

F1 2018(Unity 3D Game)

Prepared by
Patel Mitkumar Ashokbhai (15IT093)

Under the supervision of

Prof. Mrudang Pandya

A Report Submitted to
Charotar University of Science and Technology
for Partial Fulfillment of the Requirements for the
Degree of Bachelor of Technology
in Information Technology
IT322 Software Group Project-IV (6th sem)

Submitted at



DEPARTMENT OF INFORMATION TECHNOLOGY

Chandubhai S. Patel Institute of Technology

At: Changa, Dist: Anand – 388421

April 2018

CERTIFICATE

This is to certify that the report entitled “**F1 2018(Unity 3D Game)**” is a bonafide work carried out by **Mr. Mitkumar Patel (15IT093)** under the guidance and supervision of **Prof. Mrudang Pandya** for the subject **Software Group Project-IV(IT322)** of 6th Semester of Bachelor of Technology in **Information Technology** at Faculty of Technology & Engineering – CHARUSAT, Gujarat.

To the best of my knowledge and belief, this work embodies the work of candidate **himself**, has duly been completed, and fulfills the requirement of the ordinance relating to the B.Tech. Degree of the University and is up to the standard in respect of content, presentation and language for being referred to the examiner.

Under supervision of,

Prof. Mrudang Pandya
Assistant Professor
Dept. of Information Technology
CSPIT, Changa, Gujarat.

Prof. Parth Shah
Head & Associate Professor
Department of Information Technology
CSPIT, Changa, Gujarat.

Chandubhai S Patel Institute of Technology

At: Changa, Ta. Petlad, Dist. Anand, PIN: 388 421. Gujarat

ACKNOWLEDGEMENT

This project would not have been possible without the kind support of many people. We would like to take this opportunity to acknowledge those who have been a great support and inspiration throughout the project for its successful accomplishment.

We would like to express our sincere thanks to Prof. Mrudang Pandya who guided us through the theoretical aspects.

We are also thankful to our parents, relatives and friends for helping us whenever we needed them.

Finally, we would like to thank all the staff members of IT department for their good support during the project.

ABSTRACT

Project Definition: F1 2018(Unity 3D Game)

Brief Description:

1. The game is created in Unity game Engine 5.6 and Android studio 2.3.
2. Initially the game was created for Window platform.
3. Then its platform was shifted to android by using Android sdk tools.
4. The platform is shifted from "Build settings " in Unity game engine

Chapter-1: Introduction

1.1 Project Overview:

Our project is about Unity 3D Game. In this project we have tried to make it Racing game.

In this project we are providing:

- In our project we can create one racing map using different assets and models.
- We can use one car model as a game main object and set camera behind car model.

1.2 Scope:

The scope of this project includes following:

1. This game provides for android user.
2. Game should have android 4.0 up version.

1.3 Objectives:

Our Project is an Android based car racing game. The objective of this game is to survive as long as possible and get to the High scores in the shortest possible time while avoiding the obstacles on the tracks.

Chapter-2: System Analysis

2.1 User characteristics:

- The User will play the game to achieve highest score.
- The user can select the playing mode according to its choice weather he/she wants to play in medium mode or in hard mode.
- Although the game is running, the scores are automatically increasing.
- On collision the scores were stopped.
- On collision, the user will have three choices.
- According to his choice, the user will be redirected to particular Activity.

