Hybrid Gaming Platforms – Restructuring Game Control Schemes

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Abstract

Researchers from Electronic Arts (EA) share their experience working on a hybrid platform, a system that combines multiple platforms into one. Specifically, the authors discuss project Blade, a gaming service that combines console/PC games, touch-screen devices and a streaming game technology. The authors share their design process and the user research methods they are using to studying their hybrid system and what insights they have learned from gauging user expectations regarding gaming platforms.

Author Keywords

Game; Controller; Second-screen; Touch-screen; Streaming; Platforms

ACM Classification Keywords

H.5.2. User Interfaces: Input devices and strategies.

Introduction

Gaming platforms have begun to fracture as players continue to play games on multiple digital devices [1, 2]. This has led to a number of console manufacturers, game developers and service providers to build systems that merge platforms together into hybrid experiences. For example, digital distribution service Steam created Big Picture a feature allowing players to have a console experience on a PC platform. Console

Figure 1: Project Blade creates a second-screen experience where a touch-screen device acts as a controller for a game being streamed to a television while the device recieves contextual content from the streaming game related to gameplay.

platforms like PS3 and WiiU have created networked systems allowing wireless handheld game devices to act as game controllers, effectively merging handheld platforms with consoles. Hybrid platforms combine multiple platforms together and are making it easier for players to transition from platform to platform.

Researchers at Electronic Arts (EA) have been working on one type of hybrid platform, combining streaming PC/console games played on a television screen with touch-screen controllers. Project Blade explores how touch-screen devices can be used as a method for controlling a variety of digital games and relaying information back to the player during gameplay. Acting more than just a controller sending input to a game, a touch-screen device can function as a second-screen providing players with additional information and means of interacting with external features related to a game. In this extended abstract, we discuss how we have approached designing the experience of the platform and the second-screen style controllers. Our designs are informed by the user research studies the authors have conducted and we present the benefits, drawbacks and opportunities we have found while building our hybrid platform.

Project Blade
Project Blade brings together three different game related services and devices: streaming game networks, televisions and touch-screen tablets. Figure 1 relates the connection between the three parts. Players connect their touch-screen tablets to EA's streaming game servers in a similar way a user connects to other streaming services such as Netflix or Hulu on a tablet. The streaming game server continuously sends a video stream of a game to a player's television while

accepting control inputs and relaying data back to the controller. For example, when playing EA's Tiger Woods PGA Tour golf game the streaming server sends data back to the controller including: club selection, wind speed, mini-map orientation, etc. From the players perspective they see the Blade platform as a second-screen experience. A player interacts with the tablet controller and their actions are reflected on the television and tablet screen. The streaming game server stays hidden. Therefore, as part of the project Blade the authors are in charge of studying how players experience the second-screen setup. These means studying how to reconcile three different activities at the same time: playing games, watching streaming television and using touch-screen tablets.

User Testing and Design
Even though project Blade is a hybrid platform devoted to playing games, our target audience is novice or lapse gamers. The reasons we are targeting this audience are actually due to the type of platforms we are combining together. Streaming video, for example, is a common service households purchase and a streaming game service can mimic the same on-demand media functionality as video streaming services. Streaming games also solves the issue of maintaining expensive hardware that can cause users to give up gaming as an activity or to pursue other less intensive game platforms (such as mobile gaming). Furthermore, touch-screen devices continue to penetrate many households and users have become comfortable using those devices. Turning a touch-screen device into a game controller is not a giant leap for users. Streaming games and touch-screen devices offer a way to by-pass barriers related to maintaining hardware and a user's ability to use that gaming hardware.

Difficulties novice players have with gamepads

- Players have a hard time remembering what buttons perform which action (such as the A or X buttons) whether they had half the buttons hidden or not.

- Players did not understand "clicking-in" joysticks and the symbols used to define the action.

- Tutorial messages quickly removed after a player performs an action meant players where left unsure how to perform the action again.

- 3D camera position and simultaneous movement are difficult to master.

With novice gamers in mind we have conducted various user research studies looking at Project Blade as both a unique platform and a combination of individual platforms. Some aspects of our user research studies are described below. We also cover our initial exploration into our controller designs and how we have progressed in designing the experience of our hybrid gaming platform.

Guerilla Testing With Novice Gamers
During our initial controller design phase, we employed a guerilla testing method to review how players who had never, or rarely, used a Xbox 360 controller played console games. We conducted our test in a tourist heavy area in northern San Francisco, California where we had the chance to grab ten participants who were asked to play Mass Effect 3, a game that has an opening tutorial that displays messages relating to which buttons perform certain gameplay actions. In order to test our assumption that gamepad controllers (e.g. an Xbox 360 controller) are confusing for novice gamers, half of the participants were given controllers with some of the buttons hidden. For those participants, only the buttons they absolutely needed for the opening tutorial were left visible.

As a result of the test we found a number of issues related to how novice gamers experience a gamepad controller (see list to the left). For instance, participants had a hard time remembering the actions each button corresponded to (whether they had hidden buttons or not) and some aspects of the game (e.g. 3D movement) were hard to learn. Taking these results we entered into a phase of initial controller design for our touch-screen tablet controllers with the goal to mitigate the problems we found in our guerilla testing.

Initial Controller Designs
We began designing our controllers to prioritized fixing the issues we found during our guerilla test, such as making it easier to remember the gameplay actions buttons performed and how we can build controllers to help with features like 3D movement. Below are three features of our tablet controller design that attempt to solve the issues novice gamers had with a gamepad controller.

