Paintr

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A first-person shooter puzzle game made with Unreal Engine, Paintr takes FPS to a fun new level to teach kids about color matching with bits while fighting off monsters.

The design challenge is doing FPS with paintball guns, and using color in bits to recreate the paint color ammo to match the color of incoming monsters in order to shoot them.

Overview

Paintr contains aesthetic elements of sensation and challenge.

The challenge of the game comes into play with its color matching component. Players use their visual judgement to change the bits of an RGB scale to match colors. Depending on the type of monster and type of gun, they will have to match the RGB bit value of the gun with that of the enemy.

The sensation of the game is that player is going to use gun to shoot monsters, which is not going to happen in the real world so it is not familiar to player at all. Also player will gain the pleasure of achieve the goal by defeating the monsters themselves.

User Description

Targeted towards students and kids aged 8+.

Storyboard of experience : discuss gameplay

- Flipping bits to match paintball color to color of monsters so they can shoot them
- Shoot the monsters by color gun
- First person shooting, educational game
- Sensation from the visuals of shooting paintballs, Challenge from blocking certain bits to make it harder
- Static maps represent each level. Enemies wander randomly through the level space, colors splatter the environment as player progresses and shoots more enemies.
- See Appendix for detailed sketches of concept.

Features/Functionality - Notes

- Level-by-level design, first-person gameplay
  - Menu upon start
  - Tutorial level designed from scratch, explains mechanics
  - Upon Tutorial completion, main level loads (downloaded pre-built map, edited)
  - Pause button with quit button to restart

- Detailed level design, variety of colors, different enemies, 8-bit color gun
  - Tutorial level (linear)
  - Main level (open)
  - Background music in main level, spider life/death sounds
  - Double jump implemented
  - Enemy spawns added
  - Enemies with spider mesh spawn every few seconds
  - Enemies roam/follow player, have death/attack animation
  - Gun can activate 8 bit values, 3 for red, 3 for green, 2 for blue.
  - Player must match bit value to corresponding value on enemy
- Mechanics: shooting at enemies with specified color combination
  - Enemies disappear when killed (gun must have matching color)
  - Enemies explode upon impact with player, deal damage
  - Enemies have randomized color mesh and an 8-bit value is displayed above them
  - Player must match gun bit value with enemy bit value to kill enemy
  - HUD shows an 8-bit sequence and corresponding square of color that changes as player changes gun bit values. When this color matches an enemy, the enemy can be killed
  - Another button to reset bit values to 0 (black) so they can be set again for the next enemy
  - Game is in survival mode, so player kills as many enemies as possible before dying.
  - Timer keeps track of how long player survives, kill counter keeps track of how many enemies have been killed.

Shortcomings

The original interactive aimed to show how 8 bit colour is less accurate than 24 bit colour, but we may have focused more on how bits further from the most significant digit have a smaller impact on the perception of color than what is closer.

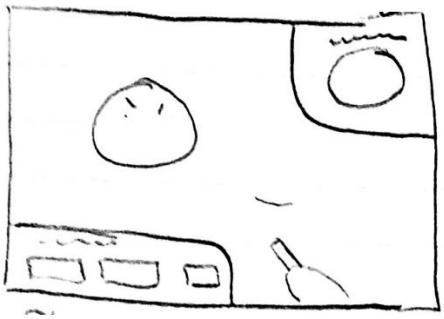
Using enemies is a risk because of how realistic Unreal Engine tends to be. We need to make sure our graphic design tends towards the cartoonish in nature so that no excessive violence is displayed.

RG color blindness may exclude players from the game since the whole game is

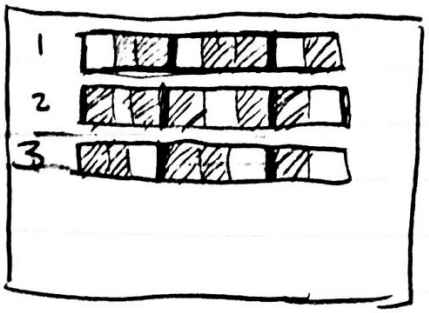
about matching the color.

Appendix

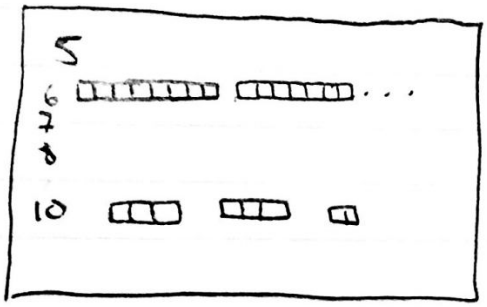
Figure 1: Concept storyboard



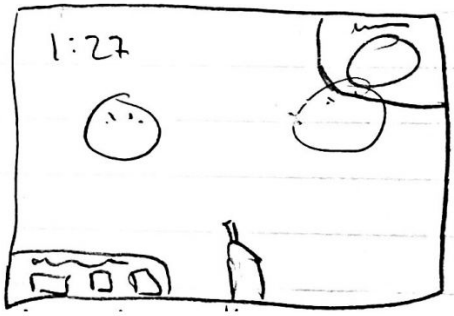
Players eliminate creatures in game by shooting them with paintballs that are coloured according to player selection.



For the first few levels, the most significant colour is changeable, but for later levels, only fine adjustments are allowed. For this, it may be simpler if only one color is adjusted.



After level 3, the game goes to 24 bit colour until discrepancies are indecipherable. Then, colours go to 8 bit while monsters remain in 24 bit colour. Damage is done based on how closely the 8 bit paintball colour matches the 24 bit creature colour.



Levels will be wave or time based, with a HUD to give the player info on their colour choice, visually and with RGB bits.