Independent Project

CSIT6910A

Cantonese Hero

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Contents

Abstract

Mobile video game market has grown tremendously and with improving game development tools, each day making games becomes easier and more people get into game development professionally or as a hobby. My aim was to figure out how I can teach Cantonese with a game. Since I love platforming games I choose to design a 2D platforming game to teach Cantonese. After playing and studying other 2D and educational games I came up with a design and implemented this design with Unity3D. This project resulted with a 2D game on Android and PC platforms consisting of short levels. With each level player is introduced with a fun and useful Cantonese phrase.

1. Introduction

There are lots of fun English learning smartphone apps that are also entertaining however I realized that Cantonese is lacking in this area. As a student in Hong Kong and Cantonese learner I wanted fill this gap by developing a fun and educational game that will teach basic Cantonese and motivate players to learn and know more about Cantonese.

Cantonese Hero is 2D platformer with elements that teaches basic Cantonese to players.

2. Design

My idea was to make a game where players collect Chinese letters and put them together, then game would help player understand the meaning of these characters. I decided that best way to teach the player would be through presenting them interesting and useful phrases.

The game consists of short levels where you collect a number of gems with Chinese written above it.

The player's interaction with the world is similar to other platform games. The player can move left, right and jump. In later levels player gains ability to shoot and dash in mid-air.

After player collect all letters, a character in game appears and waits for player's approach.

When player approaches this character a dialogue box appears and this character helps the player understand the Cantonese phrases.

When the players finish a level they can check the dictionary by pausing the game anytime they want then see finished levels phrases with explanation, and listen pronunciation.

3. Features and Implementation

3.1 Features

Cantonese Hero features 10 levels, each level with different words and dialogues that help player teach Cantonese.
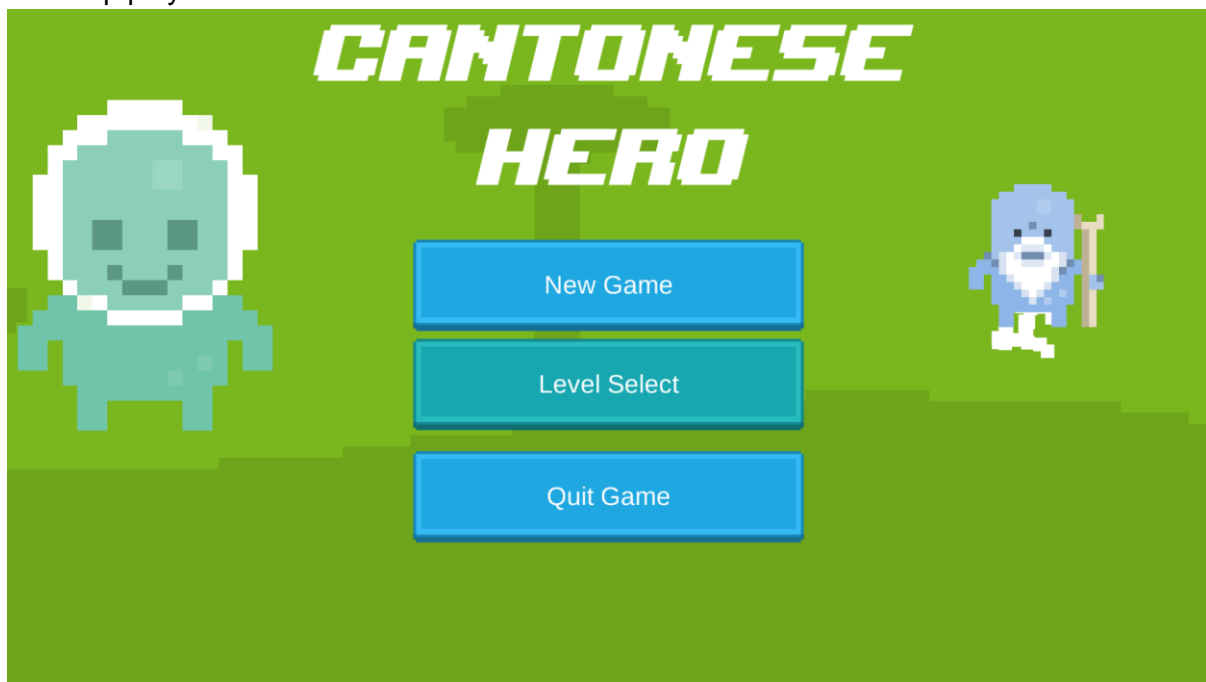

