Project Report on

Virtual Reality

RETAIL SUPERMARKET

made with **Unity**

Group No. 23

Course : **CSPE51 –** Augmented and Virtual Reality

Branch : Computer Science and Engineering

Submitted by :

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PROBLEM STATEMENT

In today's fast-paced digital era, the retail industry is evolving to embrace virtual environments, where customers can browse, select, and purchase items with ease. The goal is to design and develop a Virtual Retail Supermarket that simulates a real-world shopping experience in a virtual space.

In this virtual supermarket, users can:

1. **Order Items –** Browse through various products and add them to the inventory.
2. **Place Items on Racks –** Arrange and organize items on virtual shelves, simulating real-life retail stock management.
3. **Customer Shopping Experience –** Customers can browse the supermarket, add items to their cart, and make purchasing decisions.
4. **Checkout and Billing –** A streamlined checkout process calculates the total bill, processes payments, and completes transactions.

This virtual retail environment should provide an intuitive, user-friendly interface that mimics the natural flow of a shopping experience while leveraging virtual interactions for convenience and accessibility. The solution aims to bridge the gap between physical shopping and e-commerce by providing an immersive virtual retail experience.

DESIGN

- **Rack Placement and Arrangement**: Users can add racks to the store, move them, and place them in desired locations, enabling a customizable store layout.
- **Product Ordering and Stocking**: Items, such as fruits, can be ordered in specific quantities. They arrive in a carton box, which can be opened to unpack and place items onto racks for display.
- **Customer Interaction**: Customers can browse the store, select items from racks, add them to a virtual shopping cart, and proceed to the checkout for billing.

- **Checkout and Payment**: Billing and checkout processes are available when the store is open, allowing customers to complete purchases and simulate payment.
- **Market Door Control**: The market door can be opened or closed to manage when customers can enter and shop.
- **Garbage Disposal**: A garbage area outside the store is available where users can discard empty carton boxes, keeping the store organized.
- **Revenue Display**: Total revenue generated is displayed on the screen, giving a real-time view of earnings.
- **Weather and Day Display**: The current weather and day of the week are shown on the screen, adding a realistic and immersive atmosphere to the virtual environment.
- **Audio Effects**: Footstep sounds and pleasant background music create a more lifelike ambiance, enhancing user immersion.

TOOLS USED

Software: Unity 3D, VS Code, GitHub

Programming language: C# (mostly), csharp

Packages: Unity Assets.

CODE LINK (Github)

https://github.com/Vishnuvardhan799/ARVR-Project.git

INSTRUCTIONS FOR EXECUTION

1. **Open the Project**: Launch Unity Hub, locate your project folder, and open it in Unity.

2. **Enable VR (If Applicable)**:

   - **Edit > Project Settings > XR Plug-in Management**.
   - Enable your VR platform (e.g., Oculus, OpenXR) if using VR.

