

An-Najah National University

Computer Science Dept.

Superb Presenter



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Chapter 1

Game Design

1.1 Summary

Superb Presenter is a simulation to four different environments that would help the user practice public speaking in a virtual world.

1.2 Game Play

In our game player will be facing four different environments each one with different objectives and goals which will be described specifically.

The first one is "Class Room":
the main goal of this environment is to help user practice presentation in atmosphere of a class room, where the scenario of this environment is that user will be presenting to people who just came from the lunch break and will they feel sleepy and board so user must figure a way out to transfer these people into a better status in five minutes.

second environment is "Workshop":
in this environment user will be leading a workshop consisting of four groups discussing a subject about computer science, at the end user will have a complete knowledge about how workshops be run and how to negotiate with other people with different points of view.

third one is "Tutorial lab":

in this environment user will be playing a role of a teacher or instructor who is giving a tutorial on visual studio to freshmen computer science students and while that students will ask questions about the subject where user(teacher) has to answer and make sure that students understand by answering and solving their problems.

forth one is "Scientific Conference":

in this environment user will live the atmosphere of a conference where will be discussing a scientific paper in front of professors and audience.

1.3 Mindset

Player in this game should feel confident and competitive and that can be provoke by having different objectives in each environment, also moving freely in the game will give the player the feeling of domination as if player owns the environment, another thing is timing where in some environments player is restricted with a timer and has to accomplish environment's objectives during this period of time.

Chapter 2

Technical

2.1 Screens

Here is some of the main screens in the game.



Figure 2.1: Main Menu

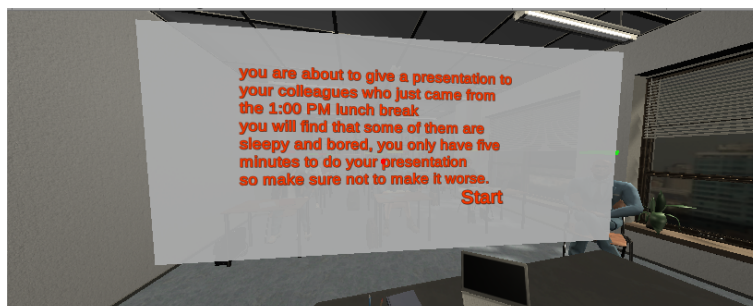


Figure 2.2: Class Room Description

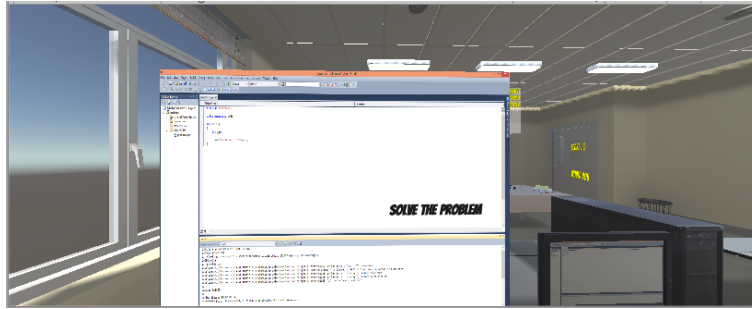


Figure 2.3: Solving Error in code



Figure 2.4: Options Menu

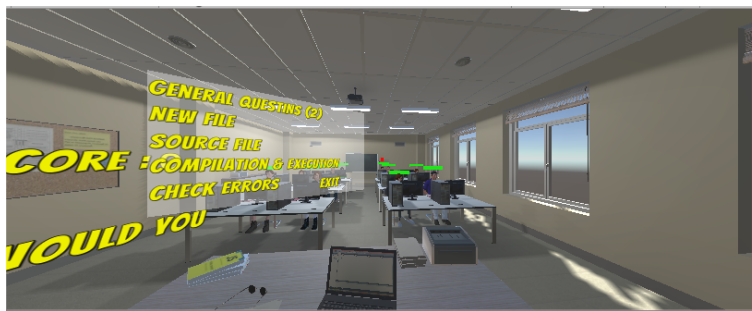


Figure 2.5: Objectives Menu

other important screens will be discussed specifically in "Mechanic" section.

