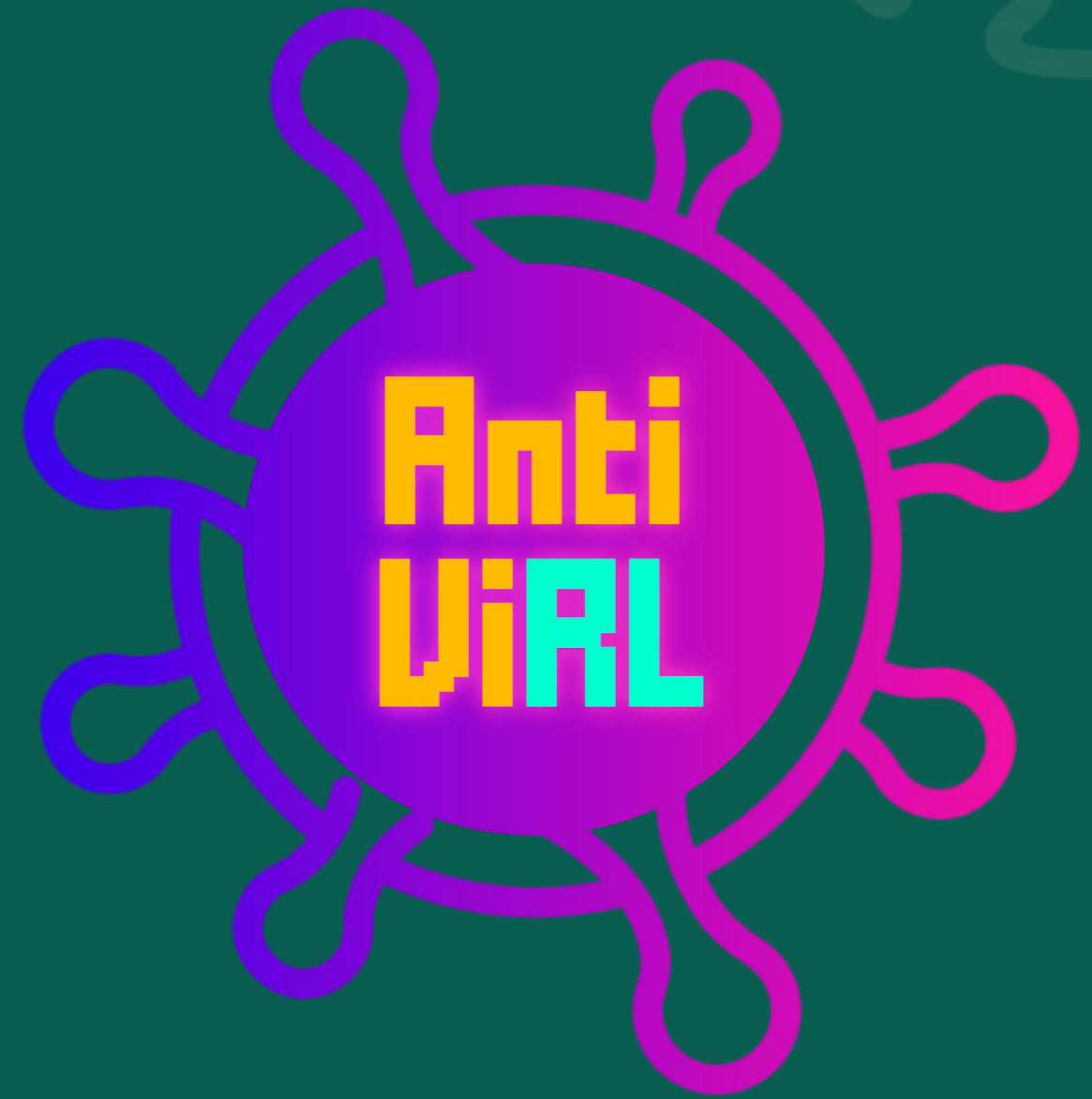Team Isekai presents

Anti-ViRL

Team Members:
- Tamizhiniyan S R (Team Lead)
- Adhyan Mall
- Rohit Ramesh
- Pallavi Yerramilli
- Adhiraj Bhagawati