Figure 1 Title Screen

Figure 1 is the title screen. The first screen when the game finishes loading. From here player can start new game or select from the levels they have beaten.

Figure 2 Introduction Level

Figure 2 shows the first level of the game. In this level player will be introduced basics of the game. From this point player can move the blue little character left and right and jump. The first goal is to collect all yellow gems.
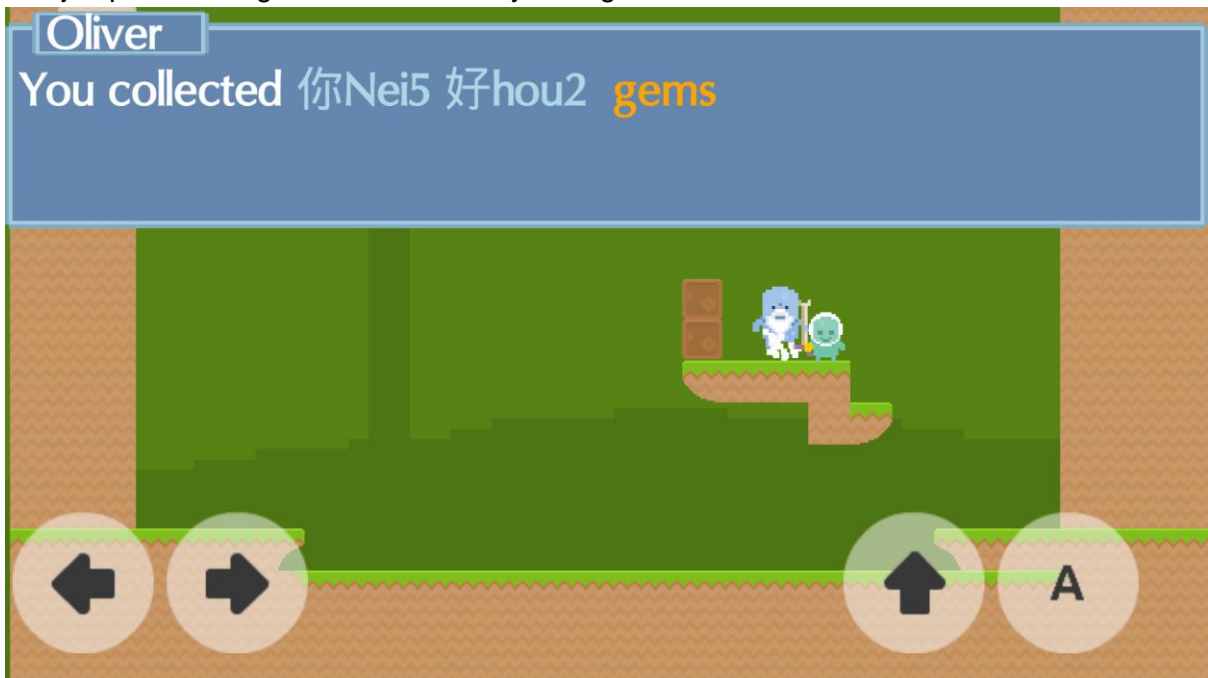

Figure 3 Dialogue Panel

After all gems collected player will see an old blue alien on screen seen on figure 3. When player walks up to the old man a dialogue appears. He talks about the word gems collected and teaches what they mean in English.