2.2 Controls

As been mentioned earlier in chapter 1 player can interact freely with each environment, so how is that possible?

There are three main elements that represent the control system of this game which are VR Gear Controller, Camera View Gaze and Walking/Movements.

1- VR Gear Controller.

This is the main element of the control system where consists of a laser beam that is use to point and interact with 3D objects, UI canvases and buttons in the game.

2- Camera View Gaze.

This comes to support the controller laser beam and make it easier to interact with the game.

3- Walking/Movements.

this is the third element where comes to reduce the possibility of error where user can freely get closer to objects trying to interact with and that would support the accuracy when clicking on buttons and objects.

Another thing that can be considered as the player first resort to interact and take decisions in the game is the "WouldYou" button where has different options depending on the environment where these options are capable of letting the player accomplish the environment objectives.

2.3 Mechanics

A game mechanic is an interaction between player and one or more game objects, in chapter 1 game play section, the main goals and objectives of each environment have been described, so how could these objectives and goals be achieved? we will find the answer in this section.

2.3.1 Classroom Mechanics

Objectives of this environment despite giving the presentation is to make sure that all audience are satisfied and a green status, so this is our first mechanic which is the character emotional status.

It is a panel above each character with three colors represent what this character is feeling, "Red" represents tiredness and sleepiness, "Yellow" means this character is not concerned, and "Green" means everything is fine.



Figure 2.6: Characters Emotional Status

Second mechanic is the scoring system, player starts with a score of six points and has to gain more points in order to get a better evaluation, so if points were less than 7 it means performance was "Bad", 8-10 is good but if player exceeds 12 then this is a "Superb Presenter", so how could player gain points?

While player is trying to achieve the goal of "No one is bored" (every one is a green status) player can use the "Ask Question" button for only two times where each time is a 2 points credit, also there is a pop-up quiz of two questions at the end where can whether add or take out points from player depending on the answers.

After time is up player will get a badge depending on the score gained. See Figure 2.7 shows badges player get depending on the score.

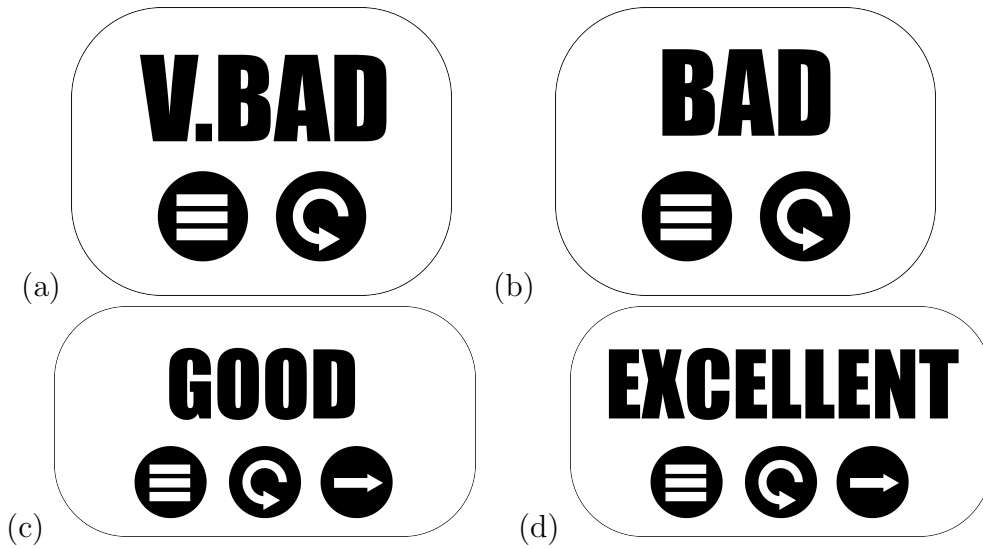


Figure 2.7: (a) Points less than 6. (b) Points 6-7. (c) Points 8-10. (d) Points greater than 10.

You may ask yourself how player would know that asking and movement are important to gain more points and to achieve objectives. Well there is a hints system developed in an intelligence way to helps player gain points by determining whether player is capable of moving on in the game or needs help, so while time is ticking and player is not achieving any of the objectives then hints system will start giving hints where divided into two categories the pre-hint and the post-hint.

