

# **Virtua Walker '87: technostalgia for a walking sim from an alternative past**

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# Virtua Walker '87: Technostalgia for a Walking Sim from an Alternative Past

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## ABSTRACT

Virtua Walker '87 is VR walking sim that makes use of a step-based controller for input. Players view the game world using the Gear VR headset, which they can use to look around. Movement is controlled by walking on the spot, with force sensitive resistors picking up player steps and translating each step into a single step in the game. The game is conceived as a piece of technostalgia from an alternative past, and was created by academic staff at Abertay University as part of Global Game Jam 2017.

## CCS CONCEPTS

• **Software and its engineering**~Interactive games • *Human-centered computing*~Virtual reality

## KEYWORDS

Alternative history, game jam, nostalgia, VR, walking simulator

## 1 HIGH CONCEPT AND MECHANICS

Developed at Abertay University during Global Game Jam 2017 (GGJ17) [1], *Virtua Walker '87* was conceived as a fictional piece of technostalgia: a 1980s product that offered an early glimpse into the future of Virtual Reality (VR), but which ultimately failed to deliver due to the technical limitations and conceptual shortcomings of 1980s game development. The prototype was developed in response to the GGJ17 theme 'waves'.

The *Virtua Walker '87* prototype is presented as an imagined 1980s VR walking simulator, which allows users to 'visit' and 'walk' along Scottish beaches. Player movement is restricted along a set path, and the player has no ability to set or change this path. The player cannot move backwards, only forwards along the set path. This excessive restriction on player agency was a deliberate decision in order to reinforce the idea that the game was not only hampered by the technical limitations of period computing, but also underdeveloped conceptually due to an emphasis on technology over user experience. Importantly, the prototype was conceived as a physical walking game: movement is executed through a physical player step on real sand, ideally whilst barefoot. Two pressure sensors under the player's feet detect a shift in player weight, and send a signal to the game on the device. Each step corresponds with a single step in the game. The player must continuously step on the pressure sensors to move through the game environment.



Figure 1: Opening scene of Virtua Walker '87.

## 2 TECHNOLOGICAL SOLUTION

The project was developed in Unity 5.5 using Oculus Utilities to build to Samsung Gear VR. Art assets were created in Adobe Photoshop and Autodesk Maya, and audio assets were created in Sidetracker 64 on an iPad Pro. In order to achieve the appropriate visual aesthetic, a shader was applied to the Oculus VR camera in Unity. The shader was in turn customized to create a 4-bit colour dithering effect (see Figure 1). The intention with the visuals and audio was to simulate the audio-visual qualities of the original Nintendo Game Boy, but in a 3D world presented within VR.

The more complex technical challenge was the development of the controller, and subsequent connection to the Samsung device. A customized control device was designed and developed during the jam (see Figure 2). Two force sensitive resistors were connected to an Arduino board, which was in turn connected to a laptop that sent a signal over Wi-Fi. A Samsung Galaxy S7 Edge was connected to the Wi-Fi network, and placed inside the Samsung Gear VR headset. When the player stepped on either force sensitive resistor, the change in weight was detected as a button press, which was then sent over Wi-Fi to the Samsung Galaxy S7 Edge, where the Unity build of *Virtua Walker '87* interpreted the button press and mapped this on to a player step. Each time the player applied force to one of the force sensitive resistors, the player moved forward by one step along the virtual beach represented in the game.



**Figure 2:** *Virtua Walker '87* final set-up as shown at the IGDA Game Jam Play Party (Dundee, February 9<sup>th</sup> 2017).

### 3 DESIGN AND DEVELOPMENT PROCESS

This game was a challenging project to undertake during GGJ17 for three reasons:

1. **Technical complexity** (The player input required product design and engineering work)
2. **Time limitations** (Both of the primary developers were unable to commit to the full jam due to family and other responsibilities. Development time during the jam was therefore limited to approximately 12 hours in total for the project team)
3. **Academic responsibilities** (All of the developers who worked on the game were full-time academic staff at Abertay University, and therefore had additional responsibility for the running and organization of the GGJ17 site before and during the jam)

These challenges raise important questions for jam participation, in particular in terms of both what can be accomplished technically and also what can be achieved by those jam participants who have additional responsibilities and who cannot necessarily commit to the full development period. In particular, the participation of academic staff in jams hosted by universities and colleges was a challenge we were keen to address.

In order to tackle these challenges, the team set out two objectives in the week before the launch of the jam:

1. **Statement of intent** – Firstly, the team met to discuss the technologies they were collectively keen to work with, framed by a need to not only sharpen game development skills in general but also to learn more about technologies that they had limited experience of. The technologies selected were the Samsung Gear VR and the Arduino microcontroller kit. The team realized it would be interesting to try to connect the two technologies into one creative response to the GGJ17 theme, when announced. These technologies were immediately sourced in preparation for the jam, and the team ensured that they were sufficiently knowledgeable about the development pipelines in order to minimize the amount of time spent at GGJ17 getting to grips with technology.
2. **Idea formulation and communication** – It was agreed that, once the theme was announced, the designer would quickly collate the team's ideas into a High Concept document that would outline the full brief for the game. As the team would have limited time together, there was a need to ensure that no-one's time was wasted while other team members were either busy with jam management or off site. The High Concept document (13 pages) was the primary responsibility of the team designer in the first 2-3 hours of the jam, but subsequently framed all of the individual design and development workloads for the next 2 days of the jam.

While the final build lacked some of the design concepts outlined in the High Concept document, by preparing in advance for a time-limited project the team were able to develop and deliver an experimental proof of concept that was not only responsive to the theme, but also highly valuable for the professional development of the academics involved. The prototype subsequently drew press attention [2] that highlighted the novelty of the concept, and the project is currently being used to inform teaching of game development using VR.

### 4 AVAILABILITY

*Virtua Walker '87* (.apk plus source code) can be downloaded from the GGJ repository [1]. The tested device was a Samsung Galaxy S7 Edge. Additional details are provided on the game's web page [3].

### REFERENCES

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