Project report

Project Title :   Virtual Reality Educational Model for Computer Science Department for COVID-19 Scenario.

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Professor   :   Under the guidance of Dr. Shard Sharma

Tools Used   :   Major tools used for this Project Vizard, Google 3D Warehouse, Google Sketch-up.

Goal and Objective of the project:

The goal of this project is to create a virtual Reality Educational model for Computer Science Department for COVID-19 Scenario. The model consists of different scenario including general information about COVID-19, necessary precautions for students to avoid disease and finally virtual class room environment set up to join on-line class room. The virtual classroom is developed so that students and instructor can interact with each other and study together in virtual environment during emergency situation such as COVID-19. The virtual reality class room is a learning tool for modern education and for students that are enrolled in online classes and during emergency situation such as Covid-19. In the virtual system people can navigate the virtual classroom as a student or as an instructor through the use of keyboard inputs. When the student tries to login for a class, there will be a message appear for welcome of student. Then they ask for the User-id and password. The students can chat with instructor and with other students using a chat box. In this project animations and interactivity were added to the environment through a variety of techniques. In the environment under Covid-19 scenario, different techniques are shown so that every student should aware of COVID-19situation.

Vizard scripts (in Python language) are used to animate students walking and chatting with each other. Collision detection was implemented through simple vizard scripts to keep users passing through university buildings and other object in the environment. The environment is created in this project is close to Covid-19 Scenario. The Virtual Classroom model environments is created in Google 3D model and exported to World Viz Vizard which constitute the base of this application. The University wellness center with emergency equipment environment is also created in Google 3D model and exported to World viz vizard. In the virtual class environment scene is created students are given information about Covid-19 and necessary precaution to avoid accident. In the Virtual Classroom the students will be able to interact with fellow students. Two videos regarding basic information of Covid-19 and its necessary precaution to avoid scenario are implemented. In the virtual class room training scenario, the client side the user will be able to log into the server as an avatar of his/her choice through a log in windows. They will also see the avatars of fellow students and teachers logged in the environment with a name label popup. In the current system people can navigate the virtual classroom as a student or as an instructor through the use of keyboard inputs. In this project we have also implemented avatar with VR head mounted displays. We have created three videos and added to the environments. The first video contain basic information about Corona virus. The second video gives information about class room training and precaution to students. The third video gives information about virtual class room information. The proximity sensor and timer function are used to avatar and virus model in the environment. The environment is also created with clear sky and three audio sound files and necessary 3D avatar models with animation.

Accomplishment:

- In this project, virtual environment is created with clear sky model, Corona Virus models, avatar models (10), pigeons(10), mobile university wellness care unit, emergency ambulance and virtual class room for precaution and online training unit .

- Three video files are added to environment. Video1- For virtual class room training. The Key control-1 to start video, and Key control-2 to stop video. Video-2 is created for Corona virus information and precautions to students, Key control-3 to start video and Key control-4 to stop video, Video-3 is created to give basic virus information its spread to different host.

- The environment is added with bird eye window view.

- Male avatar and female avatar with different animations are added to environment.

- The proximity sensor and timer function is added to Corona virus model and female avatar

- The different key functionality such as Space key bar to increase corona virus environment, w – to move avatar to different location camp. S- To separate avatar and keep safe distance between avatar. t- to see text on the avatar. d- to see proximity sensor, n- to start audio, m- to stop audio. Mouse click – to see environment.

- The environment is added with scroll bar to move avatar instruction and corona virus model.

- The environment is also added with login page to join Virtual class room environment and basic text messages to chat with students and instructor.

