Digital Circuit Lab
Final Project

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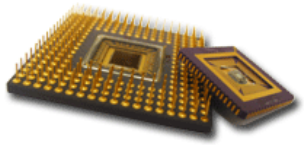
Game Design

- Snake (貪食蛇)

Basic Function Requirements

- Draw the snake with 5 length units, where the snake can move.
- The snake can bend.
- Provide the food indicated by a circle and generate some obstacles
- Snake can eat the food without changing the body length.
- The game scene has the boundary.
- Use button or switch to control the game and interaction

ps: all items have to use VGA display.

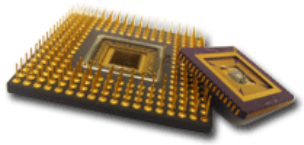


Advanced Function Requirements

Final Project

- Design a scoring system
- Design a variable snake length
- Design if the snake hits the obstacle, the scoring will be decreased. While the scoring zero, game over.
- Design different scenes

ps: all items have to use VGA display.



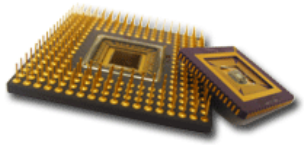
Game Design

- Tetris (俄羅斯方塊)

Basic Function Requirements

- Draw the tetris game background
- Provide 7 different shape/configration units
- The row in tetris can be disappeared while this row is full.
- The unit can be rotated.
- The game scene has the boundary.
- Use button or switch to control the game and interaction

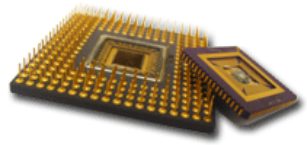
ps: all items have to use VGA display.



Advanced Function Requirements

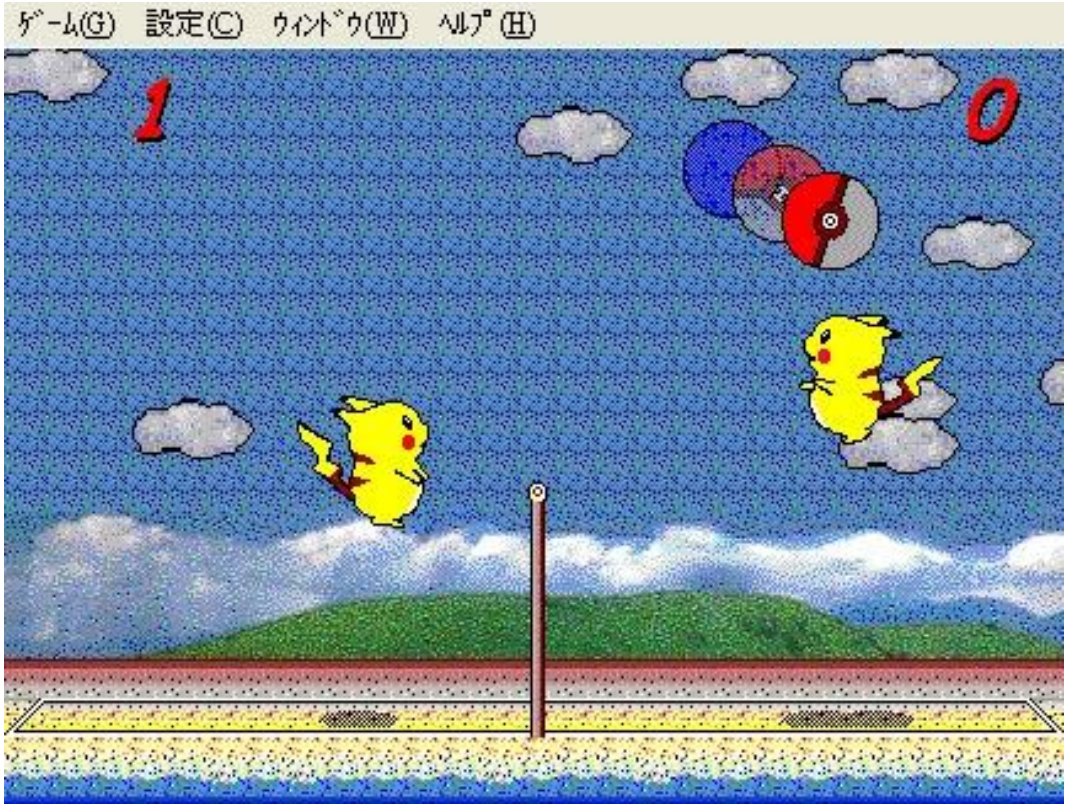
- Design a scoring system
- T rotate
- Change the unit
- Randomly generate obstacles

ps: all items have to use VGA display.



Game Design

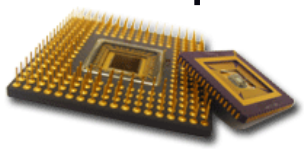
- Pikachu Volleyball (皮卡丘打排球)



Basic Function Requirements

- Draw one Pikachu
  - This Pikachu can move one the ground
- Draw another Pickchu (default player)
  - The default player can move by himself.
- Draw one ball and a net.
- The player and ball cannot go through the net.
- If the ball hits the boundary, player, and net, the ball will be returned in straight line.
- The game scene has the boundary.
- Use button or switch to control the game and interaction

ps: all items have to use VGA display.

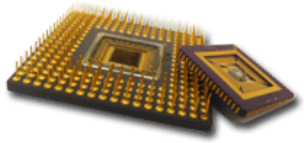


Advanced Function Requirements

Final Project

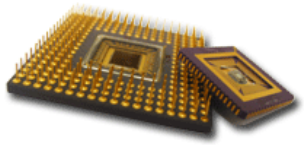
- Design a scoring system
- While the ball hits the player, the ball will be returned in parabolic way
- Design the player can jump
- Design the player can smash with faster ball speed

ps: all items have to use VGA display.



Grading Policy

- The final project occupies 30% of the overall grade. That means this final project has 30 points in this course.
- The basic function requirements occupies 60%. That means 18 points.
- The advanced function requirements occupies 40%. That means 12 points.
- The extra functions occupies 20%. That means 6 points.
  - User interface
  - User experience
  - Additional novel function



Final Project Regulations

- The final project is team work. Each team has 4 people at most.
- Dec. 28, 2023 (Fri.) is the final project demo. (Please submit your final version to our system as requested by TAs.)
- No make-up memo.
- Each team provides the report including each member's contribution number on Dec. 29 (Sat.), 2023 and delivers to 劉宣甫助教 (hfliu.ee12@nycu.edu.tw)。 (The report template can be downloaded from E3.)
- We will NOT provide any materials, documents or codes for the final project.
- No copy and no plagiarism across the teams. If detected, the scores of the final project of the related teams will be zero.