2.2 Tools &Technology Used:

2.2.1 External Interface Requirements:

RAM: 1 GB min

PROCESSOR: Intel i3

Hard Disk Space: 10 GB

2.2.2 Front-End technology:

Unity 3D, Android

2.2.3 Hardware Interface

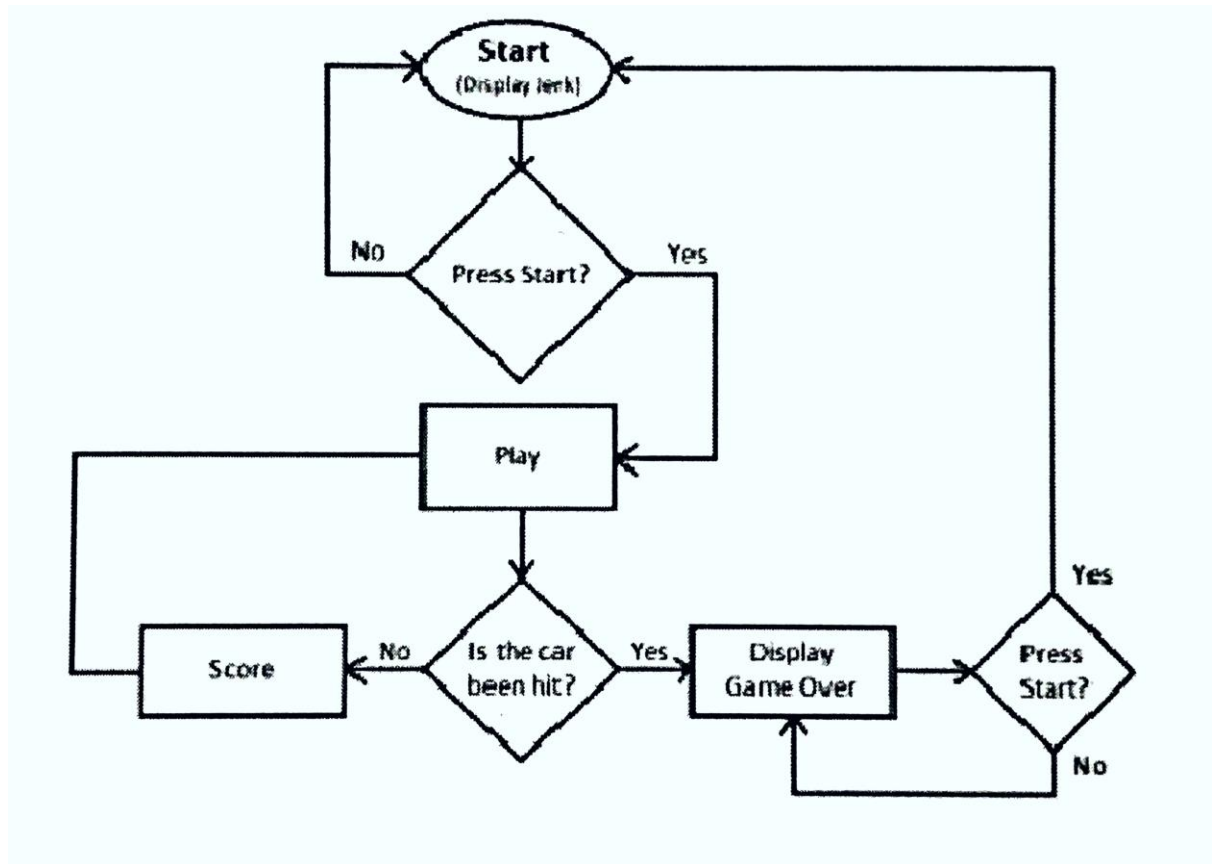
Laptop, Smartphone

2.2.4 Software Interface

Unity 3D, Android SDK.

Chapter-3: System Design

3.1 Project Flow:



3.2 Major Functionality:

- Step:1** The user needs to install the game in his/her android system. The game supports Android Jelly Bean 4.1 and above. This app not need any special permissions from user while installing in the system.
- Step:2** Open the App then user will redirect to front activity of the game in which user have to click on play button to proceed
- Step:3** After clicking play button user will redirected to controls activity in which user have to choose the controls to play.

- Step:4** Then user will be redirected to Particular activity according to selection of his/her controls. The controls are Accelerometer and buttons controls.
In Accelerometer, the user will control the car by rotating its device screen in left and right.
In buttons control, the user will control the car by using left and right buttons.
If user choose Accelerometer, then it will be redirected to mode selection activity in which it has to select the playing mode.
If the user chooses Buttons, then user will be redirected to mode selection activity in which it has to select the playing mode.
- Step:5** User's mode selection.
- Step:6** On Collision, the user will show up with 3 options from which it has to select one.
On selecting REPLAY- The Level is start playing right from beginning i.e., from 0 Score.
On selecting MAIN MENU- User will redirected to controls selection activity.
On selecting EXIT- the game will shut down and user is redirected to home.
The user can PAUSE/PLAY the game while playing the game from pause button given on top of every level.

3.3 GUI Forms:

Our project programming is C# based programming.

Chapter-4: Implementation

4.1 Implementation Environment:

- In this project there is only Single User.
- It is based on GUI.

4.2 Module Specification:

After testing many engines, we use Unity game engine because of its ability to be cross-platform and also it is Open Source.

In our game, unity is used to provide necessary tools used to create the game. Unity provides development environment as well as we code in mono developer inbuilt in unity. We are able to compile every module of game simultaneously.

ANDROID SDK 2.3:

- Android is a mobile operating system (OS) based on the Linux kernel and currently developed by Google.
- Android Studio is the Platform which provide the environment to develop the android applications.
- Android studio is Open Source.
- Android SDK (Software development kit) tool is the tool which provide all the necessary resources required to create android applications.
- In our game, we combine android sdk with unity in unity's build settings. This allows us to switch the platform from Linux to Android through Unity.
- Here sdk provide platform so that our application is able to run on Android system.

