

COMP30540 “Game Development” 1st Game Programming Assignment “Egg Collectors” Report



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1. Introduction

The game is called “Egg Colle”. (I know it is not a proper name, but the space is quite limited for a huge title) The players are controlling two pixel characters, one white and one black, who are trying to catch eggs laid by chickens. They have different goals in each day. Only after they get enough eggs, their boss would let them stay. So, can they stay until the end?

2. Implementation

2.1 Controller

Two characters can move by pressing the keyboard keys such as ZXCVM,./ . When the key is pressed, the character will move at the corresponding speed. Meanwhile, the state of the character will change to walking or running depending on the current speed, which is designed to trigger the event when two characters are colliding with each other. If they collide, they will lose half of their unprotected eggs, or all of them if both are running. Moreover, by setting an alarm, they will be coma for a while and cannot move when both are colliding each other.

The chickens are implemented with three different alarms, which are “normal”, “ready” and “go”. When the game object is initialised, a random lay time will be attached to enter the “normal” alarm, which make sure that all the chickens are laying at different time. After another random time in the “normal alarm”, the alarm “ready” will be triggered and the sprite of chicken will be changed to warn the player: chicken is ready to lay. At last, the algorithm will end in alarm “go”, generate an egg and link back to alarm “normal”.

The egg generated by chicken will fall in a fixed speed. (As the whole game does not use the GameMaker's physics engine, it is hard to simulate the gravity simply by formula. The egg will suddenly crash on the floor if you tried to do so.) When the egg collides with any one of the characters, the carrying egg number of that character will increase by 1. Depending on the current egg number, the egg will probably destroy the egg in the basket.

Egg breaks if: $Random(0,10) < CurrentEggNum$

System will generate a random number between 0 and 10. If the random number is smaller than the current egg number, the egg entering will be broken and destroy an egg in the basket. The more eggs are in the basket, the higher probabilities of causing a disaster. Which means the current egg number will never be greater than 10, and that makes getting hay important.

When key "Space" is pressed, the hay will initialise and fall from a hay box in a fixed speed. When the catcher gets the hay, the current egg number of him will be transferred to the total egg number that cannot be affected by either two characters crashed or an egg falling. As long as the egg and hay fall on the ground, they will simply vanish. The hay box will have an animation after it is active and it cannot be active again during the animation time.

2.2 User Interface (UI)

The start menu has the title of the game and some basic game instructions. When player press different key on the keyboard, the game will be redirected to the corresponding level or help page. (Because the trial version of GameMaker has sprit and game object limitation, there's no extra space left for making button UI) The help page introduces player how to control the character. Press "Esc" button to return to the main menu.

In the game scene, all objects will change their sprite depending on their statements.



2.2.1 Chicken statement

For instance, chicken will change their sprite (2.2.1) when it is ready for laying an egg. If player lost all his hearts, the chickens will be so disappointed and cry. Characters also have idle sprite animation, move animation and crash animation (2.2.4).



2.2.2 Broken egg



2.2.3 Get item effect

When egg hits on the floor, player will lose a heart and the **screen will vibrate**. Meanwhile,

the current object will be destroyed and generate a new “broken egg” object (2.2.2) that will move slowly on the ground and vanish (change the alpha value of the sprite) until it is disappeared. The gas symbols will appear, moving towards random directions, when player catches items to tell whether he has gotten the item. All the “gas object” will vanish in the end just like the hay or broken egg.



2.2.4 Character crashes & floating text & goal score display

Floating texts are created as characters' child objects. They display character current in the basket egg number that will make it easier for player to determine the dropping-hay time. Moreover, the goal for each level and current total egg collect number will be displayed on the side of the game canvas. The hearts will be shown on the top left corner.

2.3 Artwork and Audio

All the sprite and audio are self-made. Sprites are made by GameMaker editor and audios are made by BoscaCeoil. The background clouds can move with the rhythm of music, which make the gaming experience satisfying. Moreover, the background music of the hardest level is speed up by 1.5 to make the atmosphere intensive.

3. Experiment

- Walking speed of character is set to 6 while the running speed is set to 10.
- The egg falling motion is set to 0.2.
- The hay falling motion is set to 0.1.
- The chicken will be ready for laying an egg in a random time between 1 second to 10 seconds, then taking 3 seconds to prepare and taking 2 seconds rest after the egg has been laid.
- The heart number for each level is 10, 5 and 3.
- The chicken number for harder level increases.
- The goals set for each level are 20, 25 and 15, as the first level is quite easy for player to handle more eggs and the hardest level is too hard to handle too many eggs.

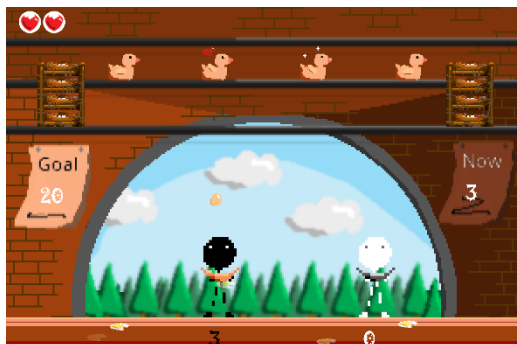
4. Screen shots



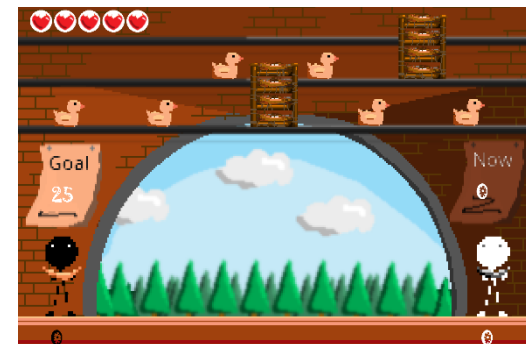
4.1 Start Menu



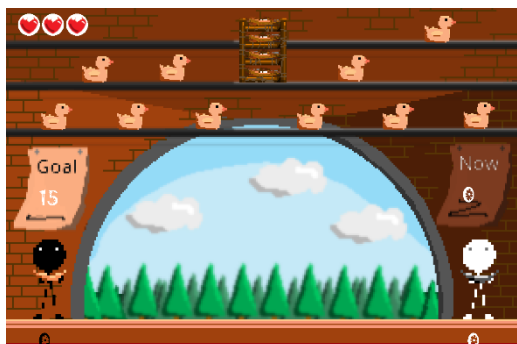
4.2 Help Page



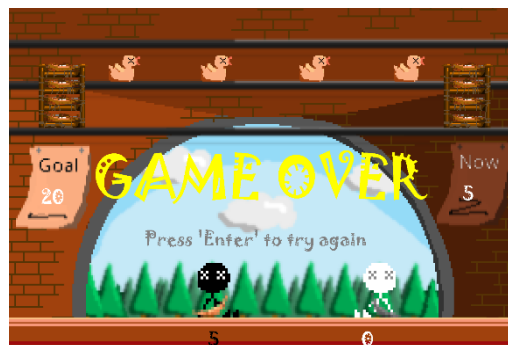
4.3 Level 1



4.4 level 2



4.5 Level 3



4.6 Win & Game over