NAVRACHANA UNIVERSITY

SCHOOL OF ENGINEERING AND TECHNOLOGY

Bachelors of Computer Applications

5th semester

INTRODUCTION TO AR/VR TECHNOLOGIES

INTERACTIVE DRAGON EXPERIENCE PROJECT

Group Members:

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Project Description:

As a part of our end semester evaluation, we have developed an AR application named Interactive Dragon Experience. In this application, the user can fly the dragon in real world environment using joystick interface on their mobile phone camera. For this project, we used Unity software and C# as programming language. The project was guided by Mr. Darshan Parmar sir.

So, basically in this project by using mobile phone's camera, the application can project the dragon into user's surroundings, thus creating an illusion that a dragon exists in the real-world environment. The joystick interface is used to move the dragon in the surroundings and give it a feel of real game.

System Requirements:

a) Android version: Minimum android 7 (nougat) or higher.
b) RAM: Minimum 3 GB.
c) Camera quality: 8MP or more.
d) Minimum memory: Approximately 250-300 MB.

Research Methodologies

So basically, there are many AR Dragon games in the world of different gaming companies. But personally, we decided to make this game because we wanted to make something similar to Pokemon Go. But we did not want to make the replica of Pokemon Go. We just wanted to make another application using the same concept. So, we decided to make similar game using dragon.

But there are many major differences between our application and the AR dragon games made by professional gaming companies. In the gaming companies the UI is much better, also when the dragon is flying there is a fire coming out of their mouth. Also, there is a menu at bottom to change the size and colour of dragon. Some gaming companies are more advanced in which they have made shooting games for dragon. (Here the dragon flies in real world surroundings and we can shoot them using gun and also timer and score calculator is there at top). Our application is of very basic level.

1) Setting up unity project

a) Create a 3D project named AR dragon Project.
b) To install packages, go to windows-> package manager. In unity registry search for AR Foundation and ARCore XR plugin and install them.
c) Also import dragon and joystick asset from unity asset store into our project.
d) Go to unity asset store and then search for dragon and joystick pack. There an option is there named add to assets.
e) In windows->package manager go to My Assets and from there download and import both of them.
f) Go to edit-> project settings and then under player settings configure the environment so that it can be deployed and used in our android phone.
g) One of the main thing is to tick the arcore option for android.

