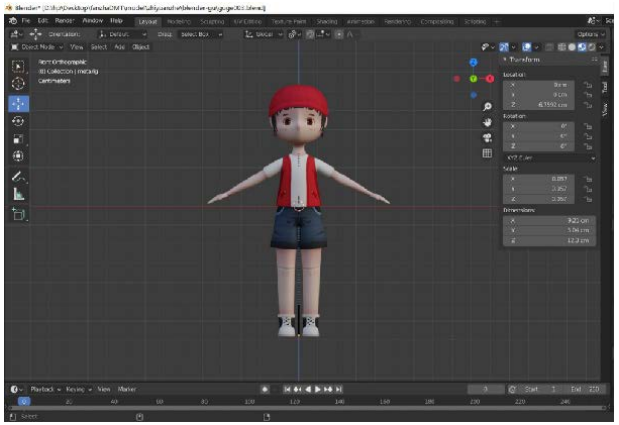


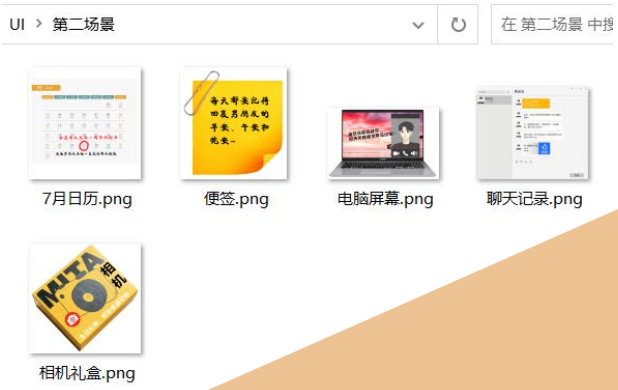




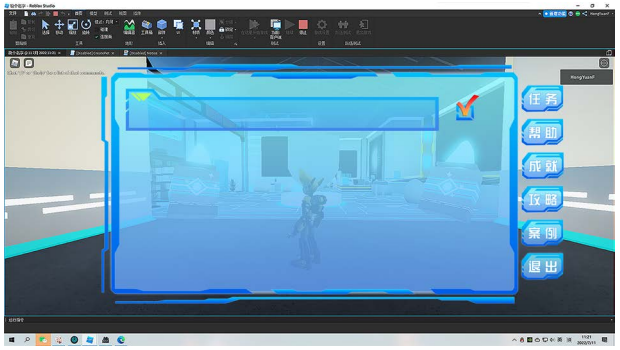


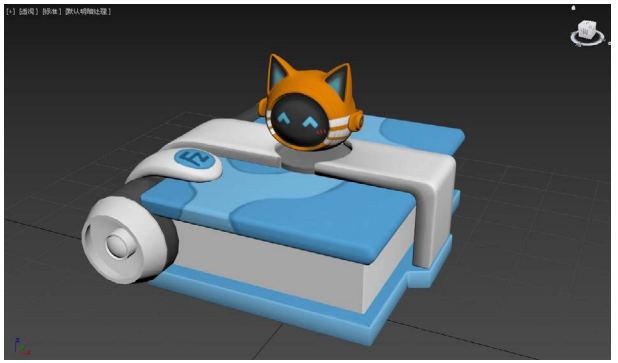


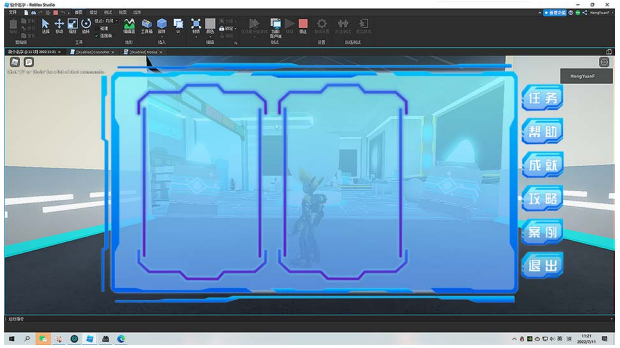


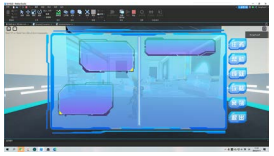


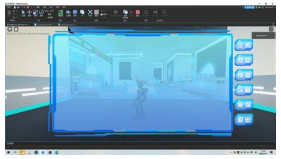
3 / SOFTWARE AND APPLICATION CODE