- Pre-hint: it is like giving the advice in general. example Figure 2.8



Figure 2.8: Pre-hint example.

- Post-hint: if player still does not know what to do post-hint comes after a few seconds of pre-hint describing to player what to do specifically.
example Figure 2.9



Figure 2.9: Post-hint example.

2.3.2 Computers Room Mechanics

In this environment player will be giving a tutorial as we mentioned in "Game Play" section, but How?

The main mechanic player will use to proceed in this environment is the "computer screen" which is like the fuel to this environment, it consists of visual studio screens and each screen will has a one active button that transfer player to the next screen to proceed in giving the tutorial but how would player know which button is the active one ?

well here we assume that player knows how to use visual studio in the first place but if player ever felt confused and need some help, a help system will be there represented by a "Lost?" button to help player out which can be considered as the second mechanic in this environment.

while proceeding in tutorial player will discover that tutorial is divided into three sections New File, Source File and Execution section where after each section one or more students will have questions to the player but How would player knows that this student has a question ?

There is a panel over each student similar to the panel "emotional status" in the Class Room environment but the difference here is that the yellow color represents a question about one of the three tutorial sections, and the red panel means that this student has a code problem which player has to go and

check it out by moving toward this student where will be a trigger shows a button "what is wrong?" that when the player clicks it will changes the view to the view showed in Figure 2.10

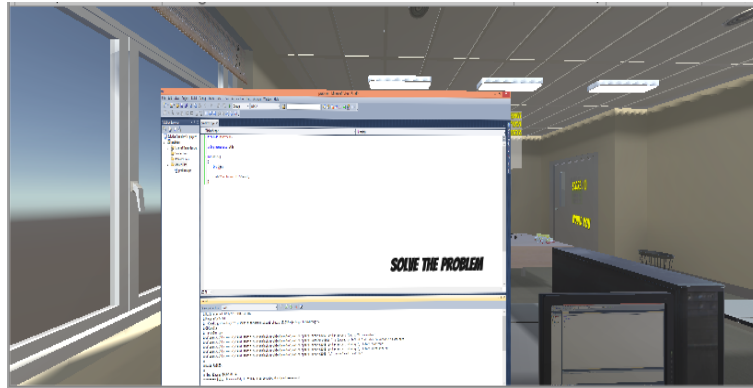


Figure 2.10: Code Problem Screen.

now player has to solve this problem to help this student and accomplish one of the objectives. So this is the third mechanic for the Computers Room environment.

2.3.3 Scientific Conference

This environment does not have that much of details yet but so far we have the slides divided into sections of the scientific paper (Abstract, Introduction, ...etc) and the section that yet player is at will be highlighted in red and when it is done its color will change to green as completed.



Figure 2.11: Conference sections and game play.

2.3.4 Workshop

In this environment there are four groups discussing a subject about computer science where player takes the lead and asks questions about the subject and then choose which group of the four groups to discuss the questions with by using buttons in the options menu and moving towards a specific group where where a trigger will change the view to the view showed in Figure 2.12



Figure 2.12: Group discussion.

at the end all four groups points of view will be shown in a chart as showed in Figures 2.13

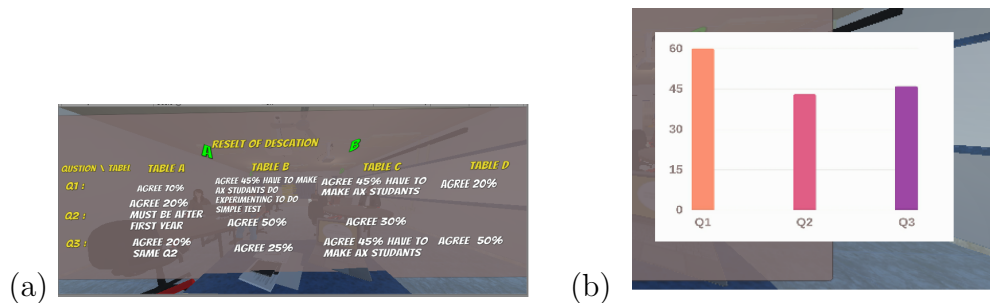


Figure 2.13: (a) Discussion result. (b) chart shows results in numbers.