The figure above shows the environment added to project.
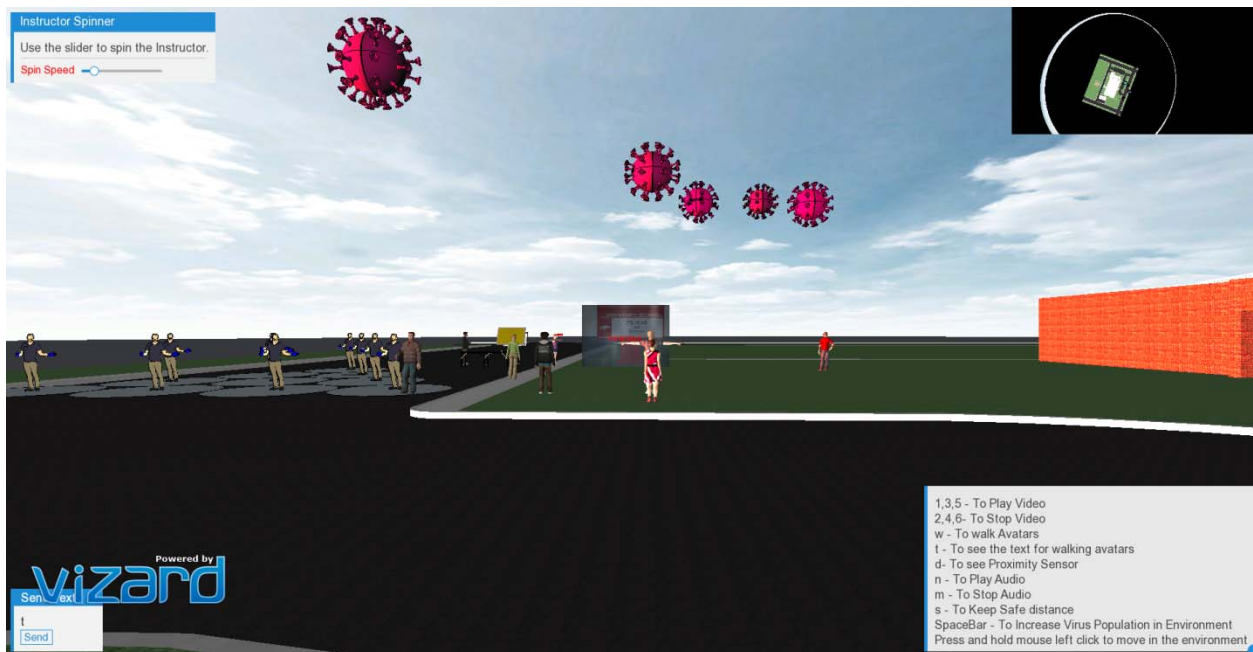
The figure above shows the avatar + Corona virus + environment

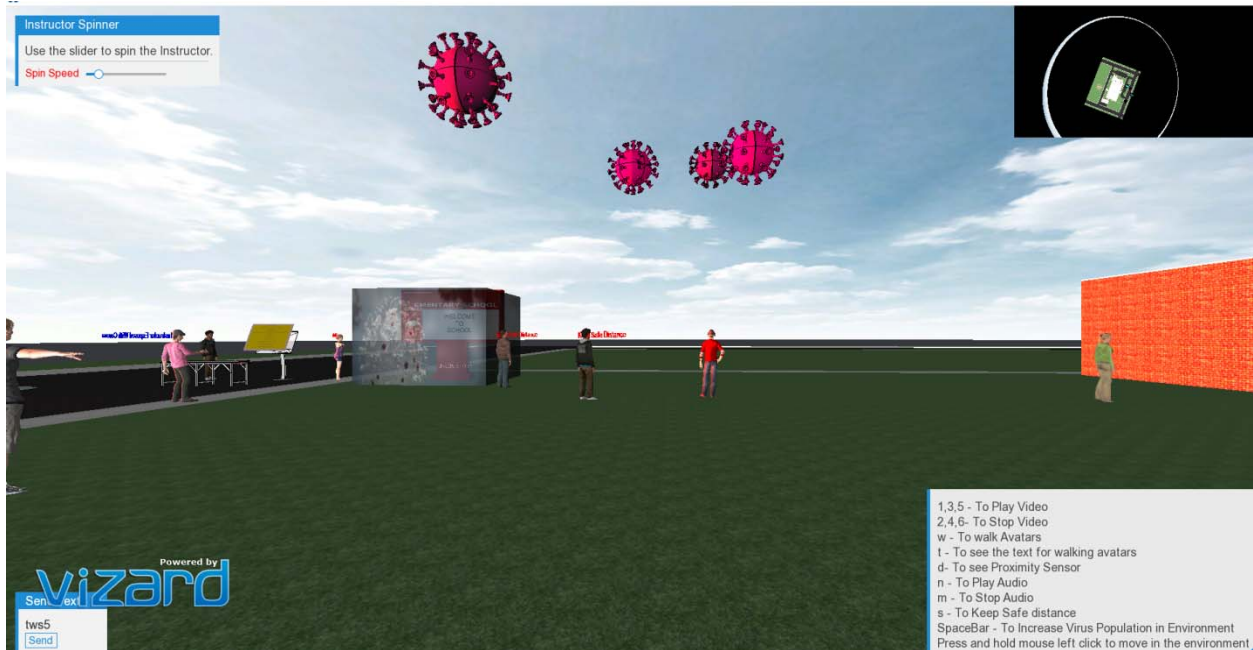The figure above shows the Virtual Class + University Wellness +environment

The figure above shows Bird View + Control Panel to project.