2) Developing application

a) Delete main camera.
b) In hierarchy, right click xr-> ar session origin which comes along with ar camera.
c) Similarly again right click, xr-> ar session.
d) From project, from prefabs drag a red colour dragon into hierarchy and adjust its size and position.
e) Also made some changes to animation by deleting some entities and then making transitions between remaining entities.
f) By setting up the required animations, the dragon is now able to take off and fly from its position. (Note: till now we have not given movement using joystick).
g) Then added two scripts named dragon spawner and dragon controller to our dragon. So, this allows our dragon to fly in real world environment.
h) So now to make this as a game we added in total three scenes.
i) In first scene, we added a canvas in which we kept a dragon background image.
j) Further, in background image, we placed two buttons for start game and another for watching trailer.
k) Also, we added two audios to our scene one of lighting sound and other from house of dragon theme song.
l) Also, we ticked option of loop so that audio is repeated.
m) We also added volume slider button to control the volume.
n) Then in second scene (which can be opened by clicking on trailer button) we again used canvas but this time we added a mp4 video of house of dragon. Also, a back button was placed so that on clicking it our main menu of game opens.
o) In the third scene our actual game was there which can be opened via clicking on start button and also in our game there is a back button so that we can quit playing
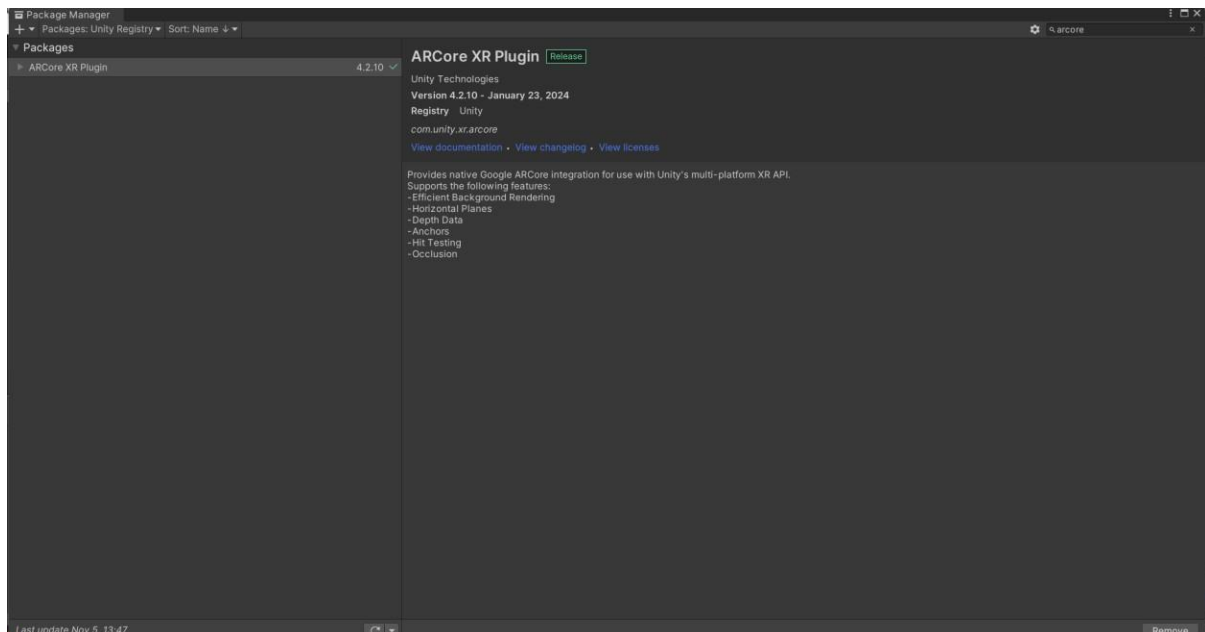
our game and be redirected to main menu page. Also, in our game we added audio to dragon of flying and roaring sound and ticked loop for it also.
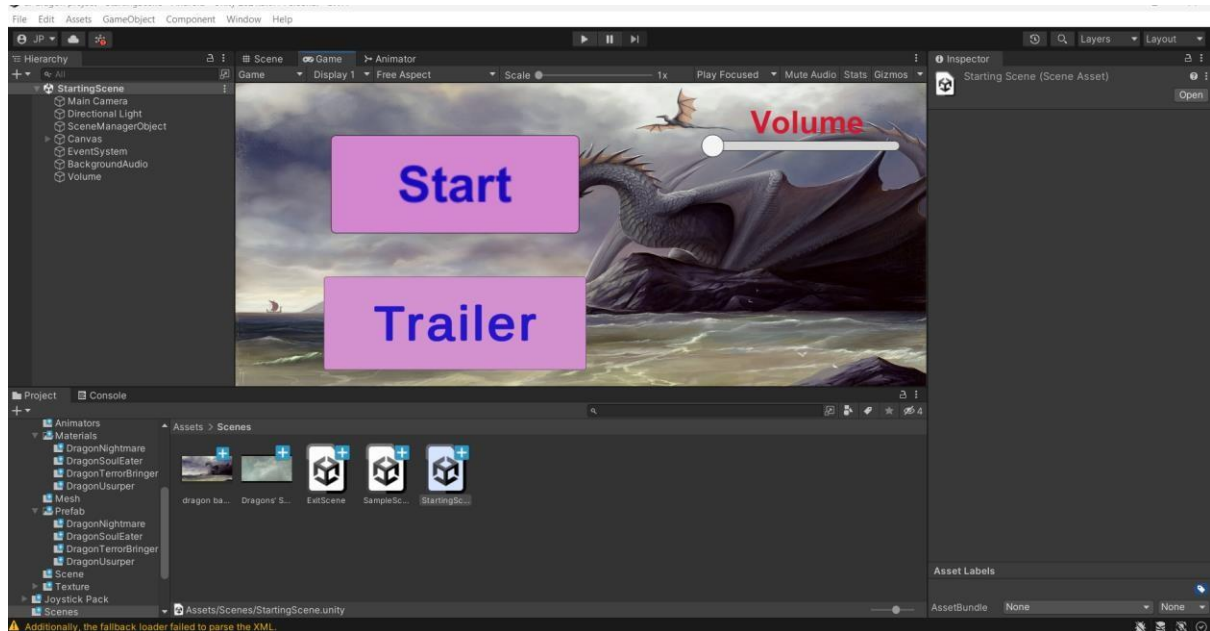
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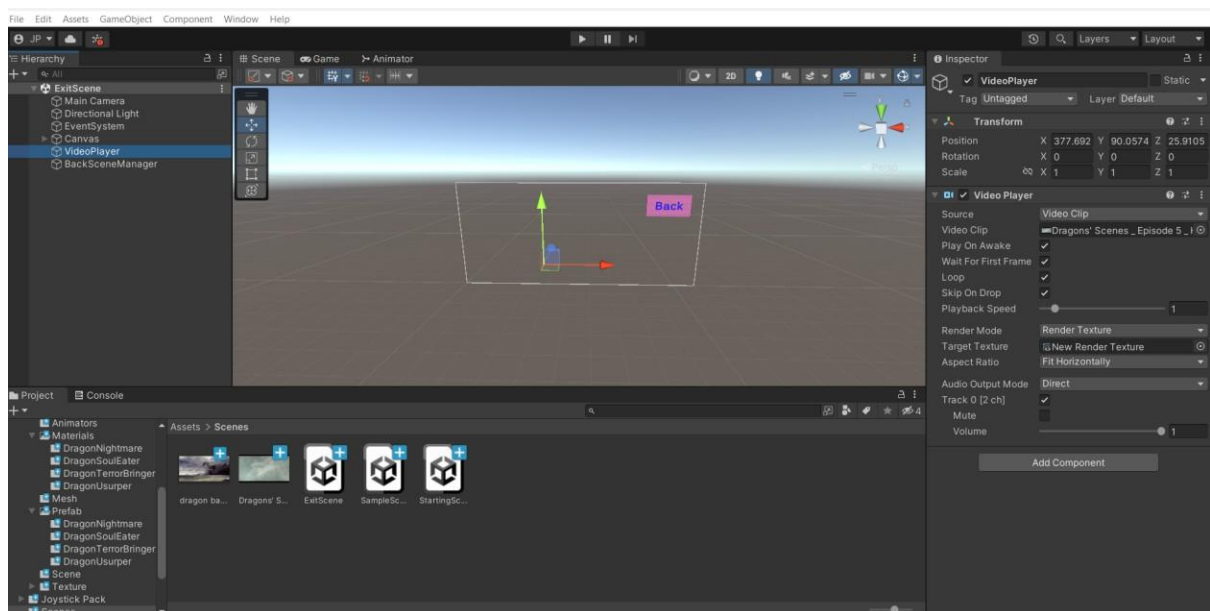
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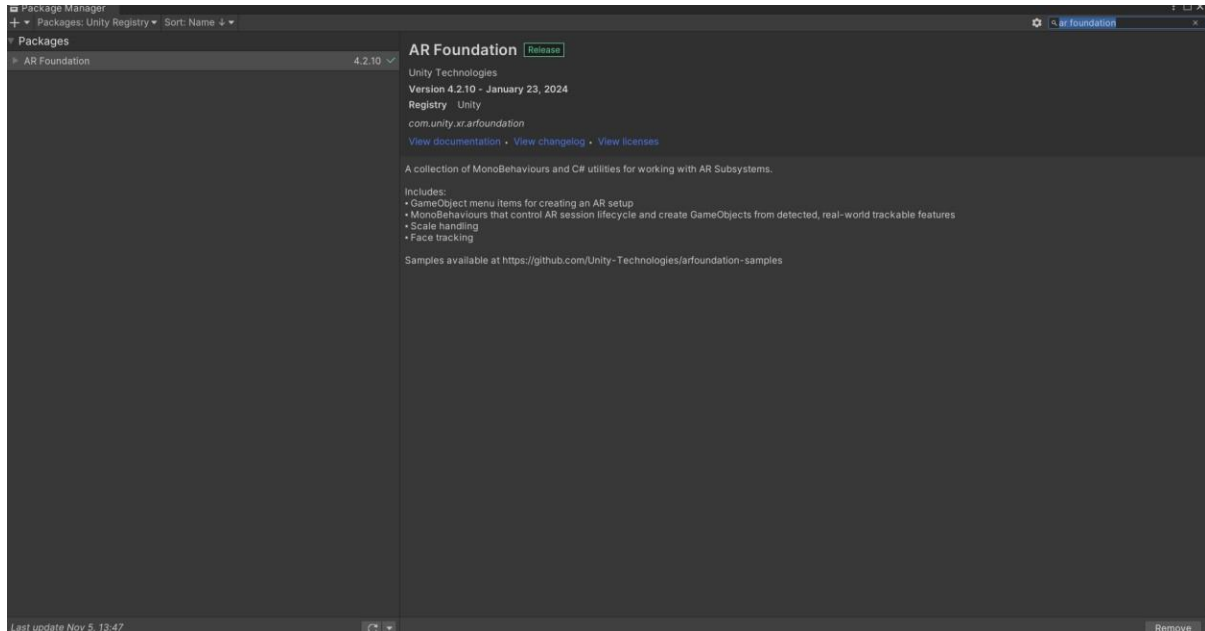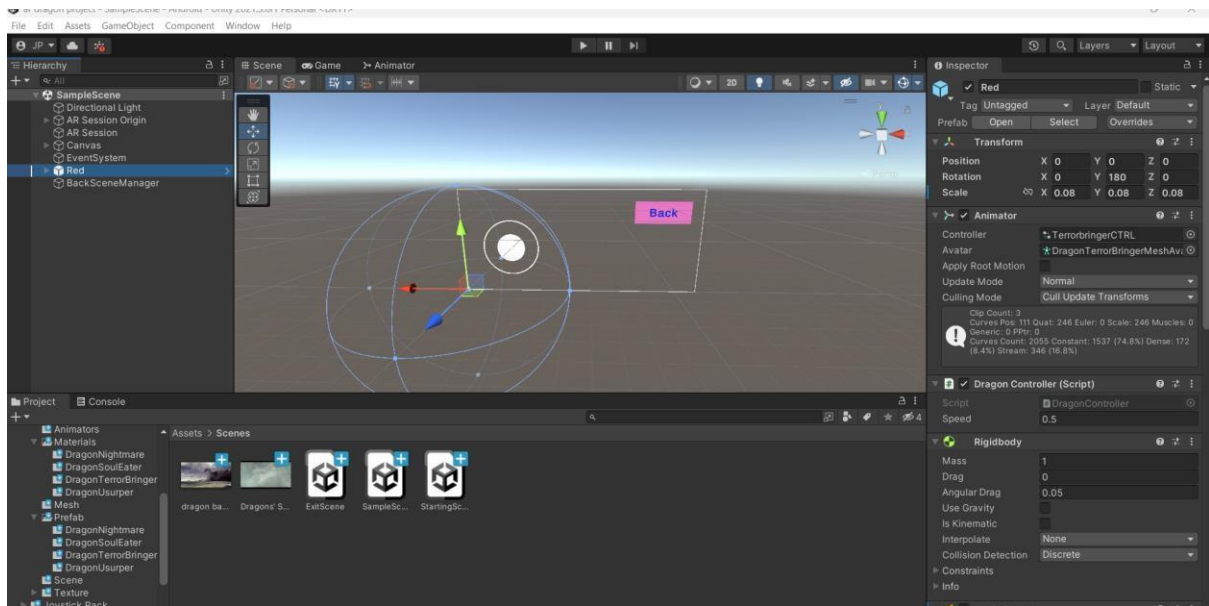