Figure 4 Second Level

In figure 4 user has proceeded to 2nd level. Now he sees the message "Check dictionary". Player can click pause button on top left corner and then click "Dictionary".
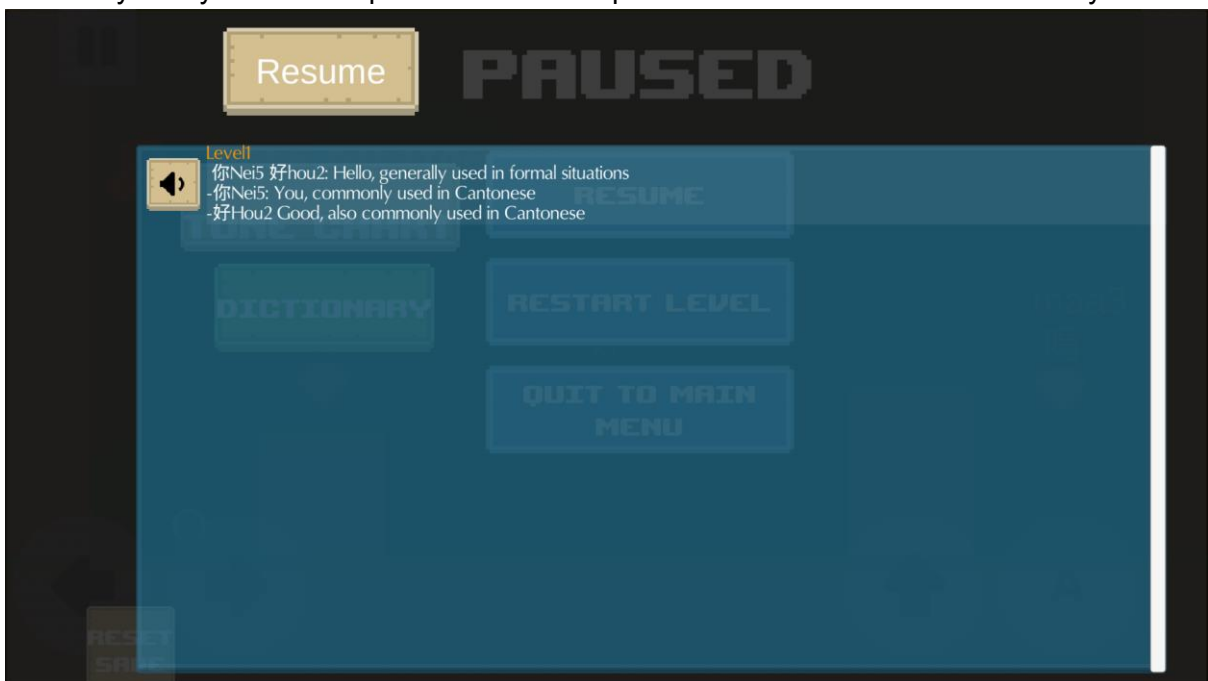

