

## **Gaming with Connection**

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### **Abstract**

Virtual reality allows a user to destroy the obstacle of distance and bring anything to you. Virtual museums are prime examples of that as they engulf users with experience allowing them to interact and explore different information provided by such facilities. Gaming with Connections aims to give the feel of the museum to the world of video games. The visitors of the Gaming with Connection Museum can have a virtual tour from the comfort of their own homes with the device everyone has beside them, a mobile phone. The research gap aims to find and develop an application using information and requirements needed in creating 3D models, PNG images, and videos. Using the related literature about several virtual museums, the researchers had a basis for their idea. For the design's completion, the researchers developed the medium from elements of their knowledge of what a museum is. This virtual museum is used not only for self-gain but also to make the information content accessible to the public, especially people in the community and video game lovers.

### **Keywords**

Virtual Reality, Video Game, Scalper

### **1. Introduction**

Virtual reality allows a user to destroy the obstacle of distance and bring anything to you. Virtual museums are a prime example of that as they engulf users with an experience allowing them to interact and explore different information provided by such facilities. Gaming with Connections aims to give the feel of the museum to the world of video games. The Gaming with Connection Museum visitors can have a virtual tour from the comfort of their own homes with the device everyone has beside them, a mobile phone. The research gap aims to find and develop an application using information and requirements needed in creating 3D models, PNG images, and animation. This virtual museum is not only for self-gain but to make the information content accessible to the public, especially people in the community and video game lovers.

#### **1.1 Objectives**

The main objective of this study is to create a functional video game that can be played on a mobile device. The video game was a virtual museum that provided players with access to video game collector items that have been unavailable in their country. The researcher provided a game that gives an alternative to users to consume material entertainingly and educationally without the worry of expenses and boredom. Going into detail are the specific objectives and requirements to accomplish the goal: Design, Develop, Test, and Publish.

In addition to the objective are the core functionalities and accessibility features implemented in the product:

- Virtual Exhibitions
- Virtual Immersion
- Informative Narrative on Displayed Items
- Quiz Trivia
- Visual, Audio, Textual and Animated accessibility.

## **2. Literature Review**

The researchers' findings gathered many factors to back their study and approach in design. To start, the readers were introduced to the concept of living virtually and the origin of virtual reality to be made for a museum. Next would be a more in-depth explanation of why human beings collect things in the first place before discussing other theses that have also designed VR content like this one. The researchers provided the reader with other examples of virtual reality museums existing currently, before ending the segment in the current list of games to be featured in the game design and the reasoning behind the choice of selection.

### **2.1 How to Live Virtually**

A typical virtual reality headset is an all-in-one computer with a screen that allows users to be put into a software-generated environment. Features work with many sensors like the gyroscope and the accelerometer which give the computer on the headset the ability to move the camera for the user with their physical head movements. Other types of virtual reality require external cameras to capture the movements of a player and are connected via Bluetooth with the headset.

### **2.2 Desugning a Virtual Museum within a Museum**

Malreaux was the first to propose the concept of a museum without walls as a new way to view and show art. Malreaux envisioned a museum without walls made up primarily of images that could be included in printed media, by using the technological capabilities of his time. Tschritzis and Gibbs invented the phrase "virtual museum" (Charitos), where they present the notion of a virtual museum as well as the technologies required to make it a reality. The primary objective of the 'Virtual Museums' project was to establish a virtual environment (VE) for improving the museum experience by allowing viewers to observe and manipulate the VE system, which could be easily relocated to any exhibition site or remote location. This fact may allow a wider audience to see critical information, without needing to travel far.

### **2.3 Why we collect things**

For many years artifacts, creative works, and trinkets have been admired and kept by humans to be displayed in their homes or well-kept facilities. Psychologically, the reason why humans collect has been debated and analyzed in several ways but ultimately agreed it is an instinct human have had since their existence. The focus that the researchers want to target is the motivation behind human collecting habits. When making studies of how to treat collection habits it was found that "material objects serve as abstractions of the self-other relationship, sometimes by association and context" ... "others in terms of self-worth and identity." [Dillon, 266] With that in mind, collecting is one of the ways humans communicate their interests to others to give outsiders an idea of their life and background.

