

Control Shift

A Puzzle-Platformer Video Game Utilizing Multiple, Unique Control Schemes

Sean Liotta - Digital Media LE/EECS 4700 York University
 Jeffery Marchment - Digital Media LE/EECS 4700 York University

ABSTRACT

Control Shift is a puzzle-platformer video game in which players utilize multiple, unique control schemes in concert with one another to solve challenges and overcome obstacles. The intent of *Control Shift* is to explore the areas of *Human-Computer Interaction (HCI)* and *Cyberpsychology* in relation to video games. This exploration is embedded into the game as players assume the role of a prototype robot that has been tasked with navigating various environments that are intended to test the limits of the robot's endurance and capabilities. The player is encouraged to investigate the abilities at their disposal by exploring the three different control schemes presented to them. Players become *Control Shift* virtuosos as they begin to perceive the three different control schemes as one intricate interface.

CONTROLS

Sony DualShock 3 controller

- Normal jump height, press "X" button to jump
- Normal movement speed, press the left or right buttons to move
- Flamethrower = "O" button

Dance pad

- Low jump height, step on up arrow to jump
- Fast movement speed, step on left or right arrows to move
- Hover, step on "A" ("Circle") button
- Electric blasts, step on "B" ("X") button

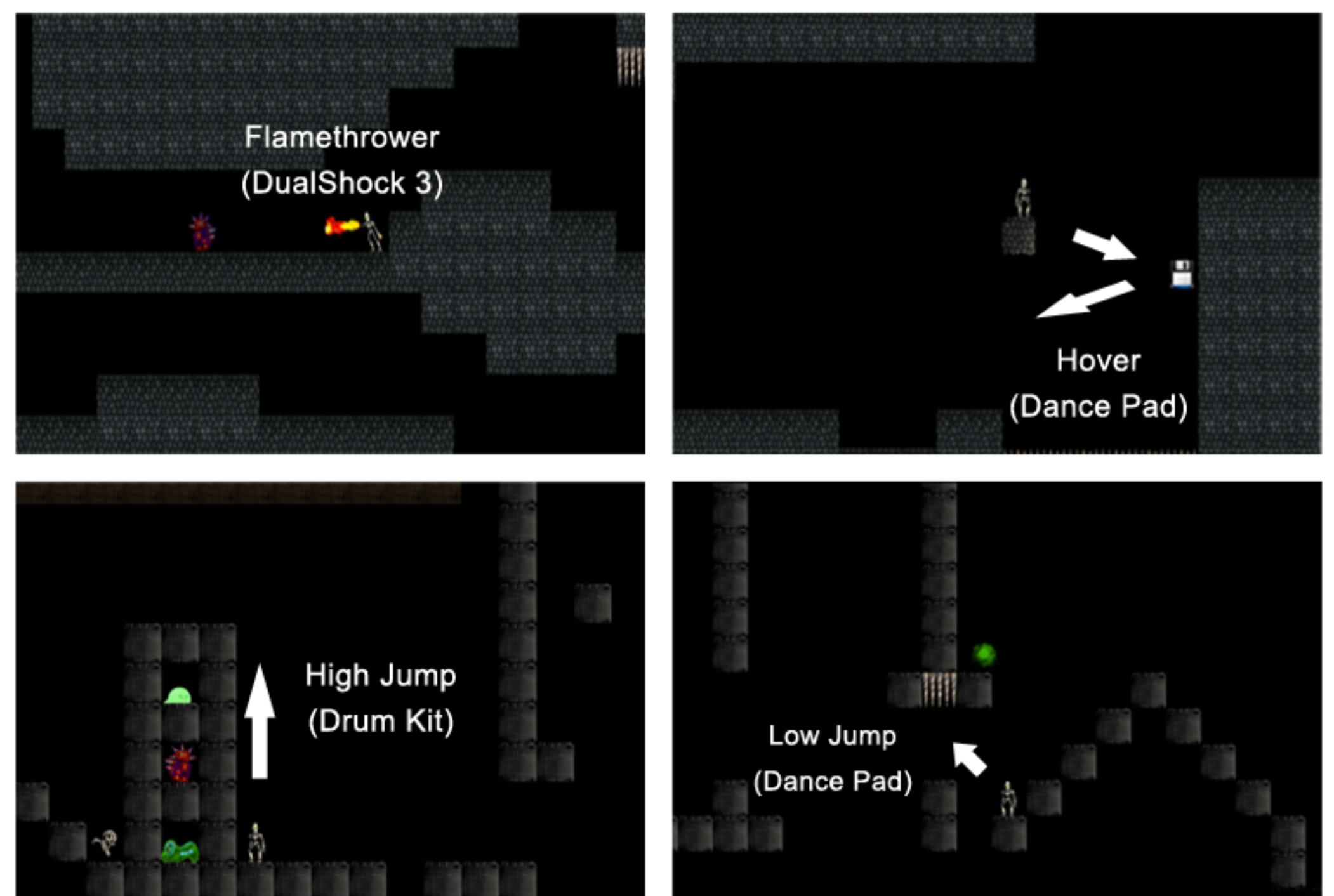
Rock Band drum kit

- High jump height, press down on foot pedal
- Slow movement speed, strike the yellow or blue drums to move left or right respectively
- Ground pound, strike the green drum
- Drill, strike the red drum

MOTIVATION

Control Shift is a project that fundamentally revolves around the notion that video game controllers typically play a transparent role in the gameplay experience. Rather than being thoroughly utilized in video games to create challenging gameplay puzzles, most video games disregard the gameplay opportunities that can be found in using a video game controller in new and unconventional ways. While it is true that in recent years, video game console manufacturers have made the push towards developing novel control interfaces, the games that are designed to make use of these interfaces often fail to utilize the controls themselves significantly. It is from this situation that *Control Shift* developed; as a game that completely revolves around the controls.