4 / PERSONAL RESPONSIBILITIES

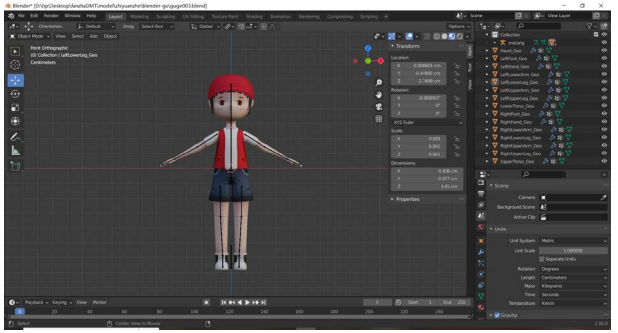
FOURTH AUTHOR

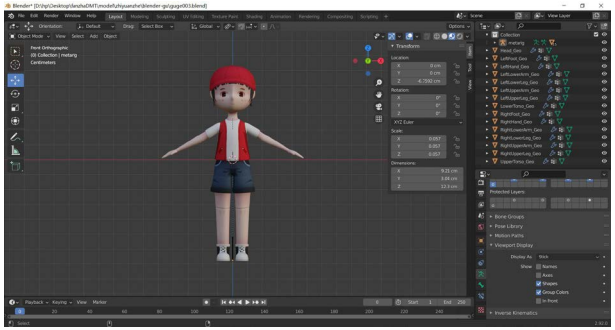
RESPONSIBILITIES:

#1 Responsible for all interface design and UI production of the competition project.

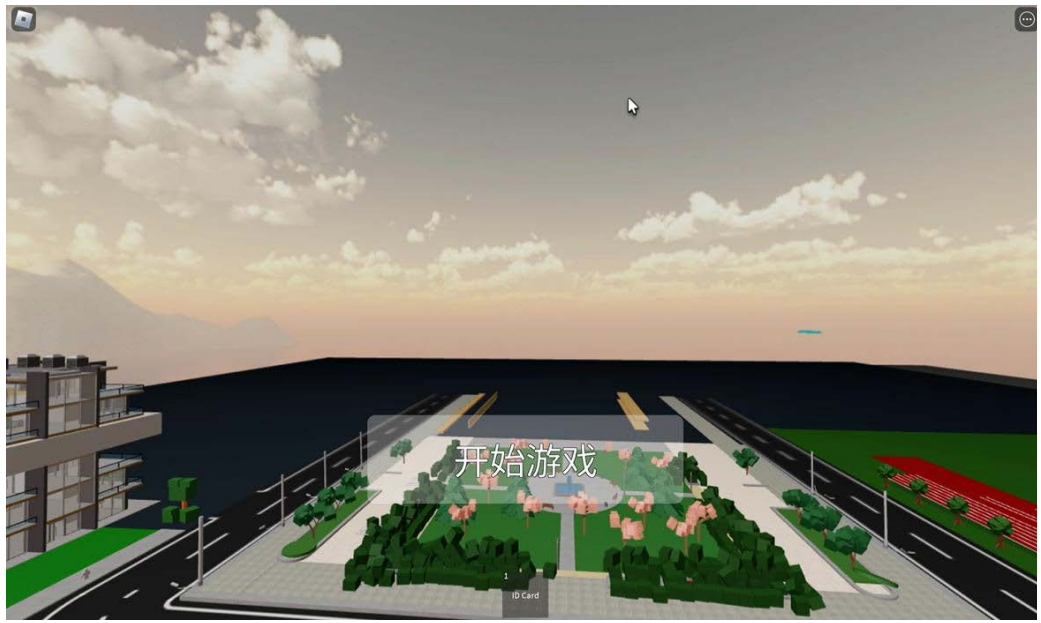
#2 Responsible for the production of the volunteer character model in the project.

