SUPINFO Academic Dept.

SUPINFO International University

INSTITUTE OF INFORMATION TECHNOLOGY

Group Projects
A.Sc.2 - Architecture

Contents

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Author: Samuel CUELLA

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1. Project Overview

Nephi Toys inc. sells various toys for young children. Their new product is a video game device that is compatible with the old Nintendo NES.

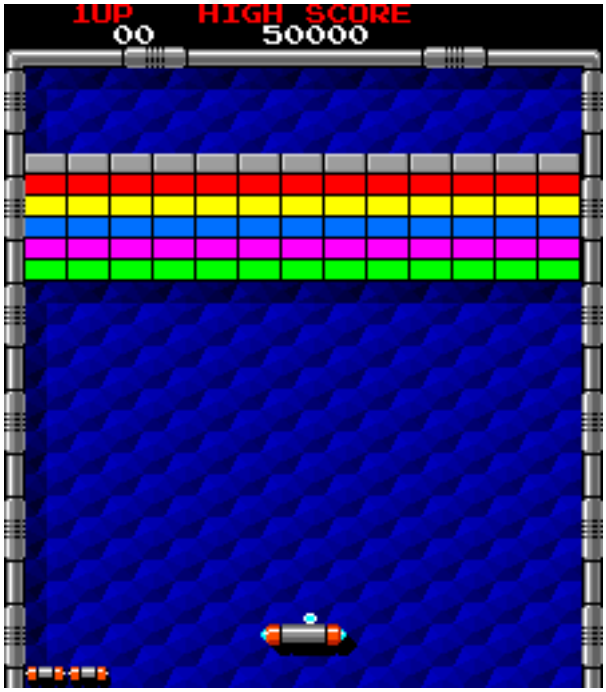
Children can play various built-in games that are mainly re-editions of classics. Nephi has decided to subcontract games developpement to external teams.

Your team has been selected to write an arkanoïd clone that will work on the NES.

2. Functional Expression

2.1. The game

The player controls a paddle and uses it to make one or more balls bounce against bricks without letting it falling out of the playfield. The objective is to destroy all the blocks to clear the level:



The player uses the NES pad to control the paddle. He starts the game by pressing A and can pause the game at any moment by pressing 'start'.

If the ball falls off the screen, the player loses. If the player manages to destroy all the blocks, he wins. You have to provide at least two levels. If your proof of concept has more, the player has to go through all stages to win.

2.2. Technical requirements

Your game must work on a NES emulator. You are free to use any language (6502 asm, C, ...) and library you want to achieve this goal.

2.3. Bonus features

As a bonus, you can add special items in the game that give more abilities to the player such as a larger paddle, more balls, etc. You're free to add any feature you want and find useful to earn more points.

2.4. Resources

Here is a non-limitative list of resources that you could find useful

- https://nesdoug.com/
- http://shiru.untergrund.net/articles/programming_nes_games_in_c.htm
- https://www.youtube.com/watch?v=jvgz5sY5xUw
- https://www.youtube.com/watch?v=ChSHiQLcH_8

3. Deliverables

Students should include the following elements in their final delivery:

- A zip archive with the project source code. The source code must also come with the build system used (Project file, autotools...), if any.
- Project documentation, based on the template.
    - Technical documentation explaining your choices and/or implementation choices/details on the following items (at least):
        - Input handling
        - Collision detection
        - Cross-compiling
    - User manual

The first document is an academic document. Address the reader as a teacher, not a client. The last one (User manual) should address the reader as a user. These documents can be in French or in English, at your option.

4. Graded Items

As stated, the game must work on a NES, and thus be demonstrated through a NES emulator. No points will be awarded if the project targets another platform.

The project will be graded as follows, on a 30/20 scale:

- Gameplay (16 points)
  - The player can move the paddle with the pad (4 points)
  - The ball bounces on the paddle (4 points)
  - The ball bounces on and destroys blocks (4 points)
  - The ball bounces on the level walls (4 points)
- Win/Lose (4 points)
  - If the ball falls of the screen, the player loses (1 points)
  - The player gets to the next level after destroying all the blocks (2 points)
  - The player wins after clearing all levels (1 points)
- Bonus features (10 points)
  - Bonus features done by the students (10 points)