Figure 5 Dictionary Panel

After clicking dictionary button players can see the word of the level they have finished and listen pronunciation as seen in figure 5.
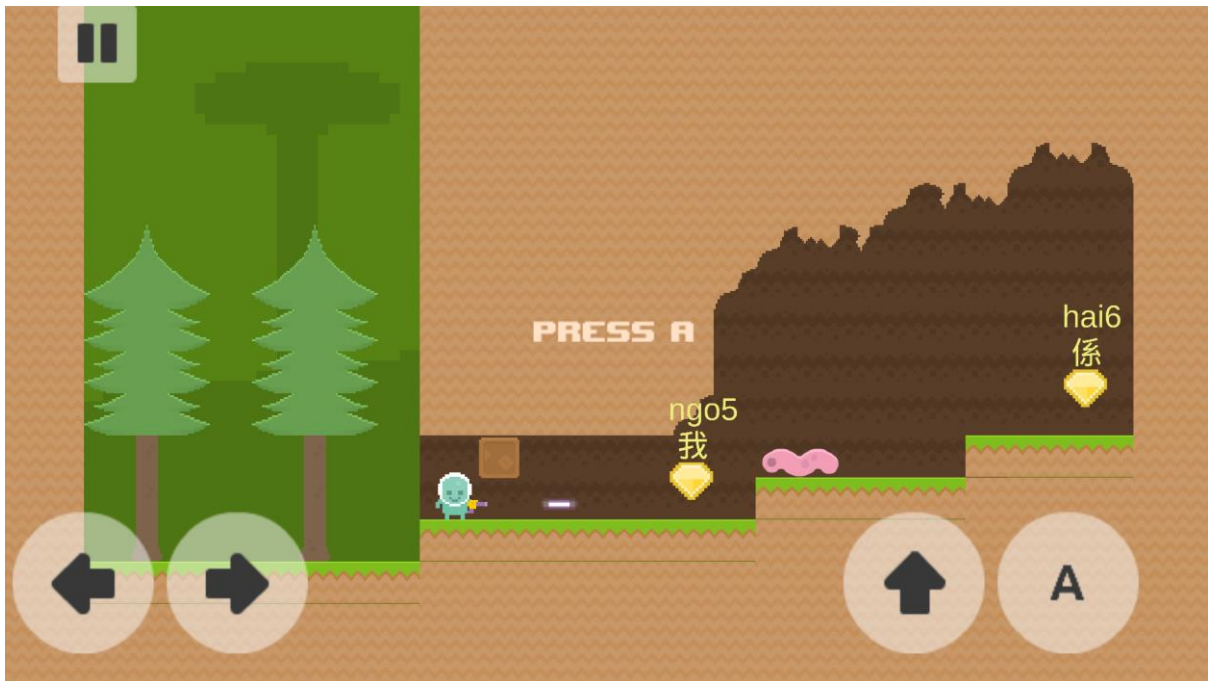
Figure 6 Introducing Shooting Ability

In later levels, new mechanic is introduced, players can pick up a gun can shoot laser to destroy enemies and boxes as seen on figure 6.
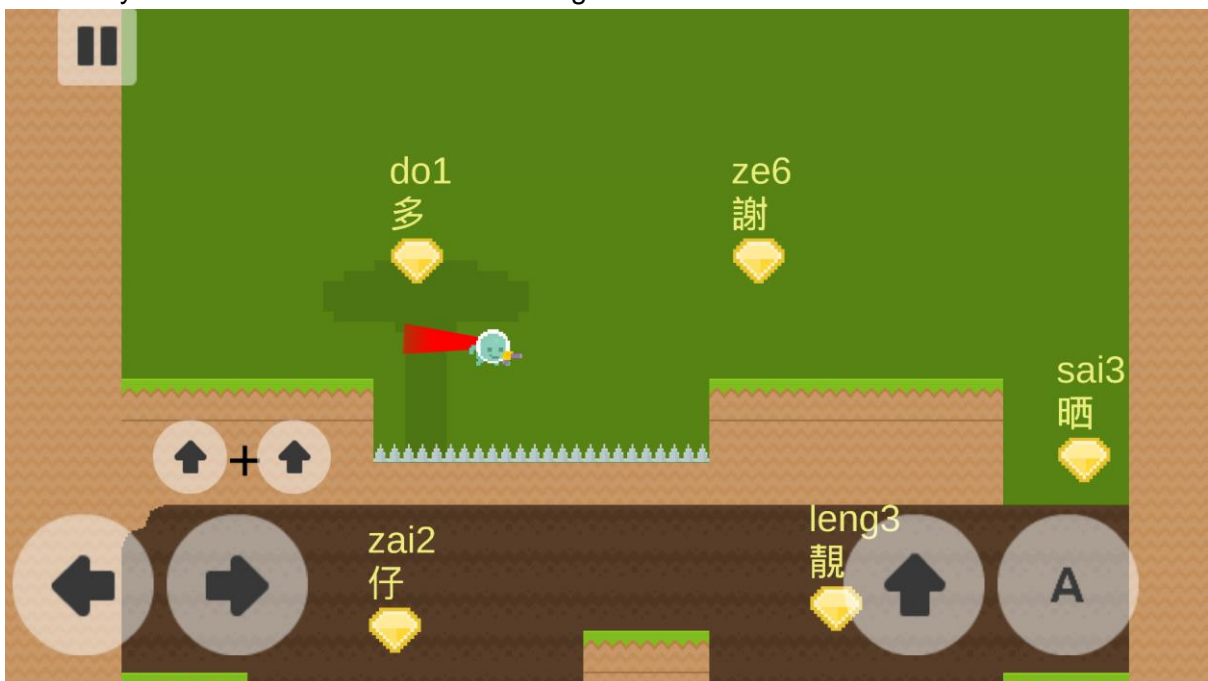