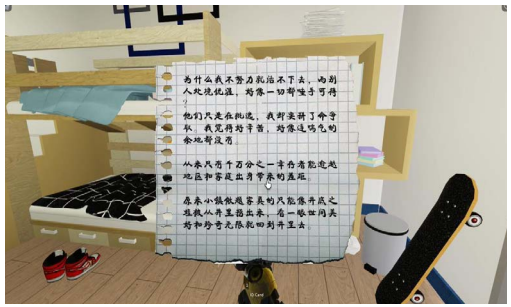
#3 Result Presentation.

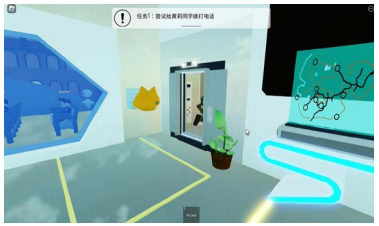




5 / ACHIEVEMENTS DISPLAY







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04 "Tomb Raider's Notes" AR Experience Game

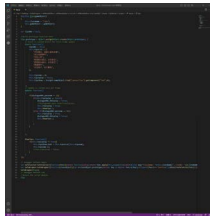
Collaboration with Film and Television IP

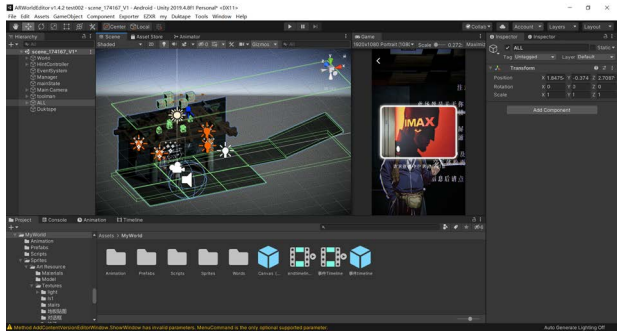
1 / PROJECT OVERVIEW

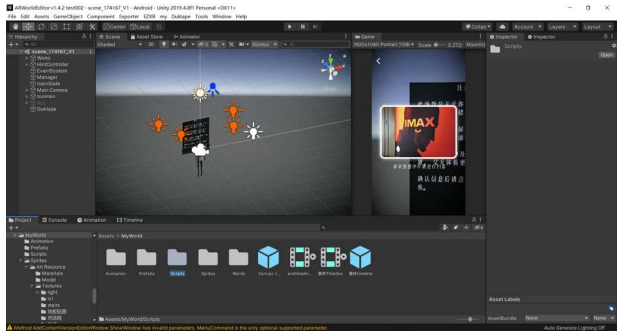
We collaborated with the film and television IP "Tomb Raiders," with each team selecting a scene to complete a story plot within the IP and presenting it in AR format. Our project, titled "The Human-Faced Turtle," takes place on the third floor of the Zhang Family Ancient Building and casts the player as the character "Wu Xie." It combines puzzle-solving and shooting game elements in an AR interactive experience, recreating the exciting plot of the original work while adding fun gameplay.

