

Game Design Document Outline

SpectrumSwitch

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1. Game Overview

1.1. Game Concept

This is a game based on Colorswitch (Fig. 8.1.3) and Mario (Fig. 8.1.1). Colorswitch is a mobile game where a player maneuvers through different obstacles through tapping, similar to Flappy Bird (Fig. 8.1.4). Its name is derived from the fact that the player has to constantly change his/her color throughout the entire game. Mario, on the other hand, is a multi-level platformer game which features jumping through obstacles, defeating enemies and solving various puzzles in order to finish the game (Fig. 8.1.2).

1.2. Genre - This is classified as a casual 2D platformer.

1.3. Target Audience - This game is intended for 6-year olds and older.

1.4. Game Flow Summary

The player needs to go through a series of levels to complete the game. To complete a level, the player must finish the map without dying or touching wrong colored obstacles, walls and platforms. If the player dies before reaching the end of the level, he/she would have to choose between restarting the level or going back to the main menu.

1.5. Look and Feel - The overall feel of the game will be based on Colorswitch while the elements of the game (e.g. obstacles, platforms) will be based from Mario.

2. Gameplay and Mechanics

2.1. Gameplay

2.1.1. Game Progression - The player progresses through avoiding simple sets of obstacles, which are made up of different colored platforms and walls.

2.1.2. Mission - The player has to get to the goal.

2.1.3. Puzzle Structure

To be able to navigate safely between platforms with different colors, the player has to obtain a buff to change its color to be similar to the platform he/she is standing on. The player can only touch a platform with the same color as himself/herself. If the player encounters a white obstacle, he/she is safe.

2.1.4. Objective - Avoid the stepping on the wrong colored obstacle.

2.1.5. Play Flow - As the character moves, the camera follows it. Only a section of the entire level is shown to the player.

2.2. Mechanics

2.2.1. Physics - Real-world physics is used in this game.

2.2.2. Movement in the game - The player can only jump, move left or move right.

2.2.3. Objects

2.2.3.1. Buff: This will let the character change its color.

2.2.3.2. Score: This will serve as points in the game.

2.2.3.3. Platform: This is a stationary rectangle that can appear in 5 different colors (Fig. 8.4.6., Fig. 8.4.7., Fig. 8.4.8., Fig. 8.4.9.)

where the character can stand on when it has the same color. They can exist in a level either as a horizontal or vertical platform.

2.2.3.4. Walls

2.2.3.4.1. Circular Wall: This is a curved version of the platform. Four of these makes up an entire 'circle' obstacle (Fig. 8.4.5).

2.2.3.4.2. Windmill Wall: This is a slightly different version of the platform as it is made up of a group of the same colored circles. Four of these make up the 'windmill' obstacle (Fig. 8.4.4).

2.2.4. Actions

2.2.4.1. Movement: The character can move left, move right and jump.

2.2.4.2. Collecting buffs: This will let the character change color.

2.2.4.3. Collecting score: This will let the character gain points.

2.2.4.4. Encountering obstacles: This will impede the character from finishing a level as the character has to pass through the same-colored obstacle to advance.

2.2.5. Economy - Currency in this game is in points where it can be earned through collecting score in the game.

2.2.6. Screen Flow - The camera follows the character, showing only a portion of the game level containing the current obstacles the character has to pass through.

2.3. Game Options – The options available are music volume, pause, restart, end game and go to game menu.

2.4. Replaying and Saving

If the character dies/have gotten to the end goal the game will go to the result screen and the player can choose if he will restart or go back to the home menu. While ingame there is also an option if the player wants to restart the game.

3. Story, Setting and Character

3.1. Game World

3.1.1. General look and feel

The character (see Sec. 8.2.), platforms (see Fig. 8.4.4 & Fig. 8.4.5) and obstacles (see Fig. 8.4.6 to Fig. 8.4.9) can have appear in five different colors. The background is just a plain black to highlight the colors of the platforms/obstacles.

3.1.2. Areas

The character stands at the platform and the player must guide it to the goal safely. The character can pick up stars or buff. The stars serves as the game currency that can be collected after finishing or dying. While the buff makes the character change its color that can let the character stand on a platform or touch a wall that is in the same color as the character.

3.2. Character

The character is a ball. These characters either rolls going to left or right as player instructs it to. Characters can also jump horizontally or sideways.