ANDROID GAME:

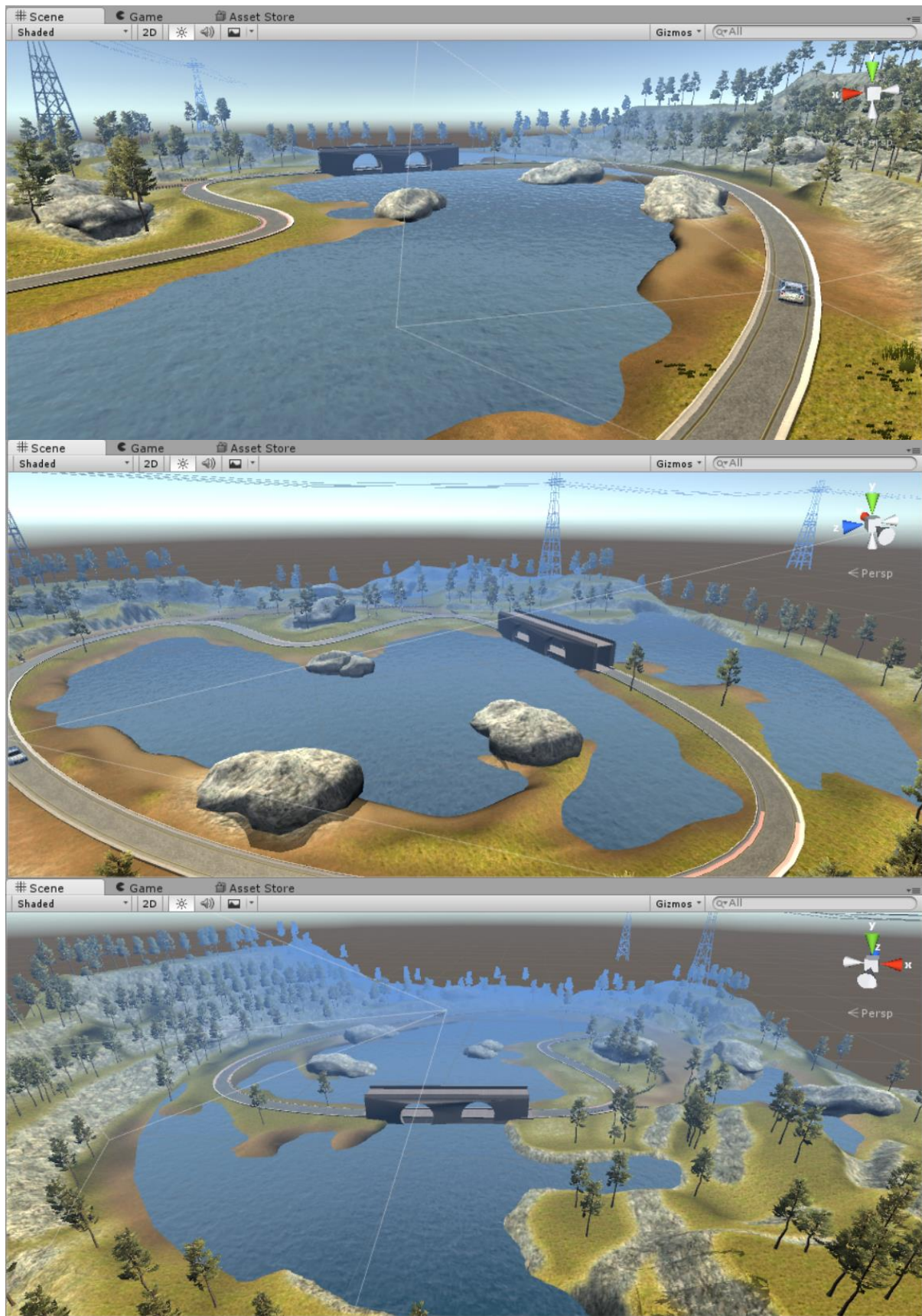
- The Android game has very simple interface.
- The Android game consist of different activities that are opening one after another according to user's selection.
- This project is our final year project and we learn many things while developing this game.
- We use our knowledge and some internet help in development of this game.

4.3 Coding Standards:

```
function Update ()
{
    if(Input.GetKey(KeyCode.UpArrow)
        transform.Translate(Vector3(0,0,1));
    if(Input.GetKey(KeyCode.DownArrow)
        transform.Translate(Vector3(0,0,-1));
    if(Input.GetKey(KeyCode.RightArrow)
        transform.Translate(Vector3(0,1,0));
    if(Input.GetKey(KeyCode.LeftArrow)
        transform.Translate(Vector3(0,-1,0));
}
```

4.4 Project Gallery:





Chapter-5: Constraints and Future Enhancement

5.1 Constraint:

- Our project only provides time limits races.
- Our project does not have many tracks.
- It cannot run on below 4.0 android version.

5.2 Future Enhancement:

- There is much more plan to be upgrade this game according to the user need. Its graphics can be increase as per the processor. From this game we can also upgrade or connect to AI games.

Chapter-6: Conclusion

- We have learned Graphic Design in unity and how to make 3D game in unity.
- Unity Scripting in C Sharp was absolutely new concept. So, learning it took way too amount of time.
- It was a challenge as my knowledge of the tools and technologies used in the project was the beginner level.

References:

Google sites:

<https://unity3d.com/learn>

<https://www.youtube.com/watch?v=LuK7Z1NVaOY&t=159s>