2 / DESIGN PROCESS

3 / SOFTWARE + APPLICATION CODE







4 / PERSONAL RESPONSIBILITIES:

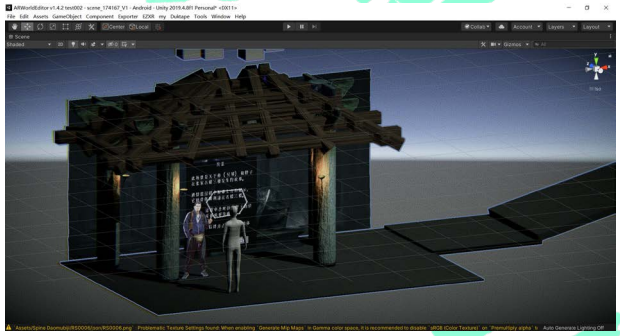
POSITION IN THE TEAM: TEAM LEADER

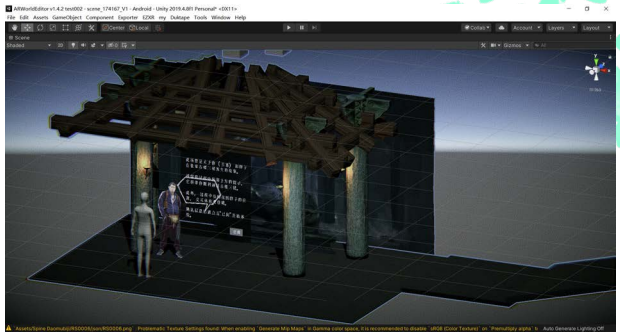
#1 Project Technical Part:
Responsible for writing the code for the main storyline, including cameraCapsule, dialogue, tips, and yinpin.

#2 Scene Building.

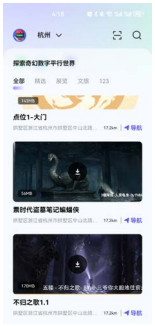
#3 Script Writing for the Main Storyline's Voiceover.

#4 Other tasks: Presenting the final on-site exhibition PPT, coordinating the team's work allocation, and communicating with the organizers.





5 / RESULT PRESENTATION



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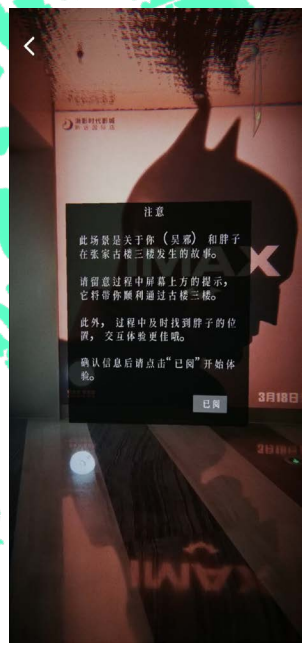
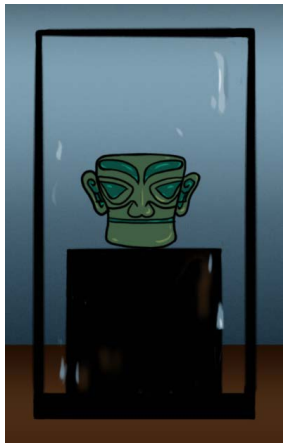


05 "Pick Up Words"