4. Level

4.1. Featured Level (see Sec. 8.3)

4.2. Level Design

Every level is packed with challenging obstacles, which gets harder and harder as the player gets to higher levels. Obstacles can be quite large, but these are bounded by periods of safety where the player can “rest” for a moment before continuing the level. Obstacles and their boundaries are different in every levels.

5. Interface

5.1. Visual System

5.1.1. Menu screen

There would be different options such as Start, Level, Store, Instructions and Quit (Fig. 8.5.1).

5.1.1.1. Start - Lets the player play the last unfinished level.

5.1.1.2. Level - Lets the player see all the levels present in the game and indication whether or not a level is finished or not.

5.1.1.3. Store - Lets the player buy customizations for his/her character.

5.1.1.4. Instructions - Lets the player see how can he/she move the character and how to proceed to the next level.

5.1.1.5. Quit - Lets the player exit the game.

5.1.2. In-game screen

Pressing the pause button in the UI inside the game will automatically pause and will pop-up the list for resuming, restarting and quitting. At the middle top part of the screen the collected star points for this run will be shown. (Fig. 8.5.4)

5.1.3. Instruction Screen (Fig. 8.5.2 & 8.5.3)

5.1.3.1. Shows how the player can move his/her character during the game.

5.1.3.2. Shows how the mechanics of the game.

5.1.3.3. Shows an icon to get back to the Menu Screen.

5.1.4. Result screen (Fig. 8.5.3)

This is shown only when the character dies within the game or has passed the level. It shows the points that he/she has collected on the current level. The following are also shown in this screen:

5.1.4.1. Reset button - Lets the player have another run

5.1.4.2. Menu button - Lets the player go back to the menu

5.2. Control System - PC

5.2.1. Left arrow key/A button makes the character roll to the left

5.2.2. Right arrow key/D button makes it roll to the right

5.2.3. Up arrow key/W button makes the character jump

5.3. Control System - Android/iOS

The character will move along the direction of the player's long tap. The following are the gestures the player must do in order to move the character:

5.3.1. Jump - the player's finger drags from a certain point upwards.

5.3.2. Left - the player's finger drags from a certain point to the left.

5.3.3. Right - the player's finger drags from a certain point to the right.

5.4. **Audio, music, sound effects** - none at the moment.

5.5. **Help System** - There is an Instruction button in the mainmenu where the player will be directed to a screen with the instructions and game mechanics

6. Artificial Intelligence

6.1. **Opponent and Enemy AI** - The collision detector will detect if the player collided with a different colored obstacles, platforms or walls.

6.2. **Non-combat and Friendly Characters** - there are no other characters in the game.

6.3. **Support AI: Player and Collision Detection** -

Collision between player and obstacles are The character checks his color and the color of the obstacles, platform and 4 colored portal. The obstacle and platforms kills the char if the characters color is not the same as the platform/obstacles color the character is colliding, if the character died the game will end. If the character collides with the 4 color portal the game will end and the next level would be unlocked. While the color buff and score points checks if the character collides with them. For the color buff the color buff changes the characters color based on its own color. And the score points adds 1 point per each score points the player has collected that can be used for aesthetic purposes.

7. Technical

7.1. Target Hardware

PC - Minimum Requirements:

- CPU Speed: 2 GHz
- INTEL CPU Pentium 4 2.0GHz
- AMD CPU Athlon XP 1700+
- Nvidia GPU Geforce 205
- AMD GPU Radeon HD4290
- RAM 512MB
- OS Win XP 32bit
- Direct X Directx 9
- HDD Space 185MB

iOS - Minimum version

- iOS 7

Android - Minimum version

- Version 4.2 (Jelly Bean)

7.2. Development Software

- Unity 5.3.3f1 (64-bit)
- Photoshop CC

- Windows 10 Pro 64-bit
- Windows 10 Home 64-bit
- Intel® Xeon® Processor E3-1290 v2 (8M Cache, 3.70 GHz)
- Intel® Core™ i5-3210M CPU @ 2.5GHz (4 CPUs), ~2.5GHz
- Intel® Celeron® CPU N2840 @ 2.16GHz 2.16GHz
- nVidia Geforce GTX Titan X 12GB
- nVidia GeForce GT 630M
- 2GB RAM
- 4GB RAM DDR3
- 32GB RAM DDR4