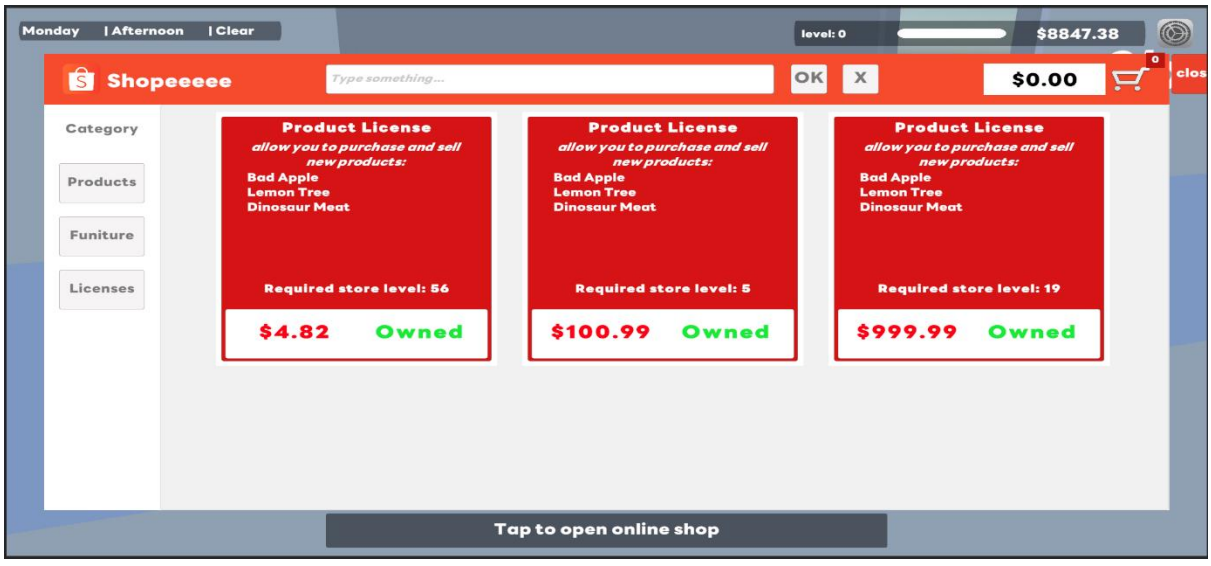
3. **Load the Main Scene**: In the **Project** window, find and open SupermarketScene.unity.

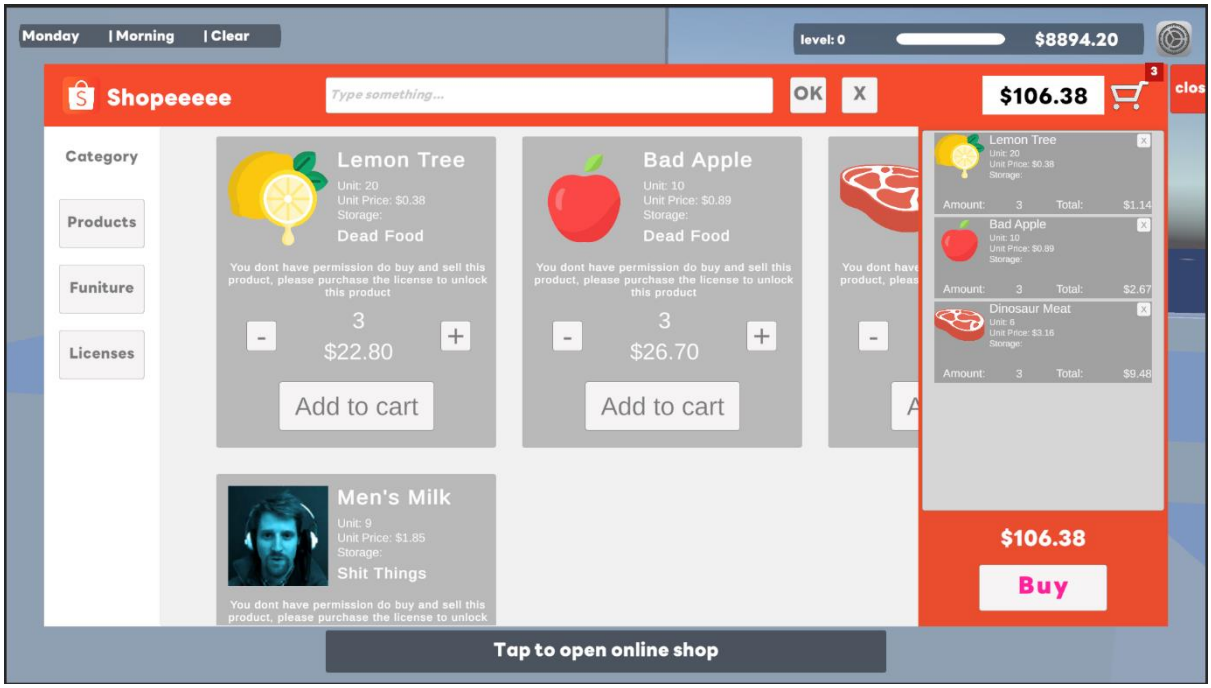
4. **Check All Components**:
    - Verify that racks, products, checkout, and UI elements are correctly positioned.
    - Ensure audio effects and displays (e.g., revenue, weather) are set up.
5. **Test in Play Mode**:
    - Use **Play Mode** to test the project.
    - **PC Controls**: Use the keyboard and mouse to navigate and interact.
    - **VR Controls** (if applicable): Use VR controllers for a fully immersive experience.
6. **Build for Target Platform**:
    - **File > Build Settings**, select your target platform (e.g., PC or Android for standalone VR).
    - Add the scene to **Scenes in Build** and click **Build**.
    - Run the build on your PC or VR headset as needed.
7. **Final Testing**: Confirm that all features (navigation, ordering, checkout, sound) work smoothly on both PC and VR.