The figure above shows avatar + corona virus video + models to project.

The figure above shows the avatar + safe distance training to project.

The figure above shows the Avatar Instructor + Corona Model Motion .

The figure above shows the Virtual Class Room training + Video Training.

The figure above shows Virtual Class Room login Page for Students.

The figure above shows Proximity Sensor and timer function to avatar + corona Model.
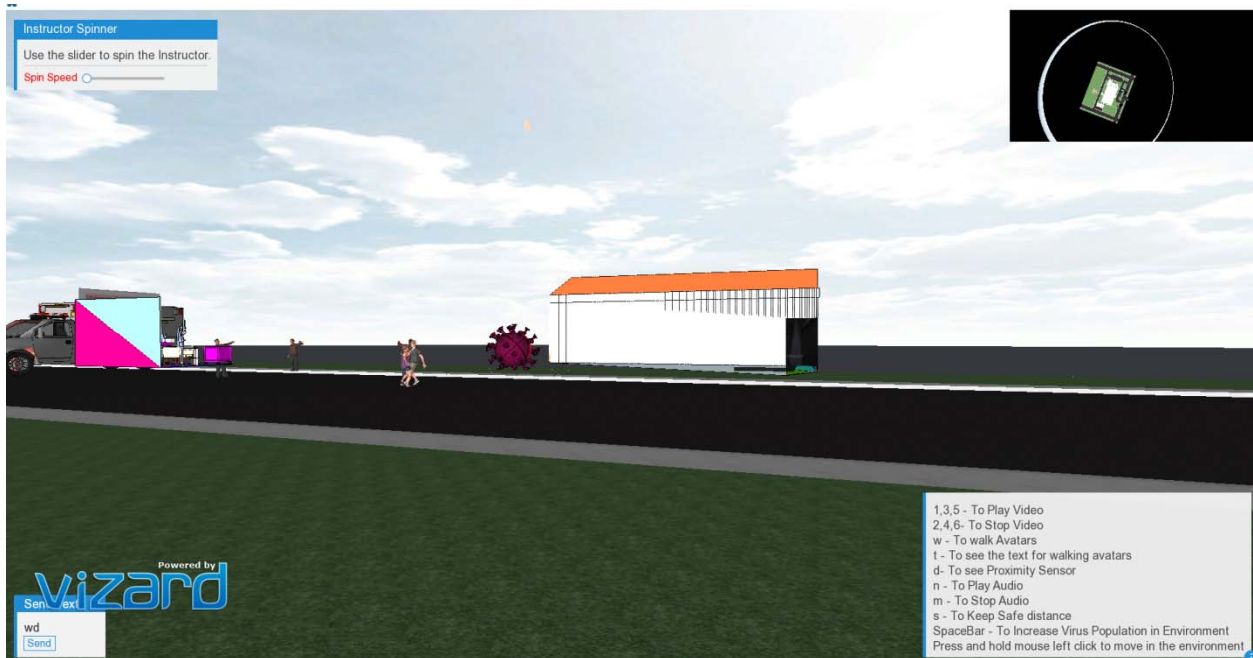
The figure above shows virtual class room + environment added to project.

The figure above shows the student class room training(COVID-19) + precaution.