8. Art References
8.1. References

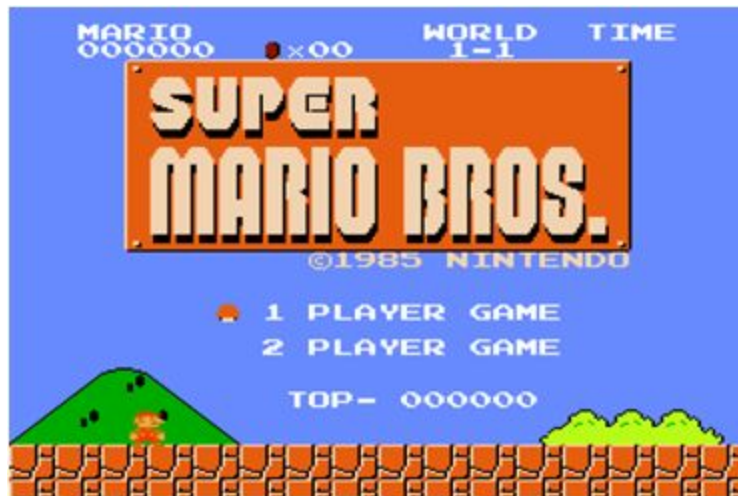


Fig. 8.1.1. Super Mario Brothers main menu..



*Fig. 8.1.2. A portion of a level in Super Mario Brothers.
Mario (main character) is seen mid-jump at the far left.*



Fig. 8.1.3. Color Switch main menu.



Fig. 8.1.4. A portion of a level in Color Switch.
The character in this game is the yellow ball.

8.2. Character

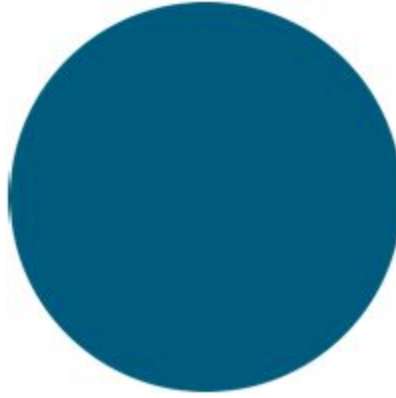


Fig. 8.2.1. Dark blue character.
H:197 S:100 B:50 R:0 G: 91 B:91 B:127
#005B7F



Fig. 8.2.2. Orange character.
H:37 S:99 B:99 R:252 G:157 B:3
#FC9D03

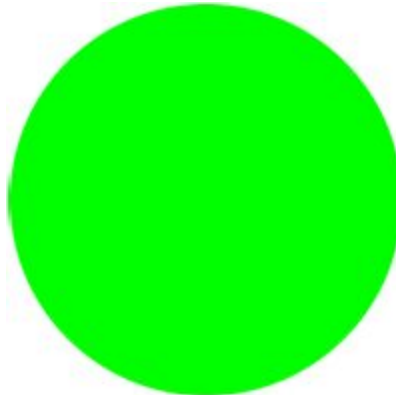


Fig. 8.2.3. Light green character.
H:120 S:100 B:100 R:0 G:255 B:0
#00FF00

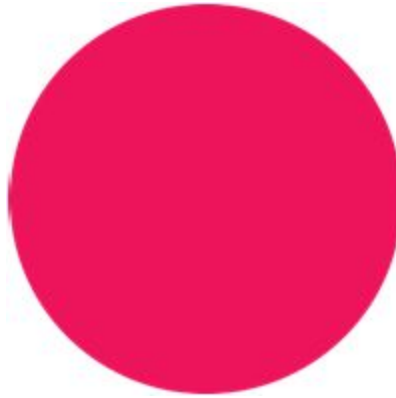


Fig. 8.2.4. Magenta character.
H:340 S:92 B:93 R:237 G:20 B:91
#ED145B

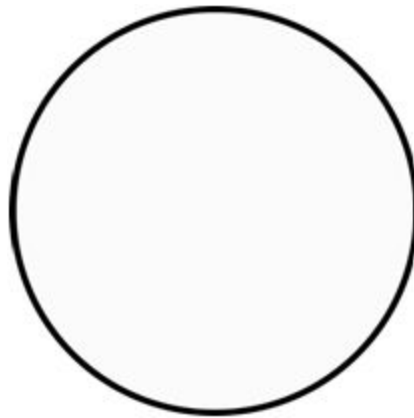


Fig. 8.2.5. White character.
(Borders do not appear in the game and are placed only to give emphasis to the color)
H:0 S:0 B:100 R:255 G:255 B:255
#FFFFFF