Another thing that is common between the four environments is the voice recording feature, once player starts an environment his/her voice will be recorded so they can get a feedback of how the performance was.

Chapter 3

Assets

3.1 2D

we used two packages in our UI design the first one is the Curved UI canvases and the Text mesh Pro.

- Cured UI

An all-in-one VR interface package designed for the new Unity GUI system. Bends the canvas in world space, allowing the player to view and interact with it from any angle

- Text Mesh Pro

TextMesh Pro provides Improved Control over text formatting and layout with features like character, word, line and paragraph spacing, justified text, Links, over 30 Rich Text Tags available, support for multi Font Sprites, Custom Styles and more.

So in our UI we choose the Bangers SDF font style with drop shadow which is a comicbook style font which packs a punch! It was designed in the style of mid-20th century superhero comics cover lettering in mind, so the reason that let us use this kind of font is the meaning standing behind the name and the logo of our game "Superb presenter" superb means something extraordinary powerful, great and close enough to a superhero.

Every superhero has a special custom and a special power but there is a thing that we can find common in all superheros customs which is the eye mask so if u look at our logo you will find this mask representing the superb word and presenter will be player superpower.

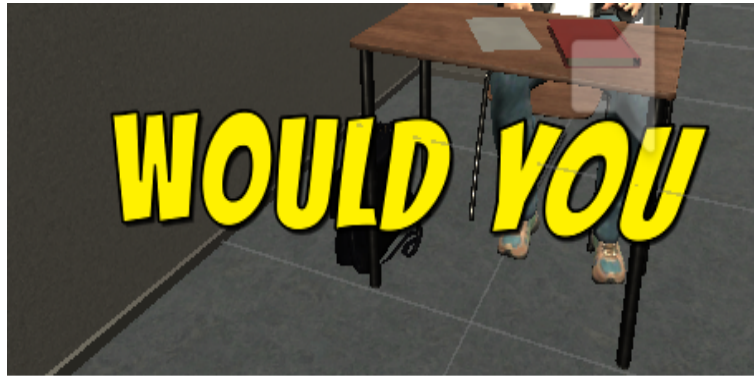


Figure 3.1: Example on Bangers SDF font.

3.2 3D

3.2.1 Characters

Characters are one of the main things in our game where all interactions and objectives depend on its existing, so here is a step by step description of how these characters been created and developed.

- Design Phase.

In this phase we used an Adobe Program called Fuse to build our characters, first we choose the head style and its measurements like the distance between eyes and eyebrows ...etc. check out Figure 3.2

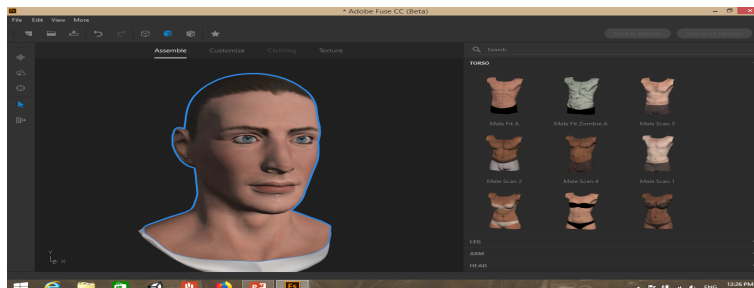


Figure 3.2: Fuse example: choosing a head shape.

after choosing the head style the same thing is going to be with the body arms and legs styles. check out Figures 3.3 and 3.4