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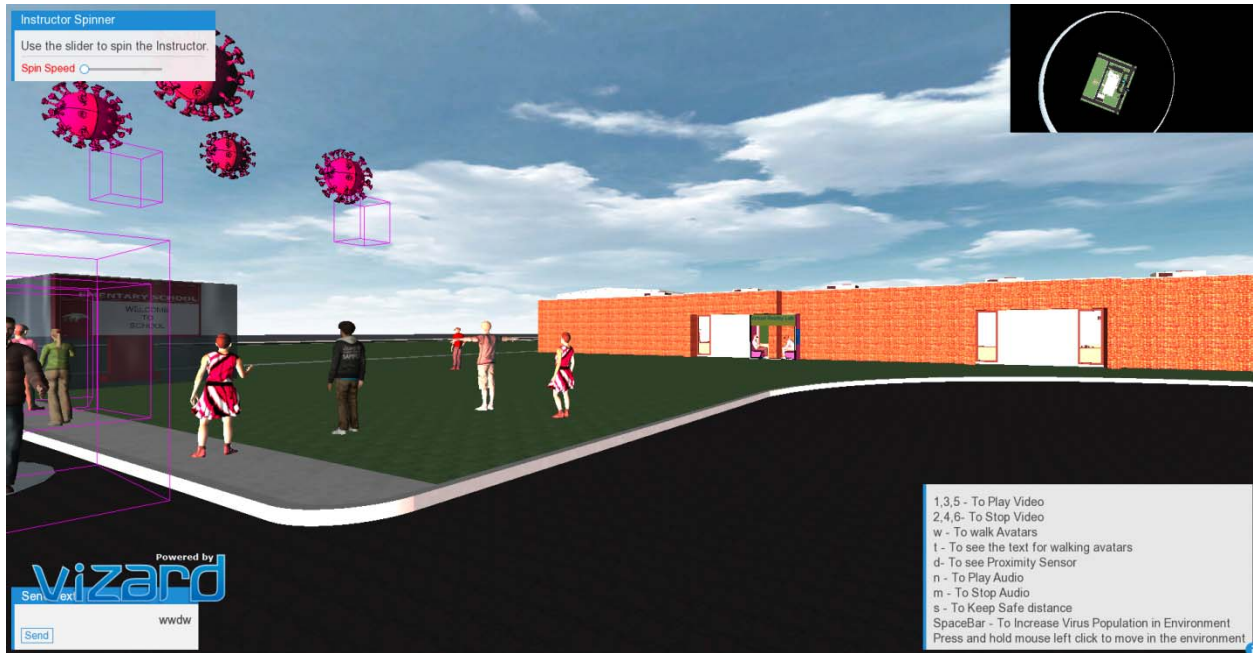

The figure above shows the University Wellness center + Ambulance + emergency equipment.

The figure above shows the student class room training(COVID-19) + precaution.

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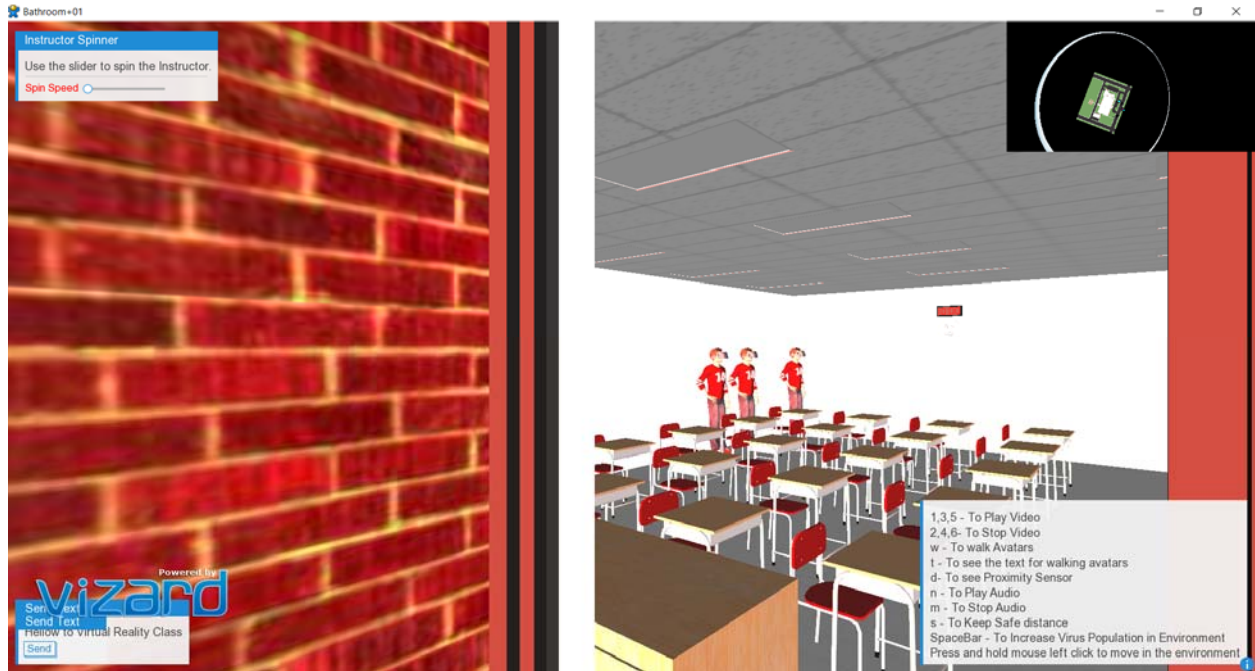The figure above shows the student class room training(COVID-19) + COVID-19 Video sensor

