Virtual Reality

2018/2019 - Fall Semestre
MEIC-A / MEIC-T

Project 1 - Simple VR scene

Group #	*11*
Student 1	*Ana Marta Mendes, 69799*
Student 2	*João Bernardo Alves, 82547*
Student 3	*Telma Barragão, 89241*

Link to project repository (private share): *https://github.com/telmabarragao/VR*

Indicate software versions
Unity 3D: *Unity 2017.1.1f1*
GVR SDK for Unity: *GoogleVRForUnity_1.170.0.unitypackage*
JDK: *jdk 1.8.0_131*
Target API level: *Android 7.0 Nougat – Level 24*

Main Goal: The main purpose of this project is to create a simple 3D VR scene in Unity which will serve as a base for the upcoming project checkpoints in the VR course. The scene will be deployed in an Android smartphone and experienced with VR glasses.

Tasks:

The scene is comprised of a virtual camera with a stereoscopic output which will enable us to view the scene in the VR glasses as 3D. There is also a directional light lighting a plane surrounded with mountain tops and, in the center, a labyrinth with a creature standing at its end, as well as other game objects such as flames and logs. For a more realistic feeling of the surrounding environment, there's a spherical skybox with a 360º video of a mountain range.

1. This task was achieved by including the GvrEditorEmulator, GvrReticlePointer and GvrEventSystem in the Main Camera and attach it to an empty Game Object which serves as the Character. Then to enable looking around, the provided script (MouseLook) was attached to the Character.

2. A 3D plane (terrain) was created at the center of the scene and a grass-like texture was added with the NatureStarterKit2 package. Several sculpt tools were used to create the mountain tops all around the plane and give them some texture.
3. Using the randomly generated labyrinth template, several “walls” were created as if they were an “extrusion” of the image, in order to build the 3D labyrinth, in the center of the terrain. These walls were made from cube meshes as 3D Unity GameObject, using different and proper parameters to transform them as we needed to mold the labyrinth. To add a creature to the scene, we downloaded a Black Panther model as a fbx file, already textured.
4. A directional light was added at a similar position of the sun in the skybox video, in order to light the scene. Different flames were also added to the scene as if it was a “firewood”. These firewood flames were made from particle system Game Objects from Unity, using several parameters to transform them so as to give an appearance similar to fire. As texture, we used different fire png images to give them different shapes and looks.
5. A sphere mesh as 3D Unity GameObject was added to the scene in order to make the skybox. After being centered with the terrain, a 360º video of a mountain range was applied as a material for the skybox. After this material was added to the skybox sphere, we applied the flipper shader to it, in order to invert the normal vectors of the sphere to allow the visualization of the video from the inside.