8.3. Level

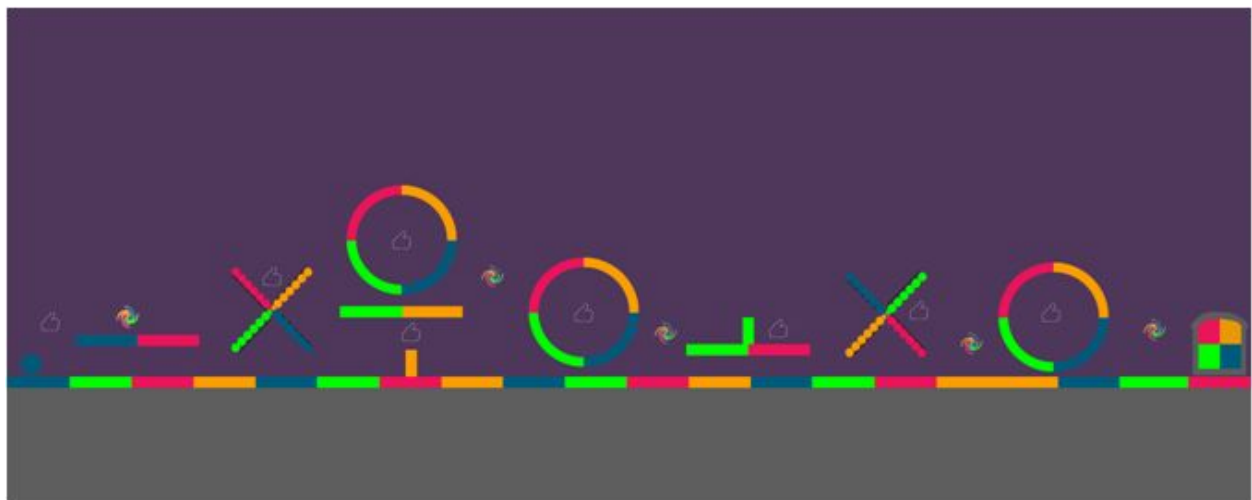


Fig. 8.3.1. The entire level in the game.

8.4. Level Detail



*Fig. 8.4.1. This is the buff of the game.
It changes the character's color.*



*Fig. 8.4.2. This is used to give the player
points in the game.*



*Fig. 8.4.3. This is used to indicate the finish line.
If the player passes this, it will move the player to the next level.*



*Fig. 8.4.4. This is one of the obstacles of the game.
This 'windmill' spins around counterclockwise or clockwise
depending on a level's implementation.*



*Fig. 8.4.5. This is one of the obstacles of the game.
This 'circle wall' also spins around like the 'windmill'.*



*Fig. 8.4.6. One of the variations of the platform.
This is colored dark blue.*



*Fig. 8.4.7. One of the variations of the platform.
This is colored bright green.*



*Fig. 8.4.8. One of the variations of the platform.
This is colored pink.*



*Fig. 8.4.9. One of the variations of the platform.
This is colored orange.*



*Fig. 8.4.10. One of the variations of the platform.
This is colored white.*

(Borders do not appear in the game and are placed only to give emphasis to the color)



Fig. 8.4.10. A series of platforms in different colors.

8.5. User Interfaces



Fig. 8.5.1. SpectrumSwitch's main menu.