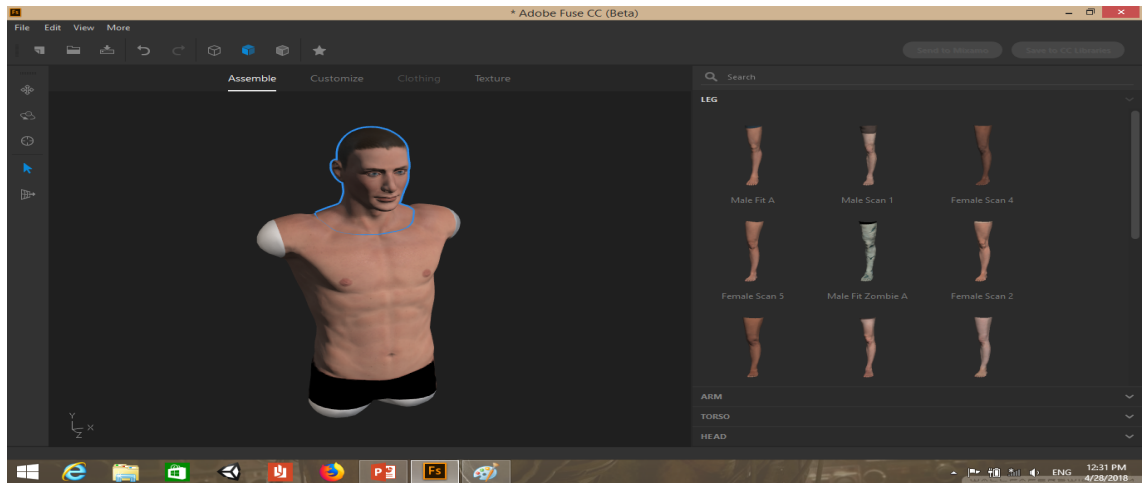


Figure 3.3: Fuse example: choosing a body shape.

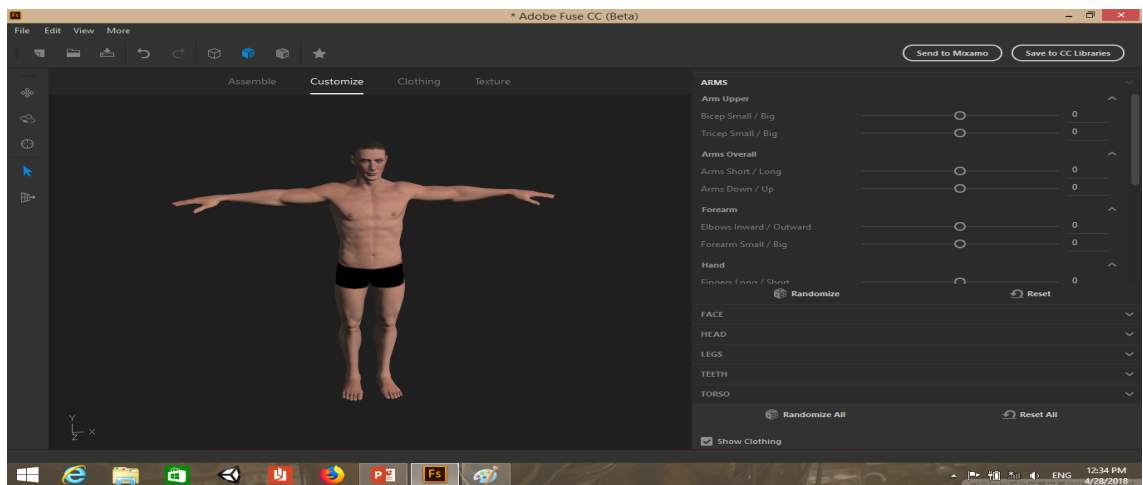


Figure 3.4: character is ready to be dressed.

now it is time to choose what this character is going to wear. check Figures 3.5 and 3.6