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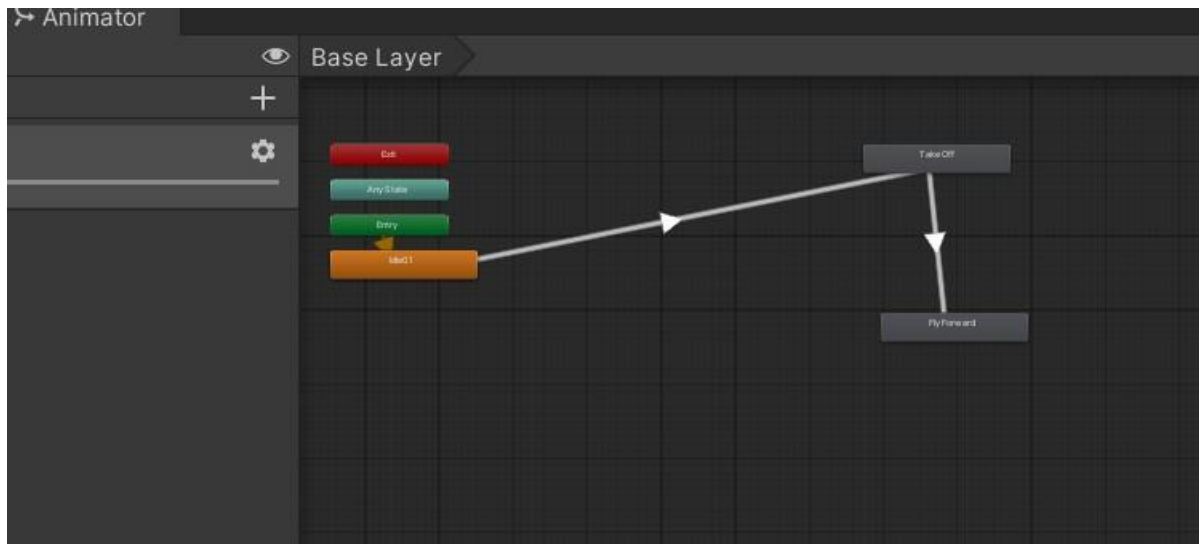
Starting menu scene of our game.