Game design



1 / GAME INTRODUCTION

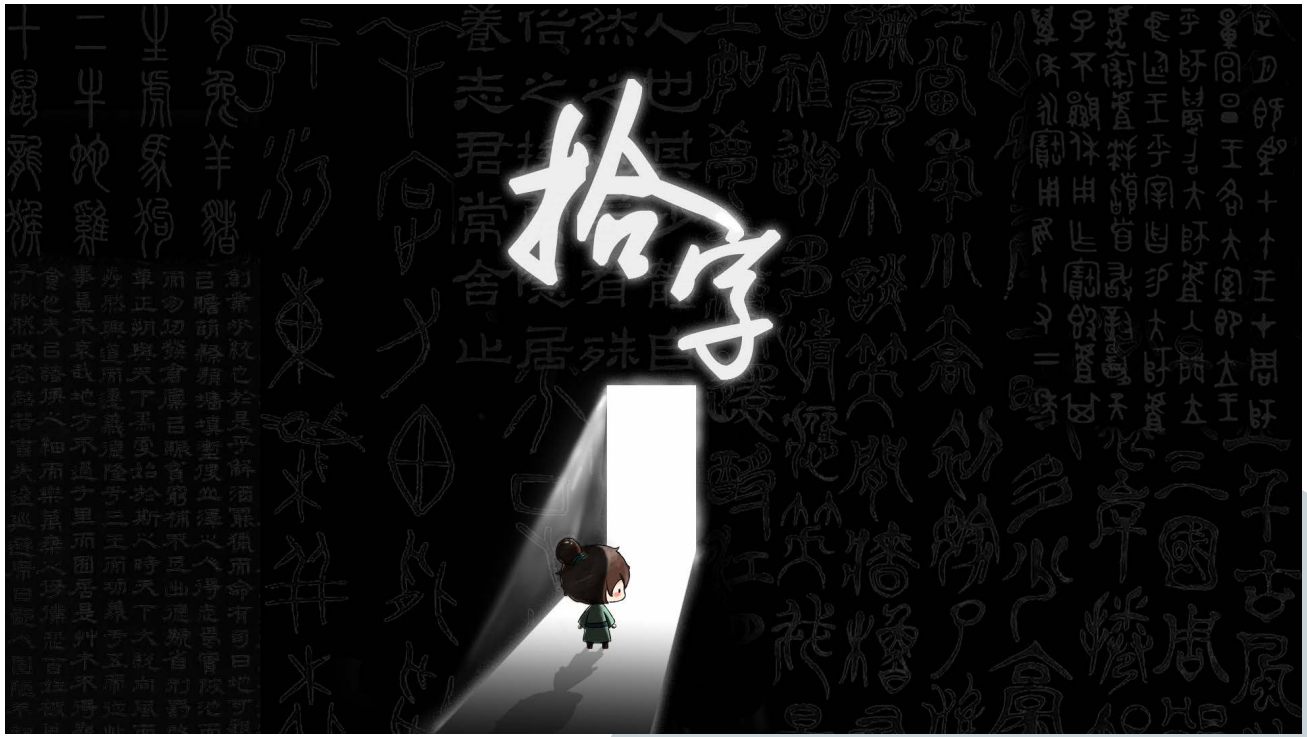
GAME CONCEPT

1.1 / INTRODUCTION

The theme of this game is "learning Chinese with Chinese characters and promoting Chinese language and culture." Players control a character dressed in ancient clothing and search for lost words in the game scene while finding ways to reach the next level. In different periods of the scene, experience the changes in the form of Chinese characters and feel the Chinese language and culture.

1.2 / BACKGROUND SETTING

The protagonist was originally a modern tourist visiting an ancient museum. During the visit, he was attracted by three special exhibits. The blurry carved text patterns on the exhibits brought the protagonist into the ancient world. In the ancient world, the protagonist is a literati dressed in ancient clothing. Only by collecting different styles of Chinese characters from different periods of ancient China, passing the test of each level, and lighting up the patterns of the three exhibits, can the protagonist return to the modern world.