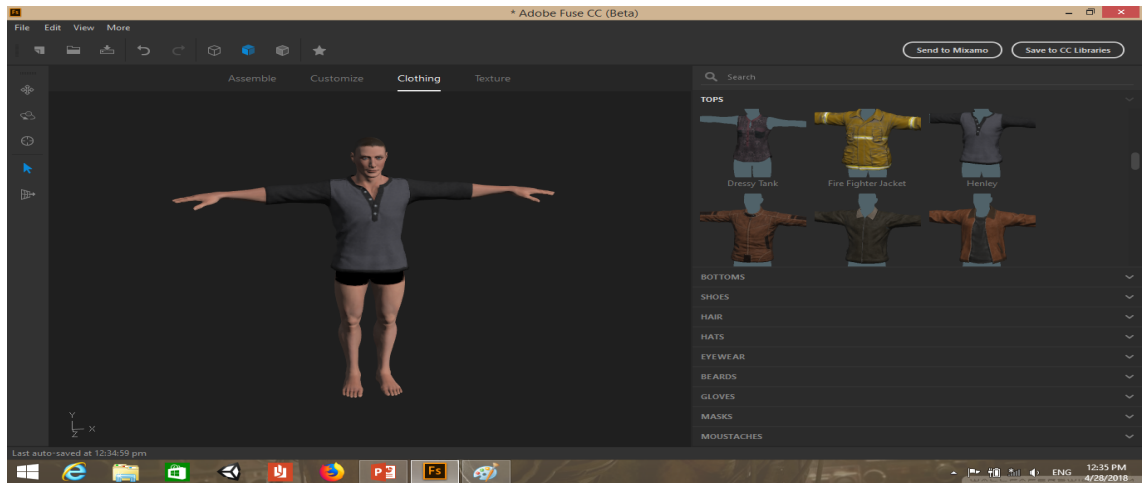


Figure 3.5: dressing.

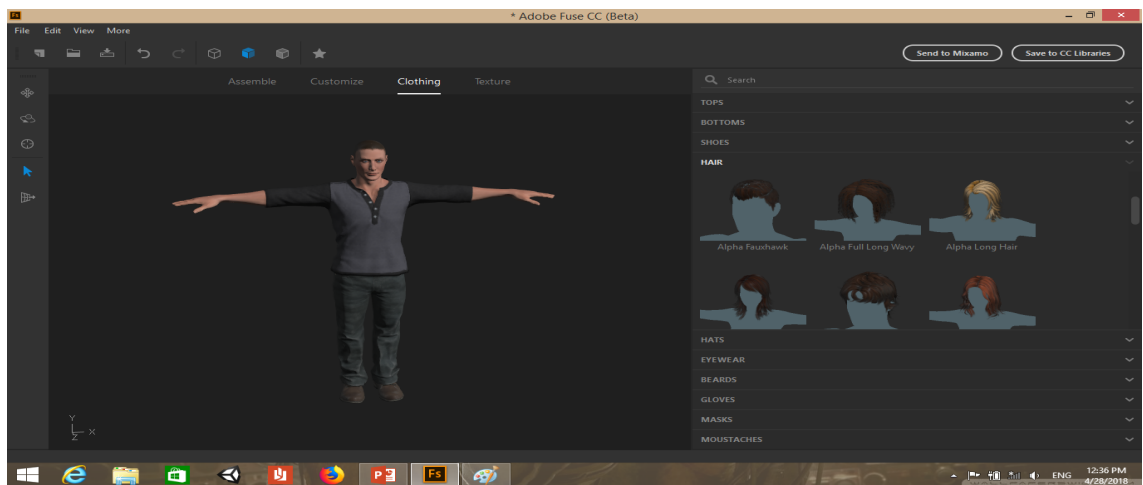
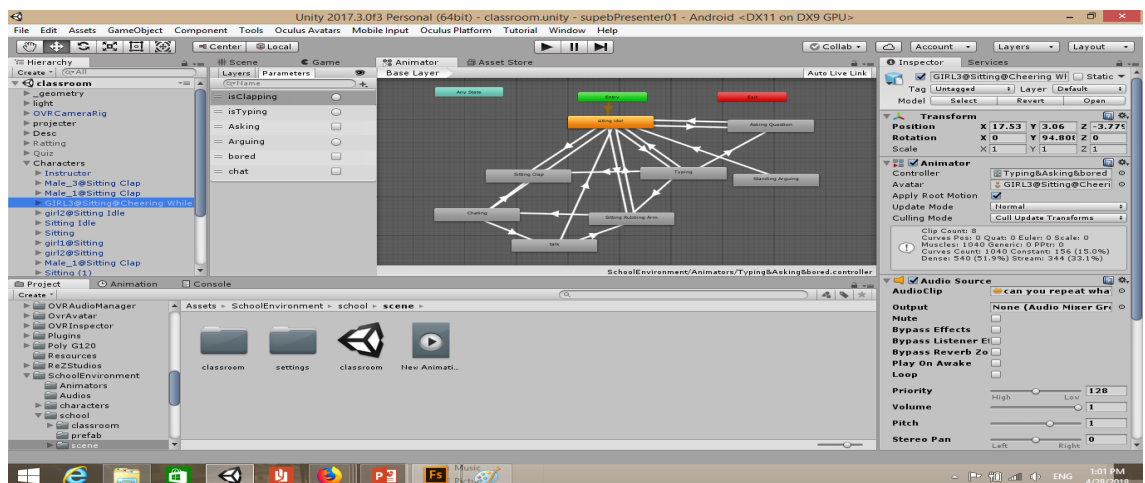


Figure 3.6: character is ready to be dressed.

