

Assignment 1

Computer Graphics

IIIT-Hyderabad

JetPack Joy Ride

Jetpack Joyride is a popular mobile game where the player controls a character using a jetpack to manoeuvre around traps in a lab while collecting coins and aiming for a high score.

The game is made using OpenGL and C++. Objects rendered on the screen are solely formed by triangles.

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- General Structure
- Levels and Coins
- Obstacles
- Score
- You Win/You Lose

General Structure

Working

The game should have the player character on the left side of the screen. Obstacles and coins move towards the player creating the impression that the player is moving forward through the level. The player character can only move up and down to either avoid or collect game objects. (For reference, try to replicate the actual game).

Levels

The game has three levels with fixed length each. If the score of the player is between 0 and 10 then the player is in level 1 but as soon as the player collects coins then the score increases and then player proceeds to level 2. Level 2 is for a score between 10 and 50. As the level increases, difficulty adds on and the new elements are produced like piggy bank.

On winning the game a message You Win is displayed with the score and similarly if you touch an obstacle it displays You Lose. The player is given 3 lives upon exhaust the player dies with the message Game Over

JetPack Joy Ride



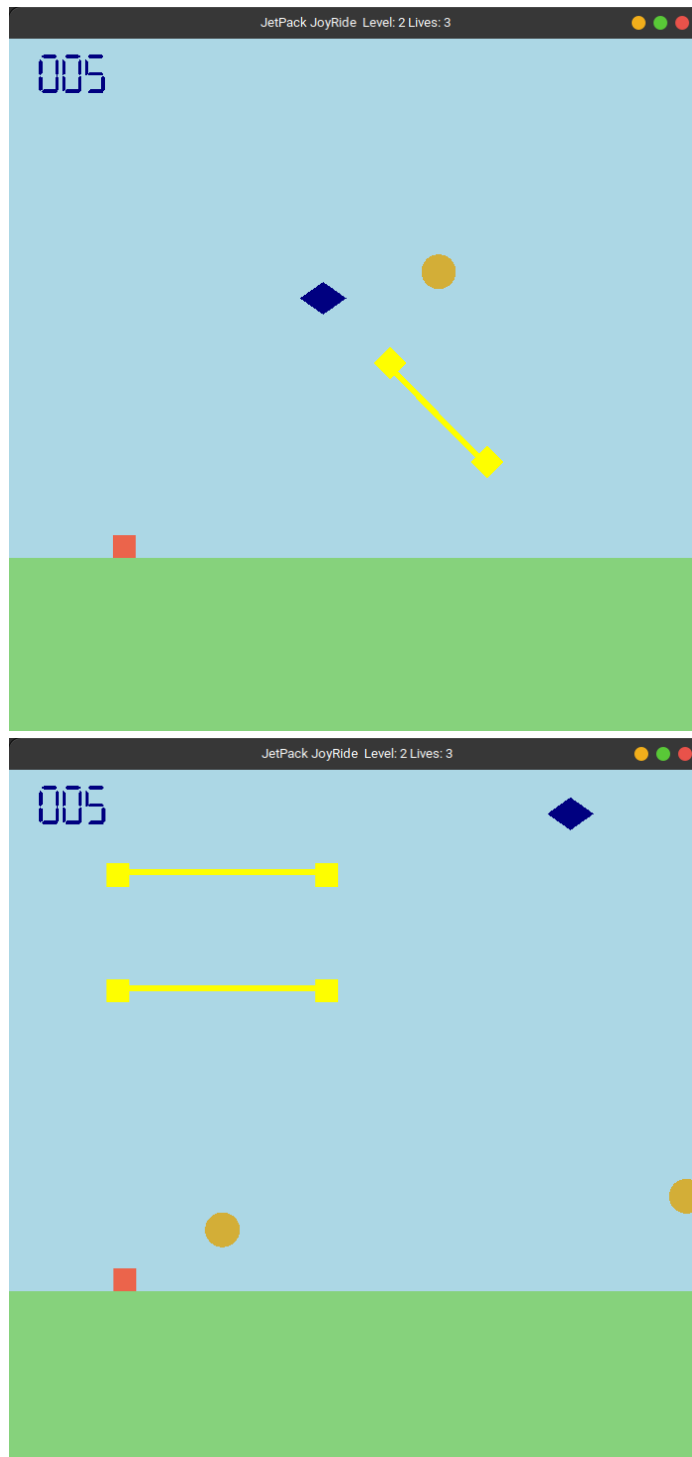
HUD

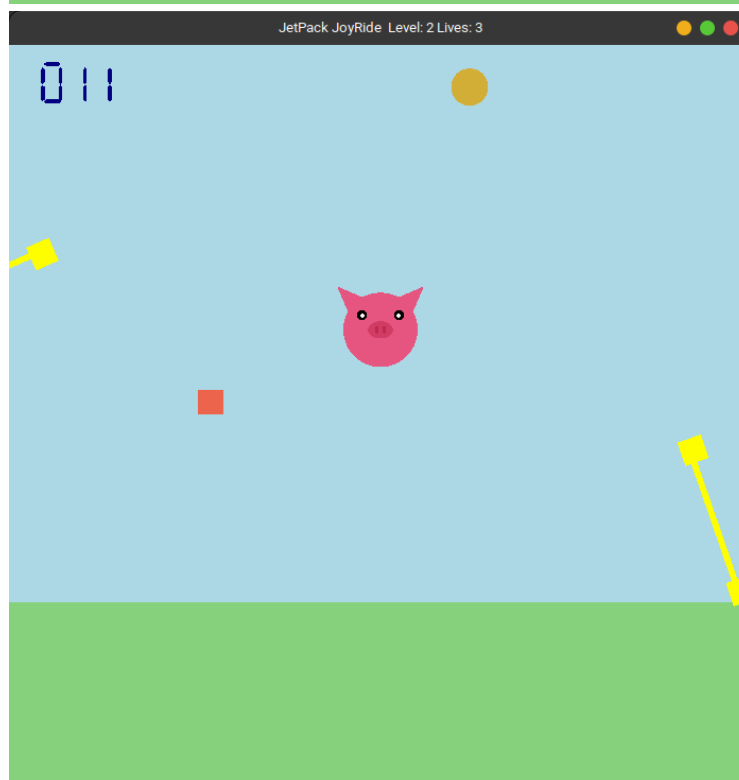
Tracking the following via onscreen text:

- Level number
- Distance travelled and the levels length
- Number of coins collected/score

When the player wins or loses the game, have a "game-end" screen telling them if they won or lost along with their score.

Gameplay screenshots attached





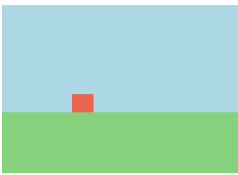
Description

Character moves up and down on the left side of the screen.

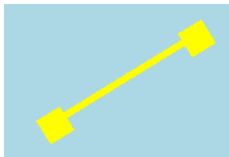
Character collides up and down with the floor and ceiling.

Pressing space bar activates the jetpack and propells the character upwards. Letting go off the spacebar turns the jetpack off and the character falls to the ground.

Simulate the character acceleration dure to gravity and the thurst of their jetpack



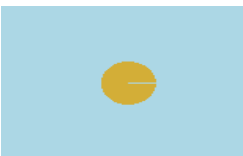
The Player on the ground



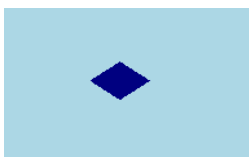
At random angles in the frame, fixed beams are generated in Level 1



Moving horizonatal beams in Level 2 which go from up and down in Level 2 but can be witnessed in Level 1 due to low score.



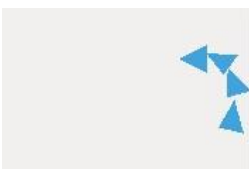
Coin, increases the score by 1, introduced in level 1.



Diamond, increases the score by 3, intended for level 2 but can be witnessed in level 1 too due to low scores.



Piggy bank, increases score by 20, rare, introduced in level 2.



Very Rare → Dragon, shoots ice bombs, introduced in level 3



Flash introduced in Level 3 act as powerup, the timer can be seen above the player's head (very rare) → Introduced in Level 3

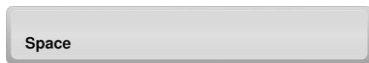
Controls



Left Movement



Right Movement



Upward thrust