

CSEE 4840 Embedded System Design

Project Proposal

Qifei Wang qw2164

Siyu Li sl3612

Miaoqiong Wang mw2908

YueChen Qin yq2158

Flying Cola Can

Overview

Our project will implement a kind of parkour video game. The character will grip a large cola can which could jet its cola to fly. There are also many obstacles on the way (such as the rocks or trees or birds), the player should control the character to cross these obstacles without touching them. Our character could automatically fly forward at a constant speed. The only thing matters is the flying heights. So we use the “space” on the keyboard to control the close of the bottle cap, if its open, then he could fly upward in a constant accelerated speed. On the contrary, it will falls down. Also we add some tricky stuff in this game, the cola is not infinite, so as it flies, our fuel will decrease and finally exhausted. To fly as far as possible, we should catch as much fuel falling from sky as we can.

Details and Difficulties

1. The display is a 2-D graphic, which will have separated part with different priorities. Obviously the background have the lowest priority. Any other things are on its top.
2. We have to use severla pictures to display the many different motivation of our character and the obstacles which we need a big SRAM to store the data of the pictures.
3. We decide to use a pencil sketch style of painting. All of the stuffs are sketched on the grid paper, so the only color in the screen is white and black. It will definitely save the storage.
4. Keyboard motion control
5. Sound effects for jet, collision between character and obstacles, falling on the ground, bird.
6. Many power-up items like the protection cover, if possible. Because we have to prepare much more properties of motion.
7. An algorithm to generate the background, obstacles and enemies(it depends on the level of the game..... don't have any idea) and an algorithm for the enemy's routing or motion plan.
8. A simple algorithm of the motion (accelerated speed) and

algorithm for the collision which is difficult because it depends on which part of the character is hit.

Hardware

Keyboard

VGA driver

Sound chip driver

SRAM

Software

Obstacles motion (the background motion) modeling

Enemies motion modeling

Character action modeling

Action sound effects implementation