A screenshot of a web browser displaying the Mixamo website. The browser's address bar shows the URL "https://www.mixamo.com/#/". The website's header includes the Mixamo logo and navigation links for "Characters" and "Animations". A search bar is located at the top left. The main content area features a grid of character models in various poses, each with a label: "Rifle Punch", "Capoeira", "Taunt", "Boxing", "Stand Up", and "Hip Hop Dancing". On the right side, a large 3D model of a character in a trench coat is displayed, with a "DOCTOR3" label above it. To the right of this model are three buttons: "DOWNLOAD", "UPLOAD CHARACTER", and "FIND ANIMATIONS". The bottom of the image shows a Windows taskbar with various application icons and a system clock indicating 12:45 PM on 4/28/2018.

now you have a ready character to use inside unity, and while in unity each character will have something called animator controller that connect the character animations together and and control them by triggers and scripts. check Figure 3.8



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3.2.2 Materials and models

A model is a 3D object, such as a character, a building, or a piece of furniture. The model is imported as multiple Assets. In the Project window, the main imported object is a model Prefab. Usually there are also several Mesh objects that are referenced by the model Prefab. check Figure 3.9

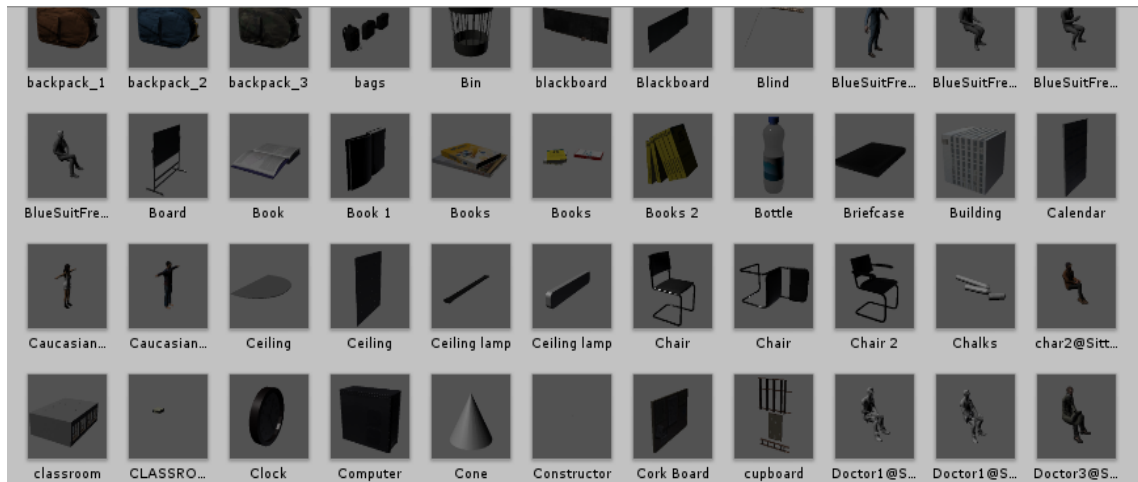


Figure 3.9: Models and Prefabs

Materials are used in conjunction with Mesh Renderers, Particle Systems and other rendering components used in Unity. They play an essential part in defining how your object is displayed. check Figure 3.10