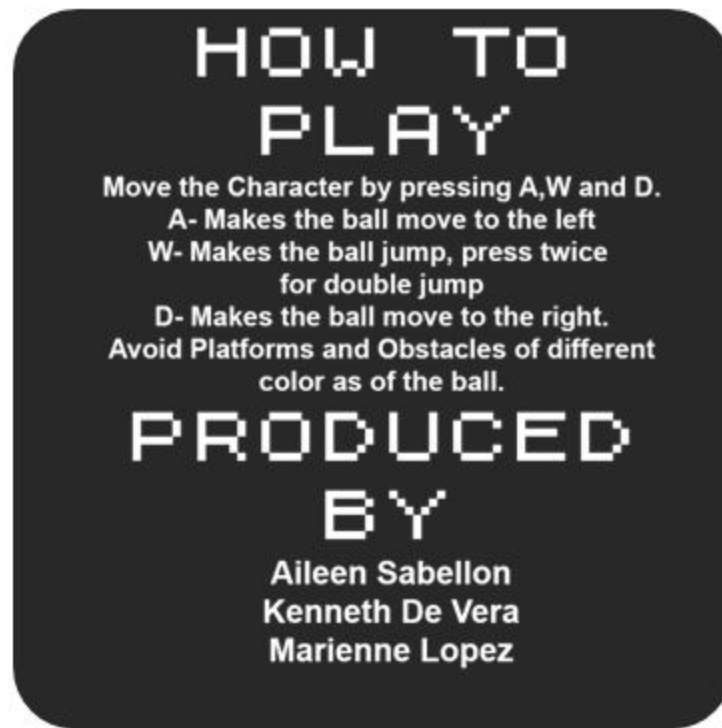


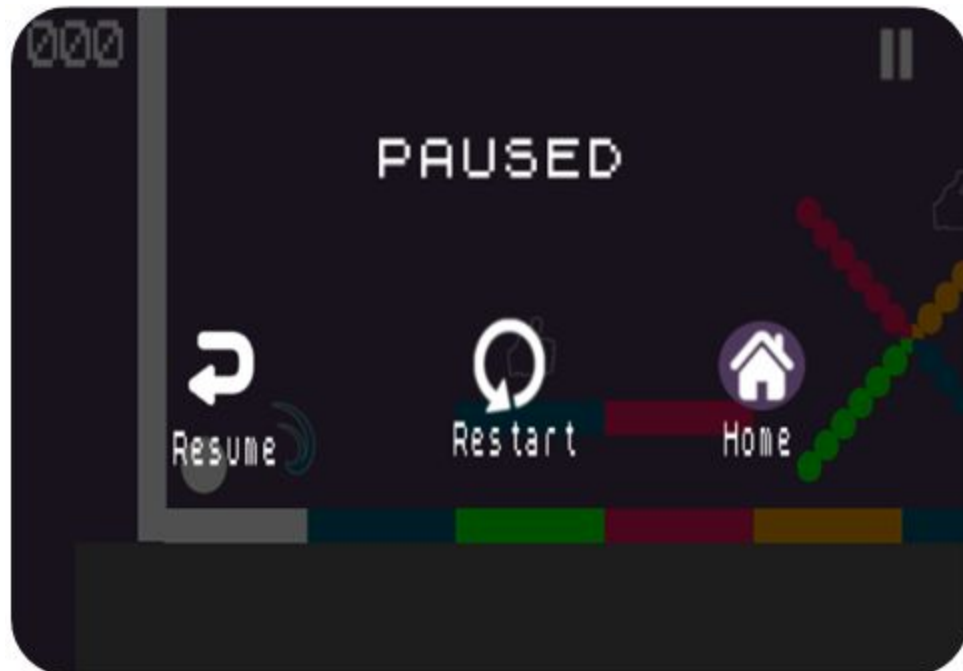
Fig. 8.5.2. SpectrumSwitch's 'Help' screen for Windows.



Fig. 8.5.3. SpectrumSwitch's 'Help' screen for Android and iOS.



Fig. 8.5.3. SpectrumSwitch's 'Game Over' screen.



*Fig. 8.5.4. SpectrumSwitch's 'Pause' screen.
This can only be accessed in-game.*