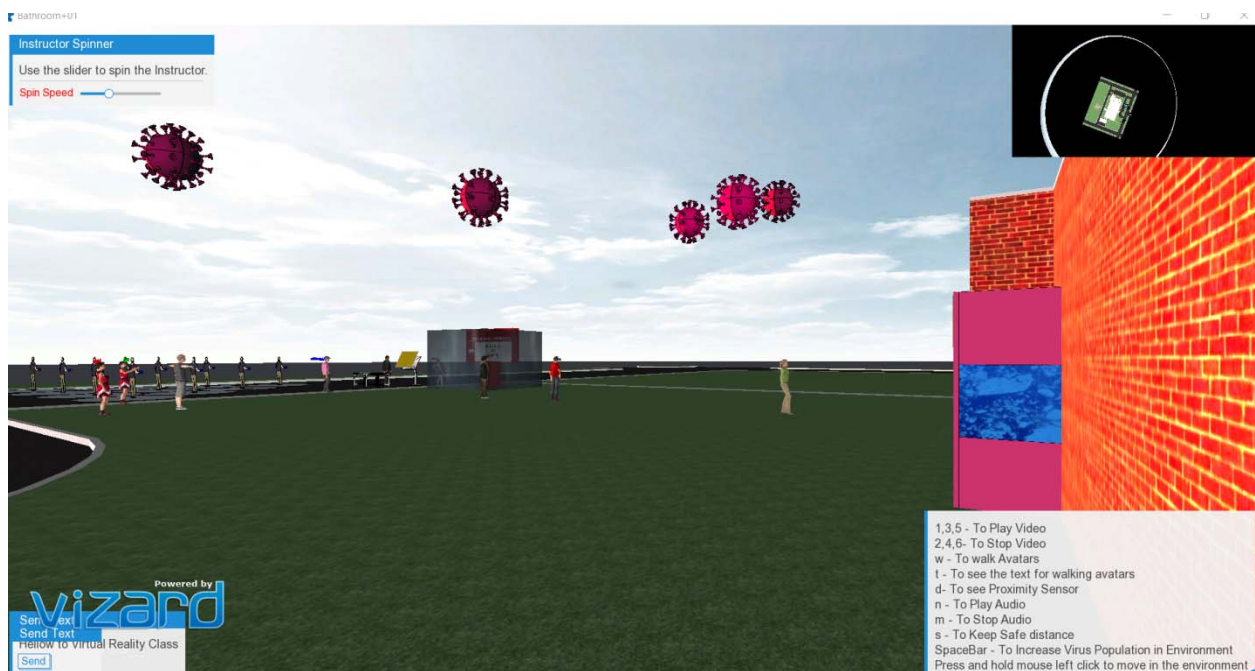The figure above shows the Student Safe distance + COVID-19 Video Demo

The figure above shows the student login page(HTML)

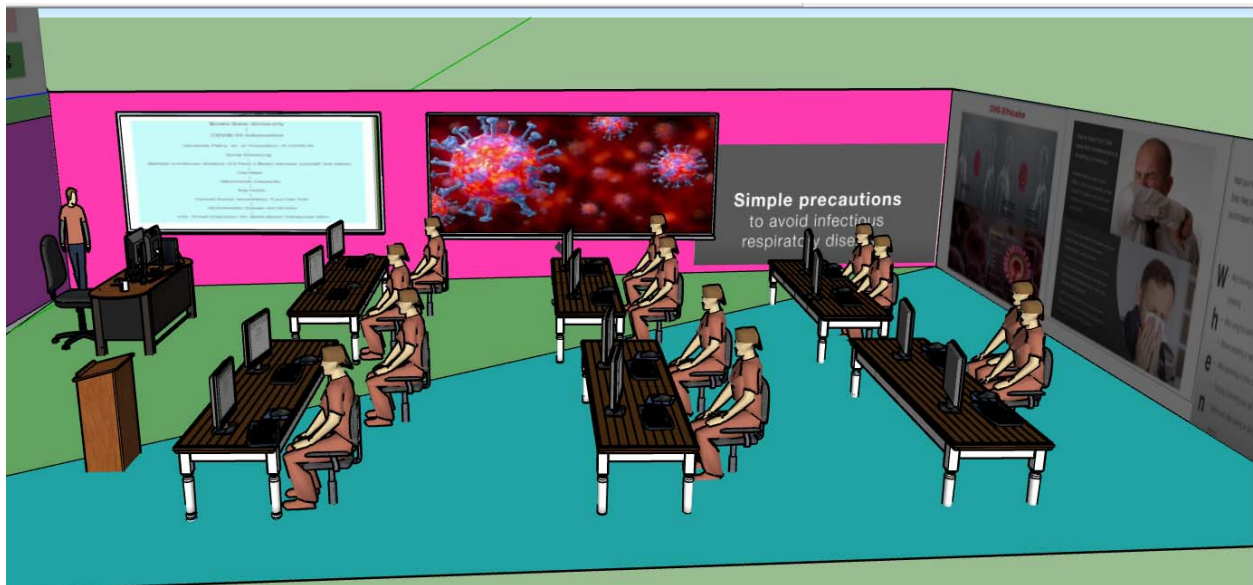The figure above shows the student Chat page(Left Bottom)