Figure 7 Introduction Dash Ability

Another ability of the player that is unlocked on later levels is dashing ability. Figure 7 shows the first level player can do this. Below the character, player can see instructions on how to do this. And to overcome this huge gap player will learn how to use this ability.
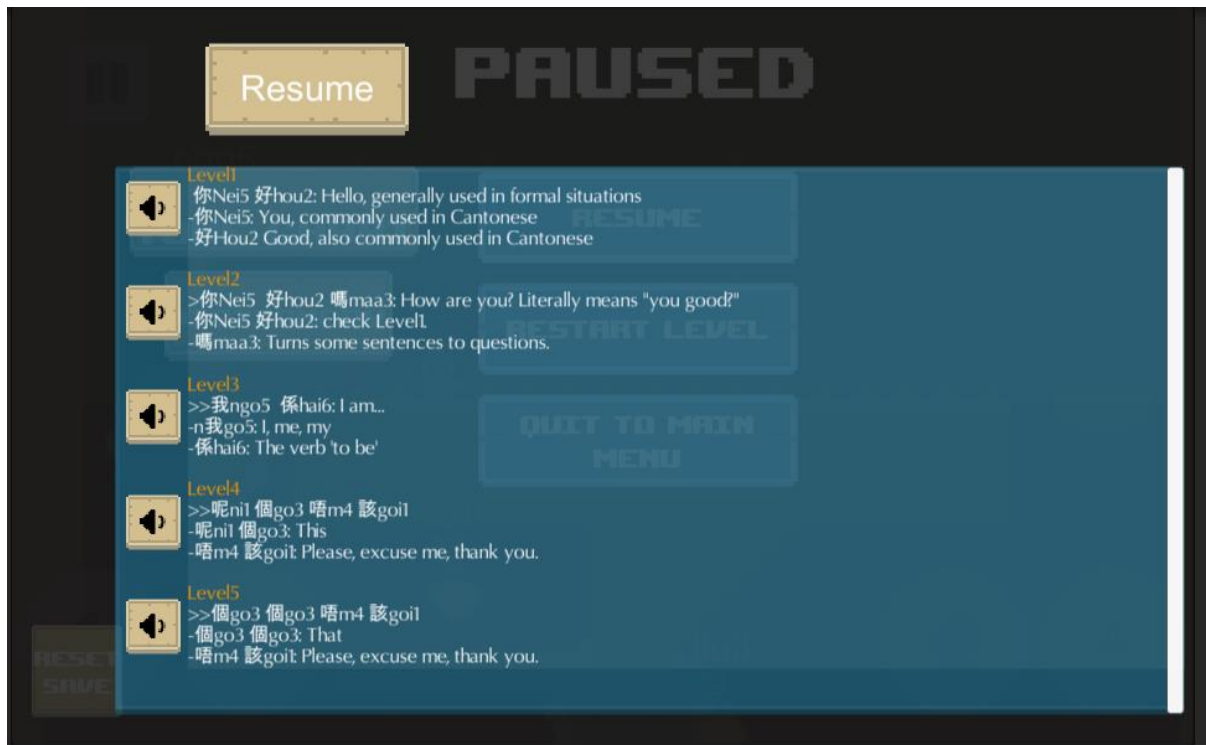
Figure 8 Dictionary Panel Filled

As more levels are beaten dictionary will have more content as seen on the figure 8.