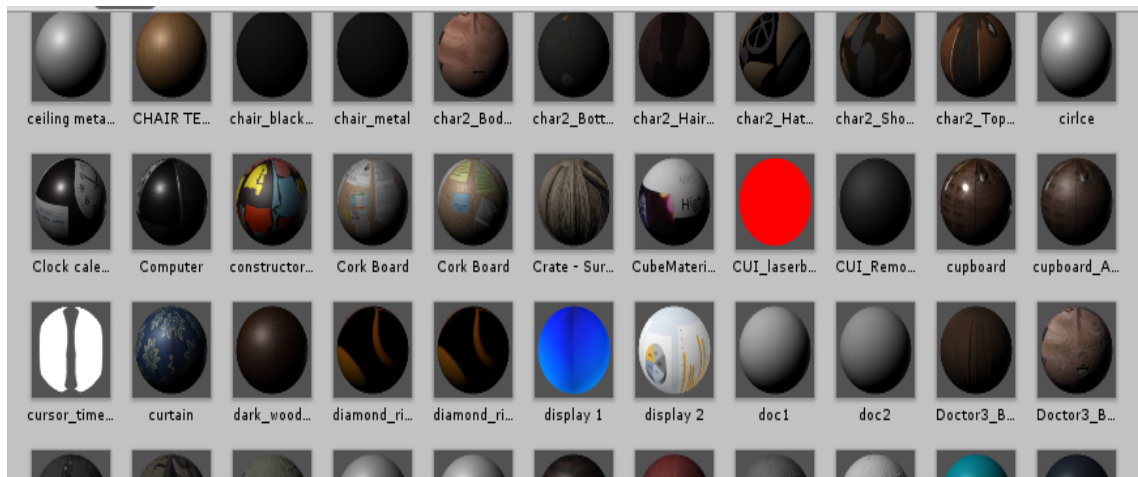


Figure 3.10: Materials

3.3 Sounds

The Audio Source plays back an Audio Clip in the scene where can be played to an audio listener or through an audio mixer. The audio source can play any type of Audio Clip and can be configured to play these as 2D, 3D, or as a mixture. The audio can be spread out between speakers (stereo to 7.1) (Spread) and morphed between 3D and 2D.

Here is a list of Audio Clips used in the game:

- Clapping
- Female character asking a question.
- Male character asking a question.
- Class room introduction description.
- Computers room introduction description.
- Workshop introduction description.
- Conference introduction description.
- Can you repeat the previous slide question.
- Can you repeat what you just said question.
- Background music.

3.3.1 Code and Scripts

Scripting is an essential ingredient in all games. Even the simplest game needs scripts, to respond to input from the player and arrange for events in the game-play to happen when they should. Beyond that, scripts can be used to create graphical effects, control the physical behaviour of objects or even implement a custom AI system for characters in the game.

Here is list of scripts we wrote in C-sharp divided into Characters-Scripts, UI-Scripts and Player-Scripts.

Characters-Scripts:

- Asking Question.
- Cheer Up.
- Compilation Obj.
- Error Obj.
- Having Problems
- General Objective.
- Practicing.
- Solving Problem.
- Any Question.
- Asking Time.

- Bored.
- Go Sleepy.
- Writing.

UI-Scripts:

- Canvas Appear.
- Color Status Change.
- Lost.
- Hints.
- walking Time.
- Scores.
- Wrong Button.
- Auto Typing.
- Enable Canvas.
- Hide Canvas.
- Quiz.
- Quiz Points.
- Rating Presentation.
- Result.
- Timer.
- Feedback.

Player-Scripts:

- Lock Walk.
- Microphone.
- Camera Switching.

3.4 Animation

The animation component is used to play back animations.

You can assign animation clips to the animation component and control playback from your script. The animation system in Unity is weight-based and supports Animation Blending, Additive animations, Animation Mixing, Layers and full control over all aspects of playback.

Here is a list of animations we used:

- Sitting idle.
- Typing.
- Asking question.

- Sitting Disbelief.
- Standing arguing.
- Clap.
- Sleepy.
- Chatting.
- Sitting rubbing arm.
- Writing.
- Having a meeting.

Chapter 4

Conclusion and Future work

We are looking forward to take our project to a next level of improvement and technology by transferring it to a network VR application where each player has an account and an avatar represents his/her character, and whenever a player wants to practice a presentation in one of the environments he/she can invites friends and other users on the player friend list to watch and rate the player performance. It is going to be like a live stream video in a virtual world where people can instantly comment and ask questions about the presentation player is doing.

Imagine how would conferences and business meetings be run in future, i think no one has to travel to attend a meeting any more.

At the end after finishing this project i can say that i do not believe in impossible anymore.

Chapter 5

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