COVID-19 GAMEATHON

FEBRUARY 12- MARCH 12

In an attempt to fight the virus, this hackathon is being hosted to encourage and develop innovative games that address issues faced by people during the pandemic. Organized by St. Francis College for Women and HEART Hyderabad through a grant from the U.S. Consulate General Hyderabad. Hosted by angelhack. (idk if this is necessary)

WHAT IT'S ALL ABOUT

The aim of this Gameathon is to raise awareness about the challenges caused by the pandemic whilst offering solutions that might help people stay safe.

PROBLEM STATEMENT

In an attempt to fight the virus, this hackathon calls upon developers to create innovative games that address issues faced by people during the pandemic. We are supposed to design a game that will help bring about awareness about the on going pandemic.

OUR SOLUTION

Our game takes the essentials of hygiene practices such as frequent sanitizing, social distancing, protecting oneself with a mask etc. into a fun and exciting PC and mobile FPS, surviving with the help of others (yes, it is a multiplayer through and through, without the support for others, the game will end a little too quick) and fending against the swarms of COVID virus cells and each other

Game Concept

THE GAME INCLUDES:

- Pseudo 2nd person perspective gameplay
- RL trained enemy virus cells that reduce health of player whilst in proximity
- Photon API powered multiplayer features
- Oh yeah, there is an AR version as well

GAME DESCRIPTION:

An PC/Mobile-AR multiplayer survival shooter that emphasizes on practicing standard hygiene protocol during the pandemic, such as wearing a mask, sanitizing constantly and maintaining a 'social' distance from other people.

Tech Stack

- **Character and Enemy Movement** - Unity 2020.4 LTS
- **Enemy Training** - Unity ML Agents
- **Enemy, Character and interactable models** - Blender
- **Multiplayer Integration** - Photon API (PUN 2)
- **AR Integration** - Unity Engine x AR Foundation
- **UI Implementation** – Unity UI x Affinity Designer

Game Design

- The player is equipped with a sanitizer gun which is used to shoot the virus particles.
- If the player comes in contact with a particle, it will respawn.
- Going too close to the particle reduces players health.
- Shooting other players with sanitizer results in the increase of health but approaching another player results in the violation of social distance.
- Masks are present and collecting them increases health of the player.
- The masks and corona virus particles are randomly respawned.
- The Reinforced Learned COVID particles have a win/lose reward state which makes the floor red in the player infected state and green if the player successfully evades the particles.
- As a survivalistic aspect, only the other players can view your player's health and vice versa that enables them to help each other to fend off against the onslaught of COVID virus cells.

What we want to convey

Please for the love of God, practice standard hygiene protocol during these troubling times otherwise, it's not just the virus that you need to worry about, interaction with other people is also equally deadly.

Impact of the game

The gameplay is very captivating and captures the interest of today's youth. It promotes concepts of social distancing, spraying sanitizer and wearing a mask. This makes the game relevant in the current scenario. It will encourage people to follow necessary rules through interactive multiplayer game environment.

Cost of implementation

None, made it on essentially free software (Unity Engine, Google ARCore SDK, Blender, Photon API (PUN 2), Unity ML Agents, Affinity Designer (already owned))

Feasibility

- The fact that the application exists and runs smoothly is more than enough proof that the application's idea is feasible for both PC and Mobile* users
- Initially the idea was to create a simple 3D shooter with following enemies with sanitary equipment as pickups
- But the idea sprawled outwards and beyond its little box to become a pseudo-second person perspective 3D shooter with RL trained enemy virus particles with an option of playing the game on AR

Target audience

- This game is for everyone who owns a PC/mobile with ARCore
- There is no graphic violence/blood/gore present.
- Can be played by any age, preferably by ages above 10

Effectiveness of our idea and what we did different

This game is for spreading awareness on general hygiene rules and standard health protocol to be followed during the pandemic and will definitely convince people to stay healthy and safe from COVID-19 (or atleast scare them into practicing them).