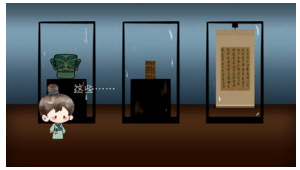


2 / GAMEPLAY AND MECHANISMS

2.1 / GAME TYPE

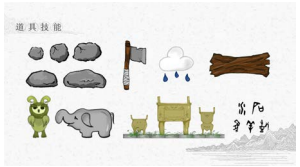
MAIN TYPE: PLATFORM JUMP/ ACTION ADVENTURE

SUB TYPE: PUZZLE/CARD

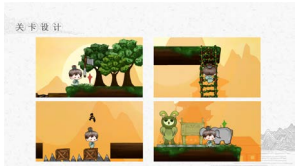


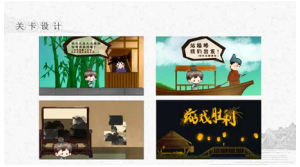
2.2 / CORE GAMEPLAY

2.3 / SKILL AND ITEM DESIGN

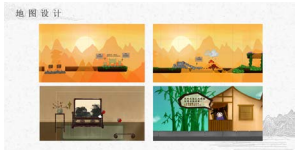


2.4 / LEVEL DESIGN





2.5 / MAP DESIGN



2.6 / ART

#1 CHARACTER DESIGN

#2 UI DESIGN

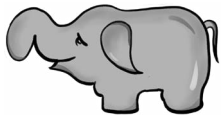
The main color tone is a simple beige (slightly yellowish white), which corresponds to the game's yellow-orange color. The warm color tone makes the background look comfortable without affecting the player's color perception, and has a certain uniqueness, making the picture look fresh and simple and easy to understand.

#3 SCENE DESIGN

Refers to

and

Refers to Shang Dynasty High Priest, female general, Queen Fu Hao's Fu hao Owl-shaped Brone Zun.



Refers to the jade elephant of Shang Dynasty.

From the Xiaohongshu notes of the Kailiang Jun Archaeological Research Institute, it is known that in Shang Dynasty, ancestor worship was a top priority. Bronze ware was used to hold sacrifices, so it gradually became an important sacrificial ritual. In the sacrificial ceremony, a large number of human sacrifices, horses, cattles, sheep and dogs were killed as sacrifices...

Sacrificial scene references:

We searched online for actual items such as tripods, ding vessels, and yan ritual containers as references based on the needs of sacrificial scenes.

Thus the sacrificial scene is obtained:

The props used the original oracle bone inscriptions, obtained from the Chinese Etymology source website founded by Uncle Hanzi. Chinese Etymology (hanziyuan.net)

Others are the land, wooden Bridges, rocks, green trees, rattan ladders and so on that fit that era.

2.7 / MUSIC AND SOUND EFFECTS

2.7.1 / BACKGROUND MUSIC

This game has chosen music that is grand and atmospheric in style, aiming to present the long history of Chinese characters from ancient times to the present and complementing the game theme.

2.7.2 / GAME SOUND EFFECTS

2.7.3 / JUMPING SOUND EFFECT

The jumping sound effect of the game character is sourced from "a jumping sound in the game".

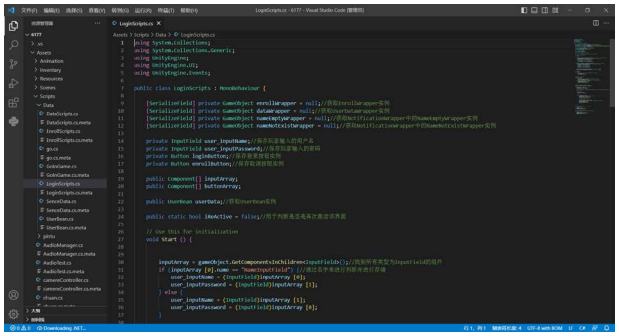
2.7.4 / TREE CUTTING SOUND EFFECT

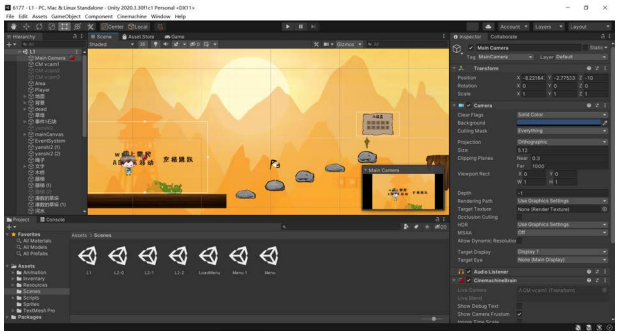
The sound effect of the character cutting trees in the game is sourced from [5700].