On-Screen Manual: Each game controller plainly states the actions each interaction area, which are designated areas on the tablet's screen that act as buttons or areas to perform gestures, can perform. This helps users recognize how to perform actions instead of having to recall an action. Figure 2 shows an example of the controller made for Dead Space 2 where interaction areas are labeled to show which gestures players use to perform actions like shoot or move.

Overloaded Controls: Interaction areas can be overloaded on a touch-screen controller, allowing for multiple gestures to be used in the same area to perform actions that relate to one another. For example, in one area on the controller built for Mirror's Edge the player can hold down their thumb in the right interaction area to move the camera up or down and tap in the same area to attack. Moving the camera up and down to aim is often used in conjunction with attack, such as firing a weapon at an enemy, so mapping those actions together in the same area makes it easier for players to combine those actions during gameplay.

Contextual Controls: Since the game streaming server and the tablet controller stay in constant
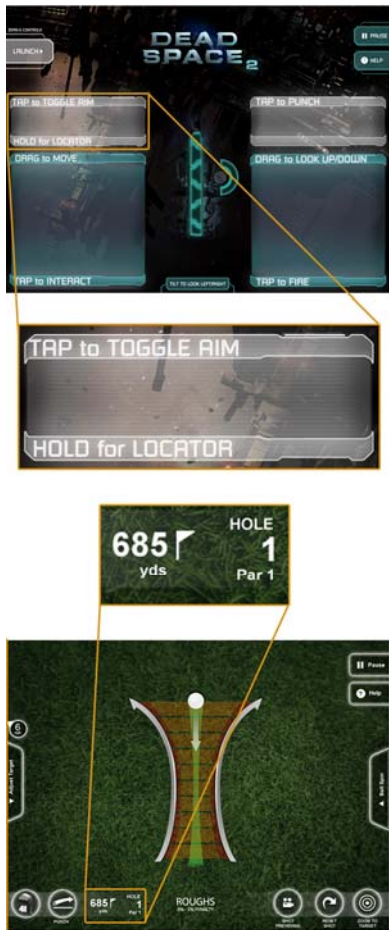
Figure 2: Touch-screen controllers allow interaction areas to be labeled with their corresponding gameplay actions and can present contextual information about the current state of a game.

communication with each other the controller can modify itself based on the context of the game. The controller built for Tiger Woods PGA Tour, for instance, changes as a player moves from hole to hole along a course (see Figure 2).

Playtesting Our Initial Tablet Controllers
After building our initial controllers we began running playtests to determine how players would fair while using tablets as their main controller. Thus far we have testing over 15 internal EA employees and over 15 external player participants of mixed gaming experience. Playtests are typically run as one-on-one think out-louds and sometimes includes asking participants to perform certain tasks such as using specific game features that appear on a tablet controller.

Testing a variety of participants has brought up a number of design issues related to building a hybrid platform. For example, some participants expected our games to act like the mobile game versions instead of console or PC versions. As a result, we have found that we can layer features from the mobile version of a game on top of controls meant to support the console or PC version of a game, allowing players to choose which controlling format they wished to use. We have also found that the affordances a tablet and television combination allows makes it possible to change how a game is presented (such as game UI being moved to the controller leaving the television less cluttered) and controlled (e.g. using tilting to steer a car instead of a joystick). Playtesting has allowed us to gauge what affordances each single platform adds to the player's experience while also understanding what expectations players bring to our hybrid platform.

Conclusion

While this extended abstract does not allow us to go into great detail about our entire design and evaluation process, the areas covered do provide an initial glimpse at how hybrid platforms can be tested with current user research methods. Understanding each piece of a hybrid platform while also understanding what a target audience expects from individual platforms is crucial for learning how a new hybrid platform will be experienced by players. For project Blade we have found we needed to evaluate how players perceive different versions of our games and how they interact with their televisions and tablet devices. It is imperative for user researchers who are evaluating hybrid platforms to view their platform as both a novel experience for players, one that may not be immediately understood but immensely exciting, and as a system that tries to reconcile a number of ingrained player expectations about platforms that do not necessarily mesh with one another.

References

[1]   Neilson. State of the Media: Cross-Platform Report Q2 2012. http://www.nielsen.com/

[2]   ESA. 2012 Essential Facts About the Computer and Video Game Industry.
http://www.theesa.com/facts/pdfs/ESA_EF_2012.pdf

[3]   Solane, A., Rusu, C., Collazos, C., Roncagliolo, S., Arciniegas, J.L., Rusu, V. Usability Heuristics for Interactive Digital Television. *In Proc. IAFIN 2011*, 60-63.

[4]   Korhonen, H., Koivisto, E.M.I. Playability heuristics for mobile multi-player games. *In Proc. DIMEA 2007*, ACM Press (2007), 28-35.

Ben Medler Bio:

As a technical visual analyst at EA's Chief Creative Office, Ben Medler is tasked with understanding how players behave and how to visualize their behavior. With a Ph.D. in Digital Media from Georgia Tech, he has studied game visualization and analytics for many years, working on both industry and academic projects. In the past, Ben has worked on Dead Space 2 and Star Wars: The Old Republic, where he helped to build visual analytic systems for analyzing player behavior. His most recent work revolves around producing game visualization systems that players can use, and speaking with player developers who build their own tools for visualizing game data.

Lily Li Bio:

Lily Li is an Assistant UI Designer at the Office of the Chief Creative Officer (OCCO) in Electronic Arts. She has been working with the OCCO team since May 2012, designing UX and UI for a hybrid gaming platform – Project Blade – and conducting usability tests for the project. She holds a Master Degree in Entertainment Technology from Carnegie Mellon University and was also a graduate of the HCI undergraduate program at Carnegie Mellon University.