The games the researchers discussed in this report followed the list by Callum Marshall from Indie Game Culture who accumulated a list of the greatest indie games in late December of 2022:

- The Binding of Isaac
- Papers Please
- Hades
- Inside
- Stanley Parable
- Super Meat Boy

### 3. Method

#### 3.1 Design

To create the museum, the game's design and layout will be captured by visiting the article and obtaining imagery of the artifacts and structure. The models are set to be created with Blender software. To be given the option of VR capabilities, using Unity Engine, the researchers will make the smoothness of the visuals linked properly with a player's movements utilizing an accelerometer and a gyroscope movement as well as touch screen sense to be able to interact with the object. The researchers have implemented visual imagery, audio sounds, animation and textual components. Users will find objects on display spinning on the table. Text is provided everywhere from the greeting of the player to the written pop-up display. Users will be able to hear background music in the main game and mini-games. The game is also designed to stimulate the user to want to explore and see what they can come across when traveling about the building.

#### 3.2 Story Board

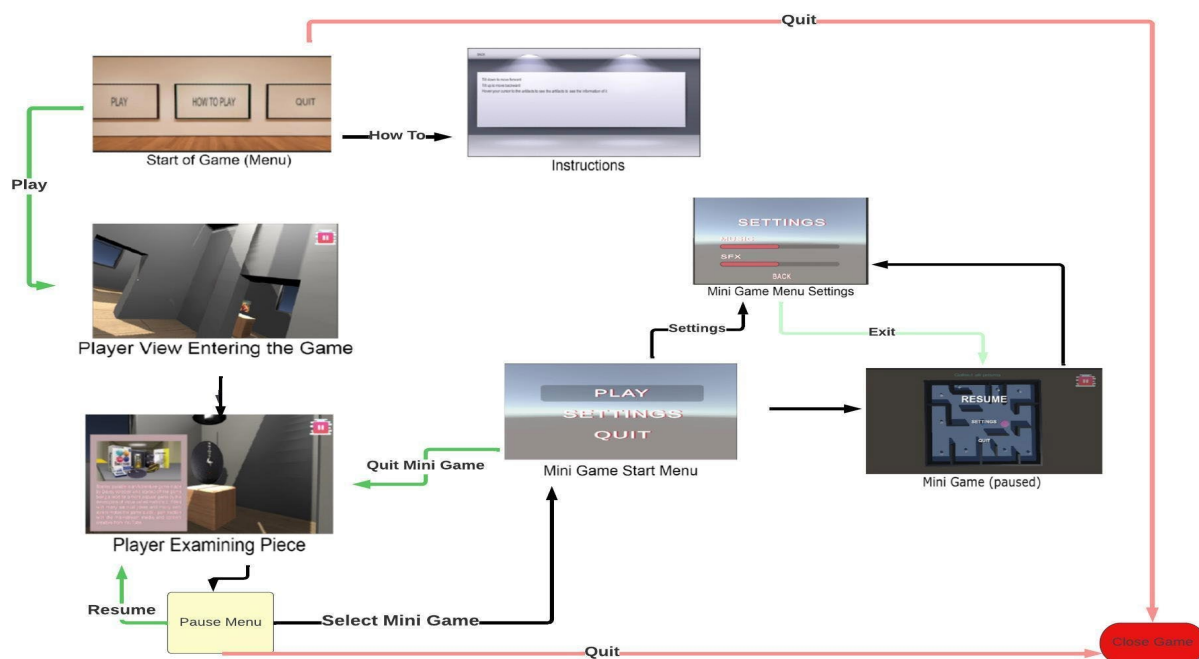


Figure 1. Storyboard of game flow

#### 3.3 Development

When users enter the game, they will be in the center of the location and allowed to explore the building to find the different items. When found, upon looking at the object displayed they will be presented with a description of the object. This gives the user information on the game the object is representing. Information includes but is not limited to the summary of the game exposition, the developers, and the type of game it is.

The researchers designed the game to have an inviting ambiance with the sounds and visuals. The animations to the game objects also provide life to the area, giving more of a dynamic experience. GameX researchers provided a trivia game to help challenge the users on what they have learned when playing the game and exploring the museum. The quiz will be repeatable and has no consequence for missing questions, this is to not discourage the users from trying again. The researcher's goal for the mini-game trivia is to only further educate for fun. Example questions to expect when playing the trivia games are: "When did the game get released" and "Who are the developers of [said game]."

## 4 Data Collection

Table 1. Technical Requirements

| Hardware Requirements          | Software Requirements | Function         |
|--------------------------------|-----------------------|------------------|
| Android                        | Android 9             | Mobile OS        |
|                                | 3 GB Min              | Memory           |
|                                | 4GB Recommended       |                  |
|                                | 64GB                  | Internal Storage |
| Virtual Reality Box (optional) |                       |                  |

### 4.1 User Testing and Feedback

The users were asked to play the game either in person or through a link provided. The link takes them to the Itch.io website. This website allows small developers to upload a video game and have players from around the world test it out. No matter where they played the game, the users were then asked to fill out a survey made with Google Forms to provide feedback of their experience.