DEMO Youtube Link:

https://www.youtube.com/watch?v=64fAivq4YfU

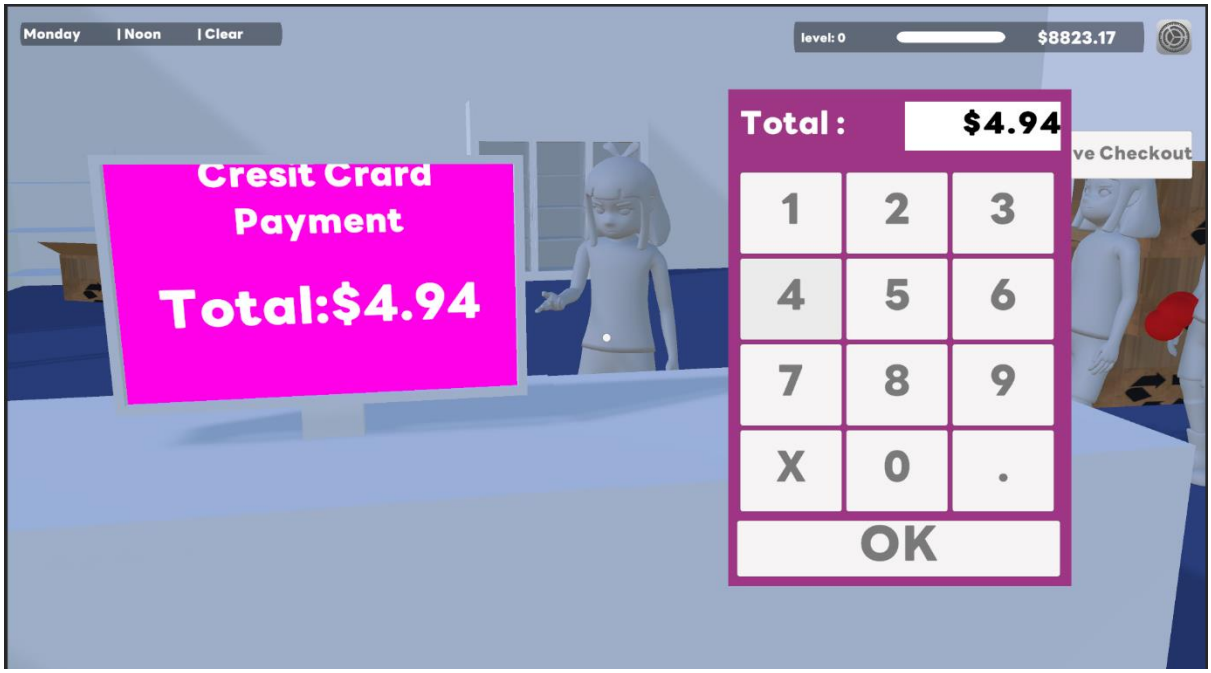
SAMPLE TEST CASE

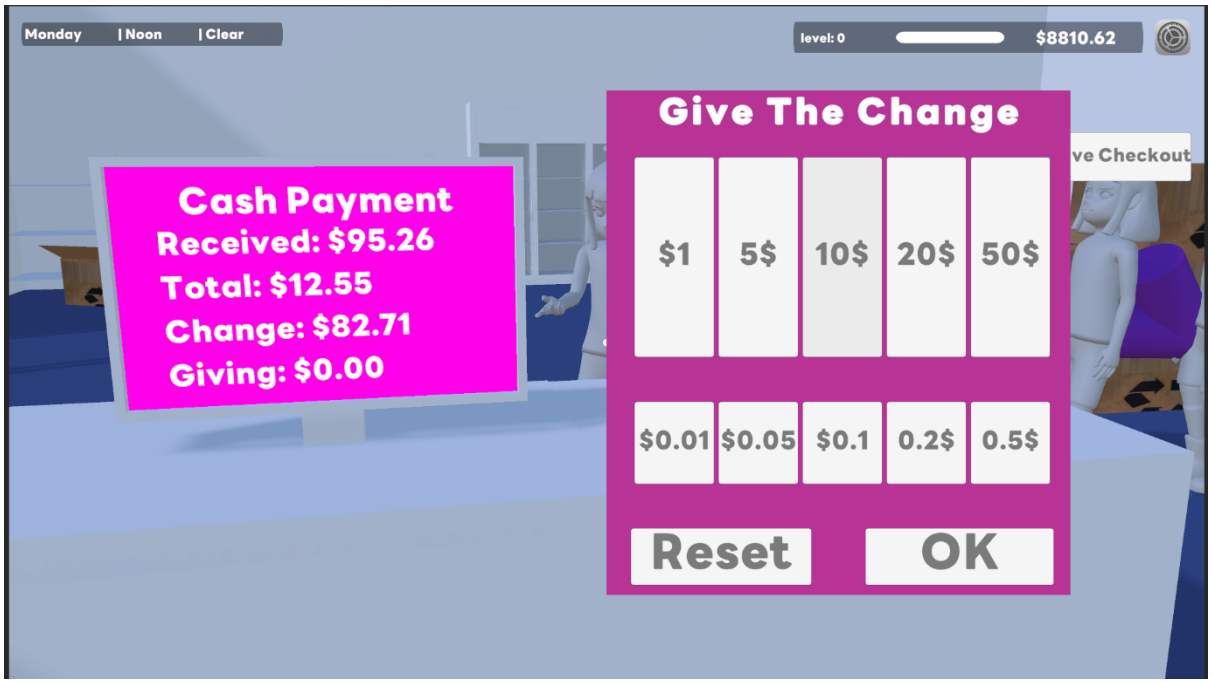




Placing items in rack

Checkout Interface





HOW IS IT DIFFERENT FROM EXISTING APP?

- **Real-Time Inventory Handling:** Products are ordered in quantities, arriving in a carton that can be unpacked and arranged, adding a physical simulation of inventory management.
- **Customer Simulation:** Shoppers can interactively browse, checkout, and control store access, creating a more engaging experience compared to standard checkout processes.
- **Enhanced Realism:** Realistic audio effects, including footsteps and background music, combined with visual displays of weather and revenue, enrich the immersive experience.

CONTRIBUTION OF EACH TEAM MEMBER

Bandi Amruteswar Reddy (106122022)– Game assets, joystick controls, Navigation, Event scripts, PPT.

Bunni Ranadeesh (106122026)– Setting up prefabs, shop UI, lighting and audio for background music, Billing algorithm and script, REPORT making.

Neeli Vishnu Vardhan (106122087) – Fonts, images, materials and models used, Scripts for checkout, night scene background.

CONTACT INFORMATION

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