Probably the first game to have pseudo-second player elements

Instead of simple enemy AI, enemy objects have been trained to stay at a distance and dodge player attacks if slow enough

Platforms

- Microsoft Windows
- Android 7.0 and above (ARCore supported devices only)

Other features

- Multiplayer room holds upto 20 players at a time
- Cross-platforming allowed

OUR FUTURE VISION

- **Expansion:**

  We would implement concepts in more depth and improve the character designs. Future versions of the game would include the vaccination, temperature checkpoints etc as part of the game. It will also be compatible with all devices. Also there might be a possibility to integrate a story mode with the application.

- **Social Impact**

  There won't be a greater purpose to the application if atleast a good 100 people understand the importance of practicing standard hygiene protocol during the pandemic.

Screenshots

References

https://github.com/ReanSchwarzer1/Covid-AR-Shooting-RL
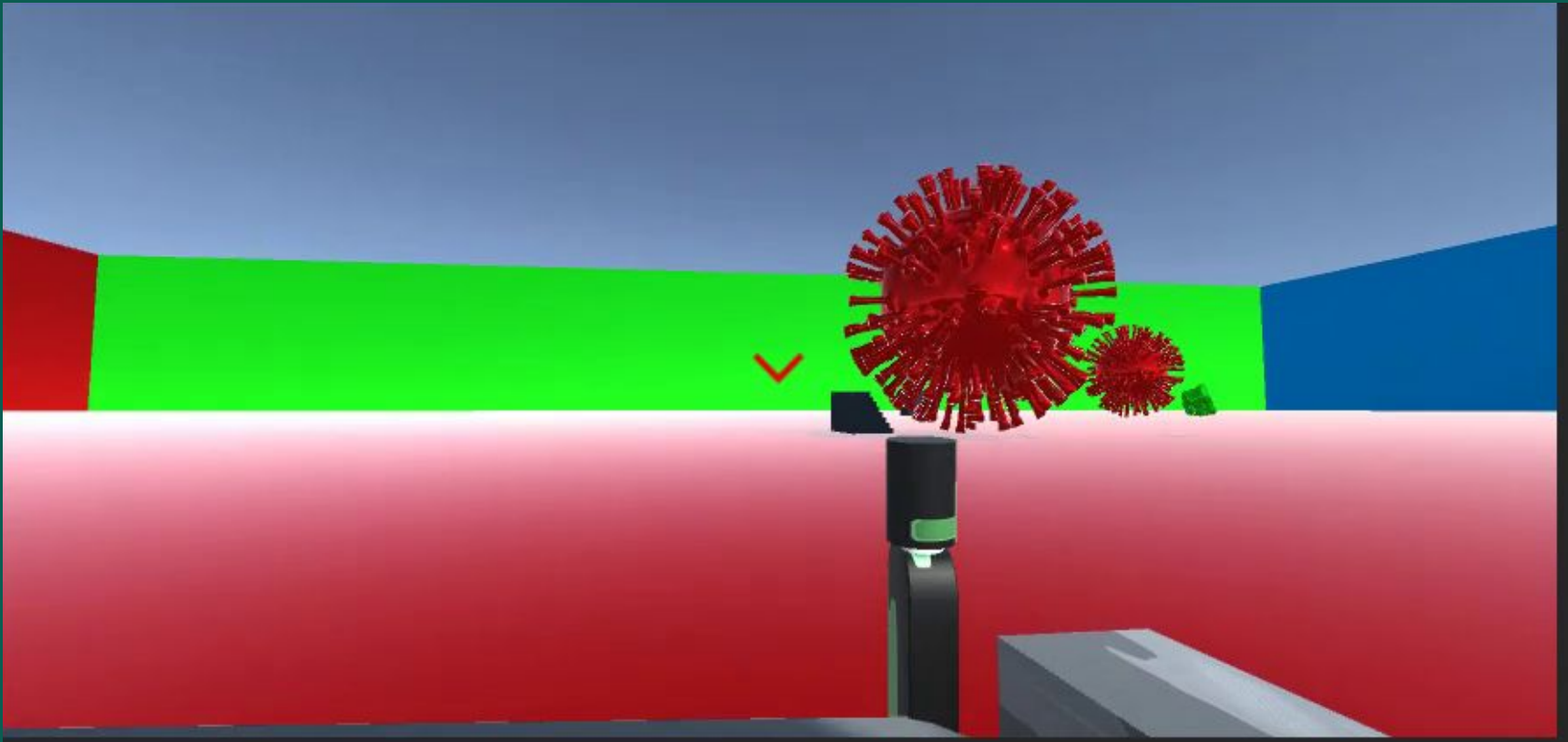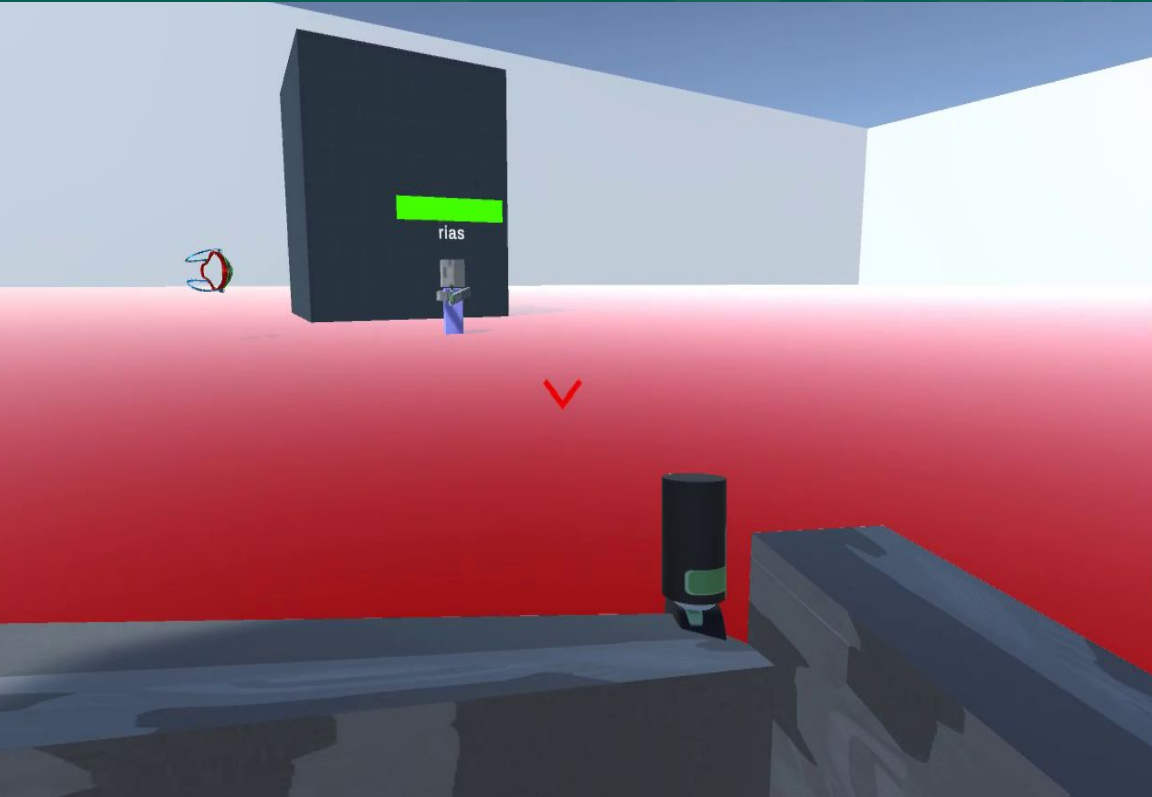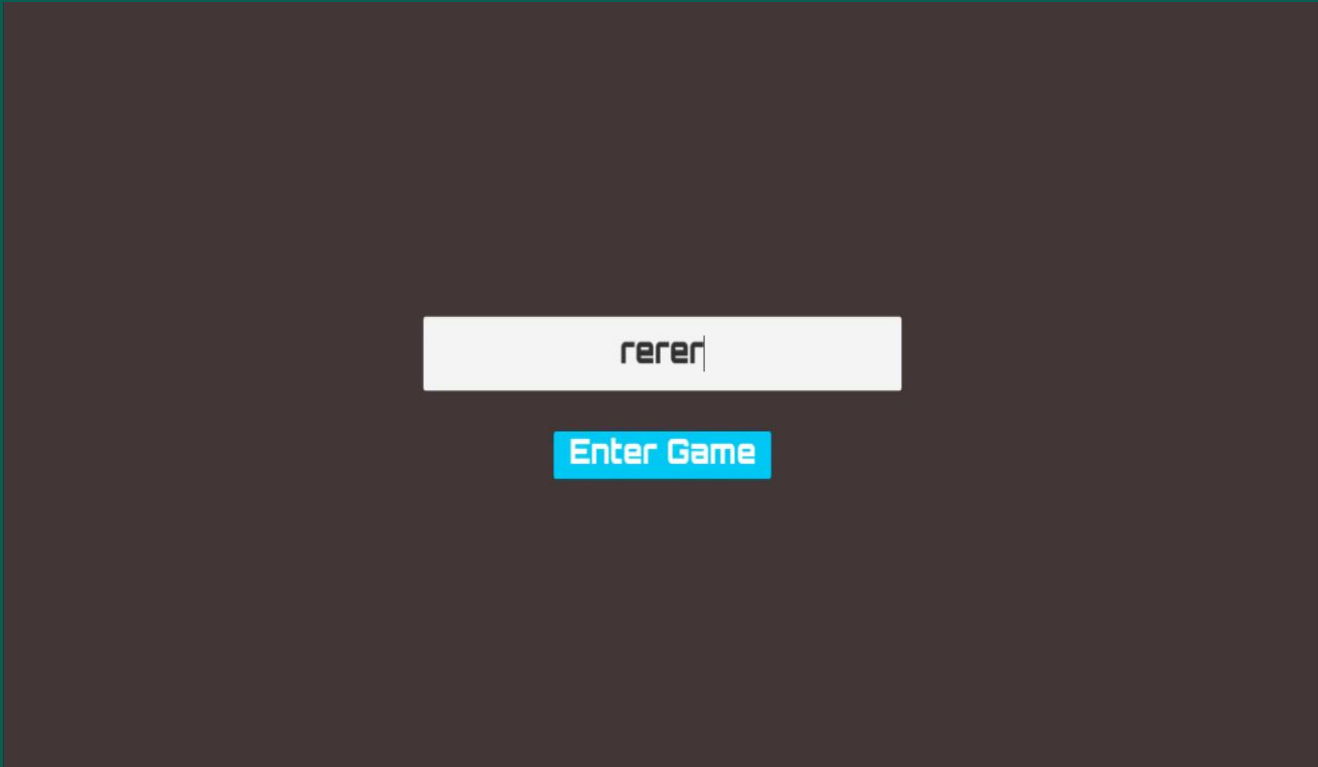
The repository contains both the PC and the android AR build.
- The PC build can be found inside the Build folder.
- The .apk file for the AR build can be found inside the Build_Android_APK.rar file which in turn is inside the Build_Android_APK folder.
- The .apk file for the AR build can also be found in the github releases page related to the repository.

Link to gameplay video: https://youtu.be/7yl24mxf_io

Link to training demo: https://youtu.be/OmE1qjR9-T0

CONCLUSION

An application that hopefully explains the importance of standard hygiene protocol during the pandemic in a fun and exciting manner, was successfully implemented.

We thank you for this opportunity for letting us take part in a prestigious hackathon with such a noble cause. We aim to be part of the solution and getting recognized through this will help us make a difference...