3.3 Implementation

Cantonese Hero is made with Unity3D using C# programming language. With Unity3D this game can be deployed on many platforms but with added touch controls it's designed for smartphones.

3.3.1 Tools Used

Unity3D is the main tool I used to develop this game. Even though the software's name is Unity3D it's a very strong tool to make 2D games.

Tiled is the map editor I used to easily make levels Unity3D

Tiled2Unity exports maps made in Tiled to Unity3D.

GIMP is an image manipulation program. I got the sprites I used from a website but I needed to organize them and edit them. I used GIMP to do that.

Audacity an audio manipulation tool. I used it to arrange some of the Cantonese audios.

Microsoft Visual Studio is the default code editor for Unity3D. I used it to write C# scripts for Unity3D.

3.3.1 Resources

- The game's sprites are from http://opengameart.org/content/platformer-art-pixel-edition, These sprites are free to use and edit, they were very useful for my project
- I emailed http://popupcantonese.com/ and asked for permission to use their audio files. They gave permission and asked me to give them credit if I ever release the game.

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4. Conclusion

This project succeeded in reaching goal of creating a fun and educational game with Cantonese Hero. At this stage Cantonese Hero is demo version with 10 levels. To be put on the Google Play Store it needs more levels.

In future I plan to add more levels and features so that Cantonese Hero can become a full game. Some additional features are implemented in project however to keep these 10 levels simple I decided to use these features in the levels I will make in future.

Other goal of this project was to learn new game development tools. This goal has been reached as well. I will use skills I learned in this project to complete Cantonese Hero and in my future projects.

5. Appendix

5.1 Minutes of the 1st meeting

Date: Tuesday, 2 March 2016
Time: 4:00 pm
Place: Room 3512
Attending: Prof. Rossiter, Toygar ONBAY
Absent: None
Recorder: Toygar ONBAY
Approval of minutes
The minutes of the last meeting were approved without amendment.
Report on Progress
Game design part close to being finished
Discussion Items and Things to Do
Finalize the game design.
Create a demo demonstrating some features of the game design.
Meeting adjournment
The meeting was adjourned at 4.15pm.

5.2 Minutes of the 2nd meeting

Date: Friday, 18 March 2016
Time: 11:00 am
Place: Room 3512
Attending: Prof. Rossiter, Toygar ONBAY
Absent: None
Recorder: Toygar ONBAY
Approval of minutes
The minutes of the last meeting were approved without amendment.
Report on Progress
Game design finished, demo ready with basic gameplay mechanics with temporary sprites.
Discussion Items and Things to Do
Implement more mechanics.
Find more suitable sprites.
Meeting adjournment
The meeting was adjourned at 11:15am.

5.3 Minutes of the 3rd meeting

Date: Friday, 18 April 2016
Time: 2:00pm
Place: Room 3512
Attending: Prof. Rossiter, Toygar ONBAY
Absent: None
Recorder: Toygar ONBAY
Approval of minutes
The minutes of the last meeting were approved without amendment.
Report on Progress
All game mechanics implemented with new sprites.
Discussion Items and Things to Do
Add more levels
 Meeting adjournment
The meeting was adjourned at 2:15pm

5.4 Minutes of the 4th meeting

Date: Friday, 9 May 2016
Time: 3:00pm
Place: Room 3512
Attending: Prof. Rossiter, Toygar ONBAY
Absent: None
Recorder: Toygar ONBAY
Approval of minutes
The minutes of the last meeting were approved without amendment.
Report on Progress
Final report, game and video ready.
Discussion Items and Things to Do
None
 Meeting adjournment
The meeting was adjourned at 3:15pm