GAMEPLAY



RESEARCH QUESTION

Can a video game where players will have to simultaneously make use of three very different control schemes be an enjoyable and engaging experience?

METHODOLOGY

Most of the development towards *Control Shift* consists of designing software. The game is being programmed in HTML5, with visual elements created in Adobe Photoshop. For the hardware component, the Sony DualShock 3 controller, the dance pad, and the Rock Band drum kit are all connected to a computer on which *Control Shift* runs. As illustrated in **Figure 1**, the software determines which controllers are providing input and in return executes actions in the game that correspond to the sets of rules and physics applied to each controller.

CONCLUSIONS

To date we have developed a working system that is capable of interpreting button inputs from all three of our controllers and feeding those inputs into our HTML5 game engine. In the game engine we have developed six levels that make use of all of our intended gameplay features. At the midterm review for LE/EECS 4700, it was very satisfying to have attendees try *Control Shift* and to see their reaction to a type of video game they have never seen before. Some attendees even collaborated with each other in order to progress through the game, with each of them assuming control over different aspects of the controllers.

FUTURE DIRECTIONS

Going forward, we want to further determine players' reactions to the game that we have created. We want to make sure that we have created a game where the interaction is challenging but enjoyable as opposed to cumbersome. As a result, we will be conducting a user study so that we can evaluate our game by receiving valuable feedback from real users and ensuring that we make *Control Shift* meet its intended purpose.

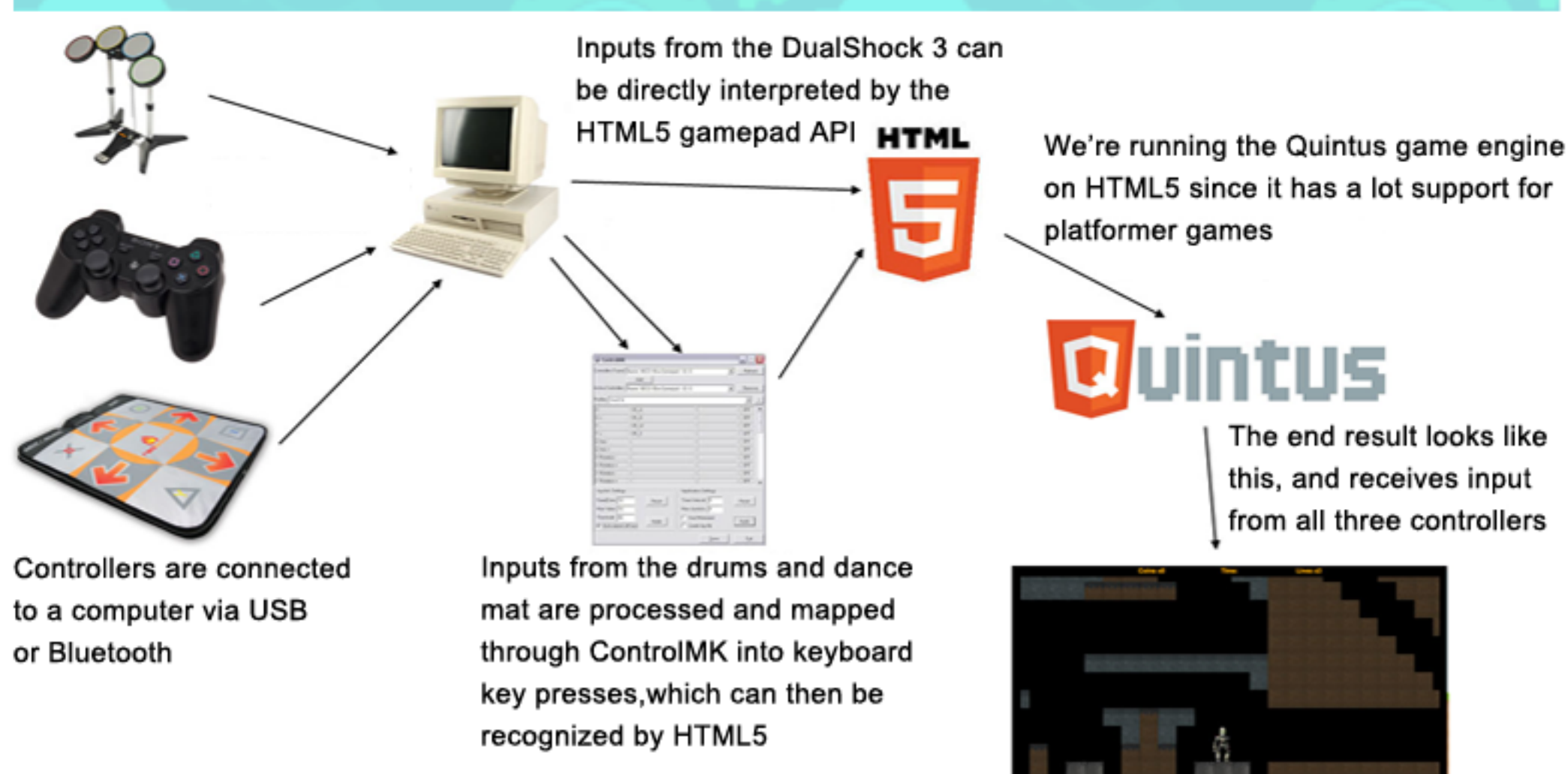


Figure 1. A Workflow Diagram depicting the functionality of *Control Shift*.

CONTACT INFORMATION

Sean Liotta: sean.liotta@gmail.com / sliotta@yorku.ca
 Jeffery Marchment: jeffmarchment@hotmail.com