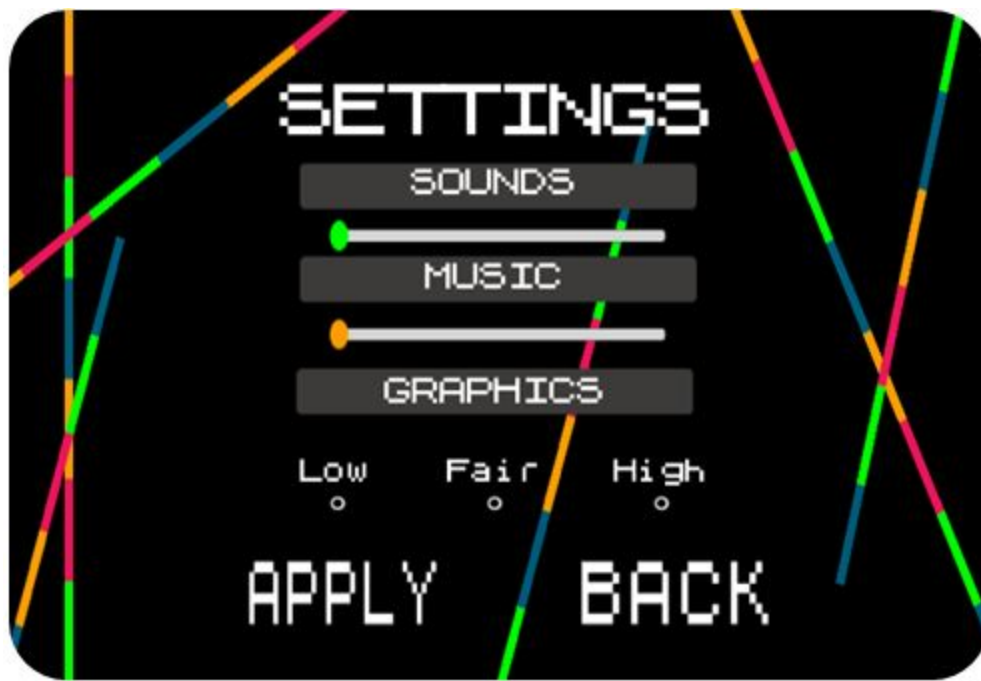


Fig. 8.5.5. SpectrumSwitch's 'Settings' screen.

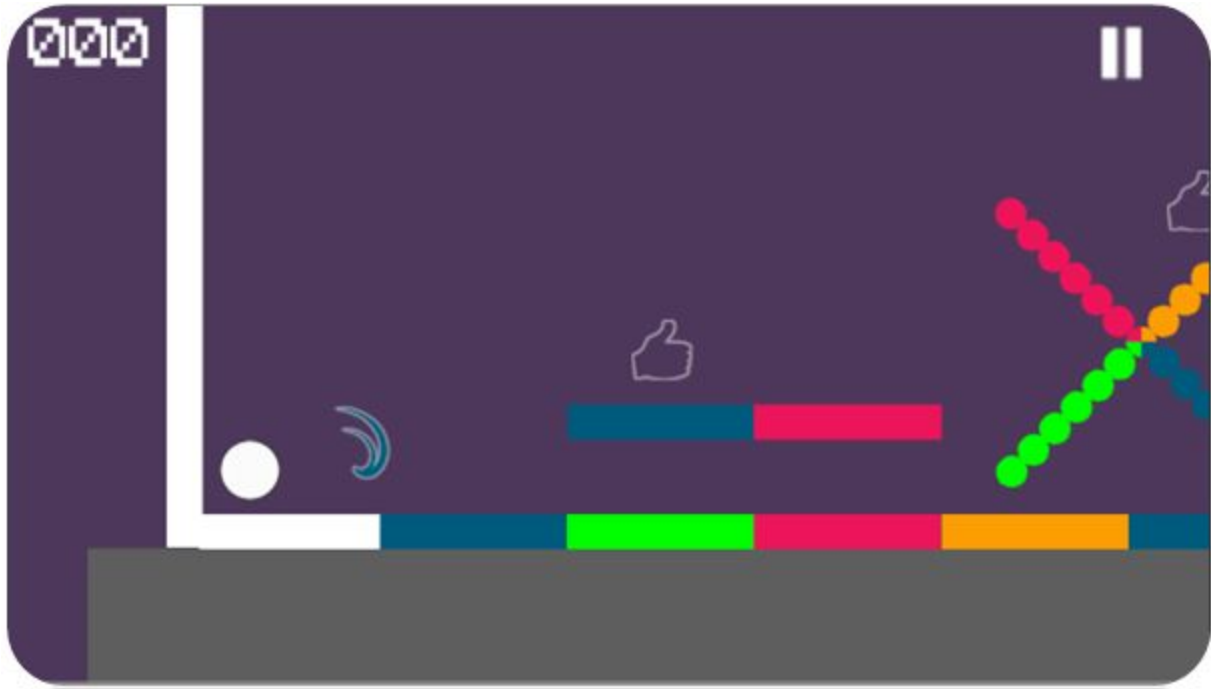


Fig. 8.5.6. A sample view of what the player sees when he/she plays a level. What is shown is only a portion of the game area to which the player has to pass through.