The figure above shows the student virtual Class

The figure above shows the student virtual Class

The figure above shows the class training to handle COVID-19 Precautions.

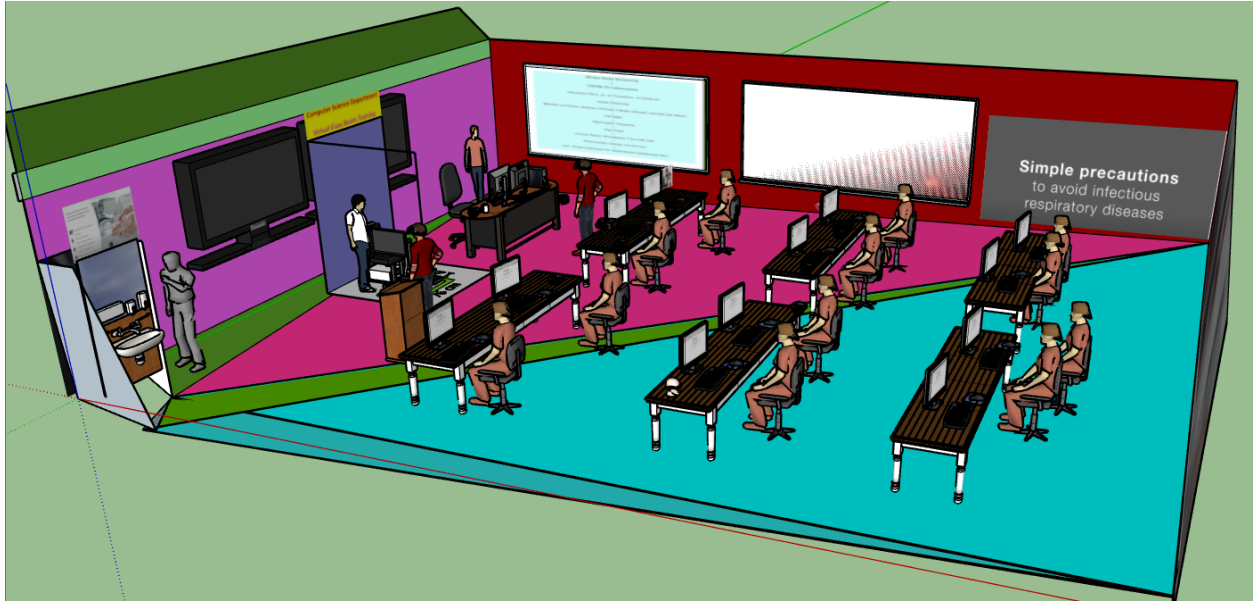The figure above shows the class training to handle COVID-19 Situation

The figure above shows the class training to handle COVID-19 Precautions

The figure above shows the Emergency University Wellness Center with mask , gloves, and Gown to handleCovid-19 situation.

The figure above shows the Virtual class training to Log-In to server

The figure above shows the Virtual class training- Avatar+ Oculus + Sand box

References:

- Google 3D Sketch Model

- You tube videos for Vizard Script models.

- Vizard Wikipedia

- You tube videos : https://youtu.be/PSnSo9kYlH4

- https://youtu.be/5DGwOJXSxqg

- WizIQ Virtual Classroom.avi

Future development:

- Add few function virtual class animation training.

- More animation to Corona Virus model and Avatar Animations.