GameVR Demo - 3Duel

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Platform: Android-GearVR
Tools: Unity and Kinect

Background - Too Little Control

- The GearVR headset limits user motion control to sight (headtracking)
  - No control of character movement
- The GearVR touchpad can only interpret certain commands (click/swipe) which do not necessarily fit gameplay logic
- GearVR has no first-party option for motion controls or spatial recognition (like that of the Oculus or HTC Vive)
- Creating a fun and natural sense of player controlled movement in combination with the free-perspective of VR is on an ongoing challenge in the game industry

Background - Take Away

- There are many VR “combat” games on the market

- Most of them have trouble incorporating immersive movement

- Specifically for GearVR, almost all combat/action games are “look and tap”

Background - Take Away Cont.

- Games either allow a sense of immersive movement with little to no action, or offer an immersive combat or action scenario, but with a very restricted or “on rails” sense of movement

- In our opinion, most VR games are trying to do too much with perspective, and too little with satisfying, player-controlled, movement in a 3D space

Our Game

Gameplay Logistics

- Two players enter a world in which they attempt to pass all obstacles in their way before the opposing player does
- Get hit by one obstacle and the player is out
- Avoid the axes by being quick on your feet and the pegs by knocking them down with correct sword positioning
- Players control forward and backward movement by leaning forward, and control their sword transitioning between two positions (up and down) with their right hand
- Players have a free perspective in the first person view

What is New In Our Game

- Most other VR games have limited to no movement--mostly look and click
- 3Duel has a strong sense of movement and control
- Merging the Kinect Sensor with the GearVR in order to deliver an experience unlike any other on the GearVR app store now
- Our game attempts to give a great sense of movement and presence by utilizing both the GearVR and the Kinect Sensor

What You Should See

- Each player sees a first-person view of the game
  - Looking down will allow you to see your own body, you can look around, and looking straight will show you your sword and the scene around you
- You should see a sword movement that is mapped to the movement of your right hand
- The scene has columns on both sides of each platform with live flames on top to provide a greater sense of immersion and real movement through a non-static scene
- The platform eventually comes to an endpoint, which when reached signals a player has won

Limitations and Challenges

- In order to incorporation an additional level of sensing, we abandoned our interest in a bluetooth controller for the Kinect
- Kinect data is very discontinuous, and it was a challenge to filter out tracking “noise”
    - Mapping somewhat indeterminate movement data to determinate movement was a challenge
- Because of the noise from the Kinect sensor data, we needed to use linear interpolation in order to provide a smoother sense of movement for the sword

Limitations and Challenges cont.

- We limited the sword to two main positions (up and down) to work around some quirks of the hand position tracking in conjunction with leaning/walking for movement forwards and backwards
- Made player bodies spheres because the jittery feed from Kinect sensing made using a humanoid skeleton model distracting and nauseating

Closing Thoughts

- Kinect enabled input for immersive movement in a VR setting is indeed possible and enables a better sense of presence
- Games and experiences on the GearVR do not need to be limited to the “on rails” or “look and tap” play styles
- Simple gameplay combined with intuitive and natural controls can make for a fun and immersive experience
- More directions of freedom of movement can be explored in the future
- Movement in a VR space should be designed to feel natural and alleviate as much of a sense of disconnect as possible

Questions/Feedback?