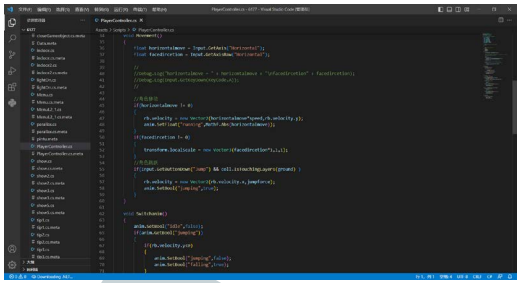
2.7.5 / BURNING SOUND EFFECT

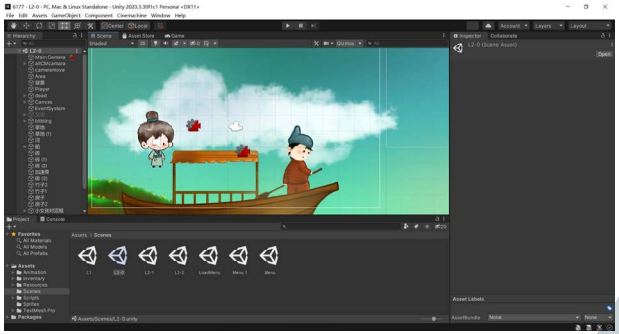
The sound effect of flames burning in the game is sourced from the sound effect of a match igniting.

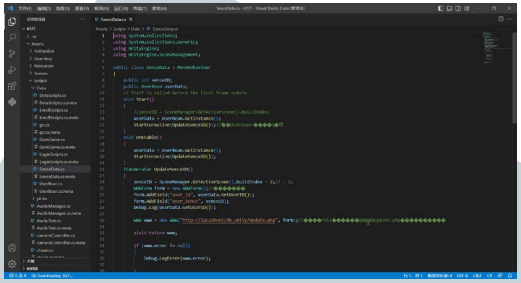
3 / SOFTWARE + APPLICATION CODE

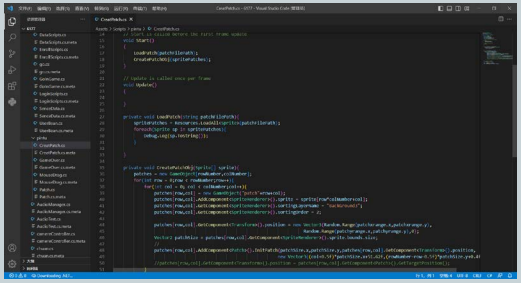


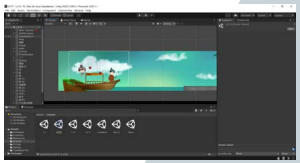












4 / PERSONAL RESPONSIBILITIES

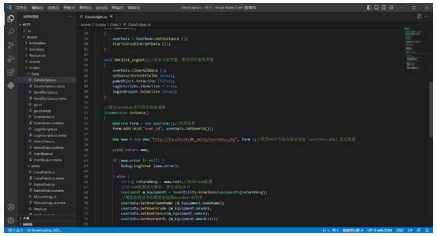
RESPONSIBILITIES

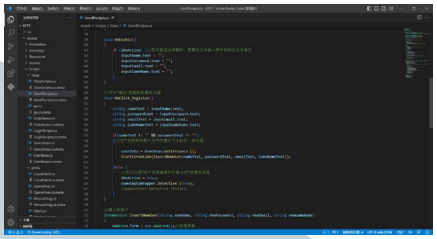
#1 Participated in the early planning of the game.

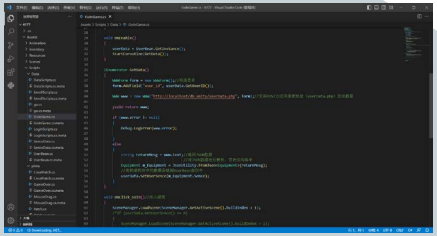
#2 Drew the art materials.

#3 Responsible for the code writing of the game login interface and the connection between the game and mySQL database.

#4 Collaborated with other team members to complete the code writing of the game.







5 / RESULT PRESENTATION

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Yu Meihao Portfolio