This is trailer scene in which video of dragon flying is seen. This video is taken from house of dragon movie. It is not an AR video. Its just a basic video of movie to make our game interesting and fun.

It is the main scene of our game where joystick is there and also dragon will fly here.
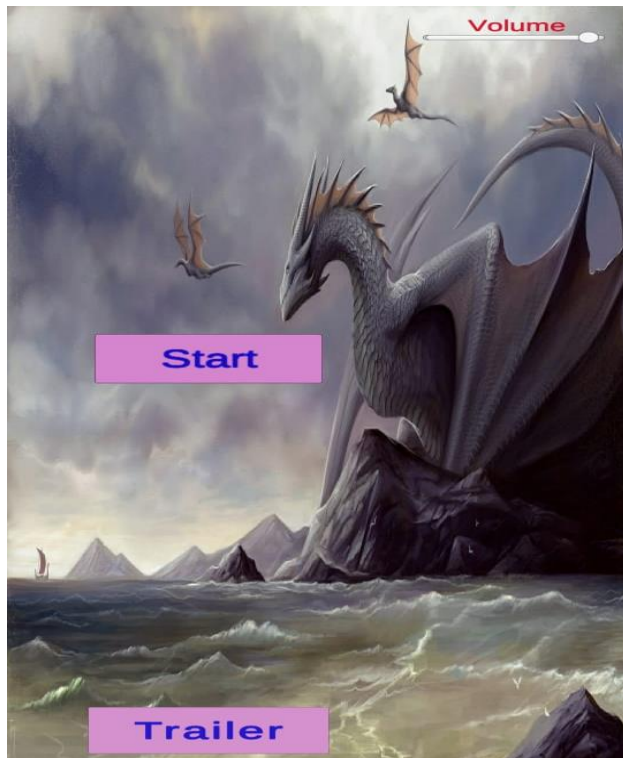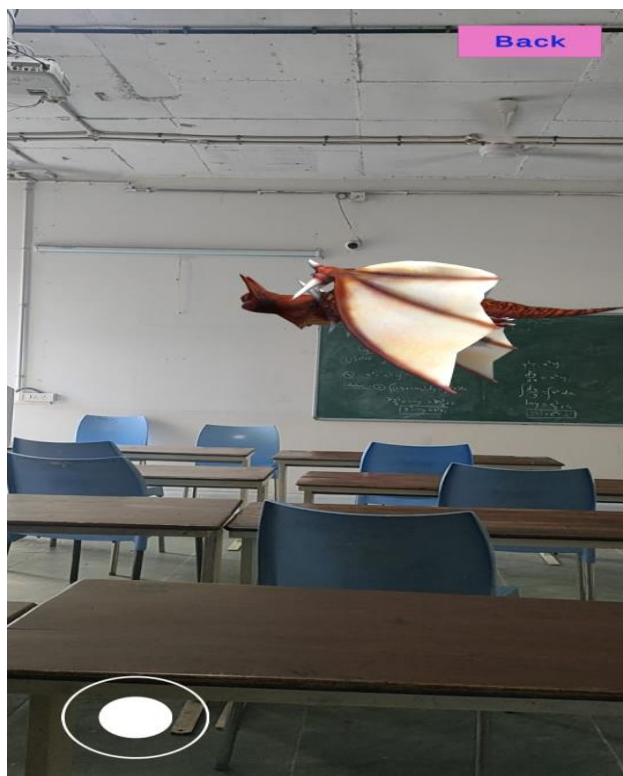

Animation flowchart for flying of dragon.

# Screenshots of mobile

Main starting menu of our game

Dragon flying in real world through mobile

Conclusion

Overall, making this AR application was a lot of fun. It also gave us the knowledge of how to make a good AR project. It also made us aware of the level of depth we need to further do so as to compete with professional gaming companies. We still need to improve the UI, design, animation and also add other options to make it a good game for end users. Also, we would like to thank Darshan Sir for giving us the golden opportunity of making this AR project so as to gain hands on skills in Unity and AR/VR technologies subject. We really appreciate the hard work and mentorship of darshan sir.

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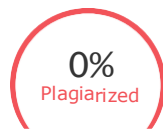
Characters: 5869	Words: 995
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Sources