The questions asked:

1. Name and age.
2. How often do you use your phone?
3. How often do you play video games
4. Do you find the game fun?
5. How often would you play the game?
6. Does the game pique interest in collectibles?
7. General comments.

## 5. Result and Discussion

### 5.1 Virtual Exhibition Output

#### Museum

The design of the building was taken from the basic layout of a home from one of the researchers and the rooms provided (3) consist of two displays.

#### Binding of Isaac: Isaac Worm

A dungeon crawler game by the developers of Nicalis. This game allows the player to use tears as their weapon and

can acquire power-ups as they transverse through the levels. It is arcade-like, giving plenty of replay value as each restart has a randomly generated order and pattern in the levels.

### **Hades: Booklet**

A roguelike game created by Supergiant Games. It won the Game of the Year award at the 2021 Developer Choice Awards, showing that indie games can be just as competitive as the AAA games in the industry.

### **Inside: The Boy**

The second installment from Playdead's Inside is a 2D platformer that is darker and more challenging than most platformers people are accustomed to. The developers manage to make a compelling horror/psychological game without uttering a word, leaving players to take in the ambiance and the imagery during gameplay.

### **Papers Please: Country Badge**

A puzzle simulation game made by Lucas Pope and 3909 and a game that gives players a bit of realism as they play as a border patrol officer and must do the duties of such position in the country the game takes place in. Following multiple types of outcomes and ending the game can make a simple job simulation engaging and entertaining for replay value.

### **Stanley Parable: Tie**

Stanley Parable is an Adventure game made by Davey Wreden who started off the game being a mod for a more popular game by the developers of Valve called Half-life 2. Filled with many satirical jokes and many self-aware meta, the game quickly gained traction with the mainstream media and content creators from YouTube.

### **Super Meat Boy: 2D Image**

This game is a platform game that debuted in 2010 by the developer Team Meat. The platformer runs as a game that makes players control a character at high speeds, usually leading to an untimely death and making the players play the game over again until they can reach the goal. This game gave gamers a challenge and tested their skill and patience as progression was not an easy task.

## **5.2 Objective Implementation**

### **Educational Value**

The People: Collection is how humans communicate what is important to them. Experiencing the application brings the opportunity to be close to something important without the distress of missing out.

The Developers: The collector items shown are part of what the developers have made in hand with whatever output source for their collector items. The application giving people access to examine virtually can give users insight into the detail and thought that goes into the creation of the collector editions. This in turn could give users more interest in their past and future installments.

### **Entertainment Value**

The game being virtual is already a fun concept for others. It forces the user to immediately immerse themselves into the world presented in front of them. The look sensitivity is as realistic as a normal individual walking through a museum in person to keep from any motion sickness. And to keep the interest in learning optional mini games are provided for continual interaction with the game.

### **Effectiveness of Accessible Features**

#### **1. Visual Text Accessibility**

Visual text is shown in the pop up of the item display. This has the information of the game presented for the user to read.

#### **2. Audio Accessibility**

Background music is noticed in the game to give ambient feels as the user explores the museum. The minigames have added noises to indicate making it to the right place.

### 3. Animation Accessibility

The spinning of the items allowed for the users to be able to see the details of the displayed options easily. Making the needed to navigate through VR controls less intimidating for new players of the concept.

## 5.3 Discussion

### User Satisfaction

The overall feedback was positive with most of the users being in their early to mid-twenties. Some of the older users have shown a bit of confusion when playing the game initially and needed guidance on how to play a virtual reality game. However, that did not tarnish their attitude on the gameplay experience.

### Suggestions for Enhancements

Others ask for more culture to be implemented within the environment of the museum to make it more exciting to look at. And for the mini games built into the games to be more challenging so that the replay value of it can increase for them.

## 6. Conclusion

Researchers developed a virtual museum from the ground up. Building models in Blender and making the video come to life with Unity Engine. Core elements that were tackled were virtual exhibition, Virtual Immersion, and Quiz Trivia. The researchers sought to provide the merging of education and video games by putting the two together in a virtual world. As a target demographic that is in a developing country this development closed the gap between Filipinos and collection and eliminated the risk of scalper dangers. Since the video game was focused on one genre it is possible to have the other genres added into the game. The comments of players asking for more culture to the setting of the world is also a possible addition to the game. The game can also expand to have full VR capabilities if motion control attachments were to be installed. The researchers succeeded in making a virtual museum and knocked out all objectives stated. The core elements have been established therefore making room for improvements clear and concise.

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