COUNCIL FOR TECHNICAL EDUCATION AND VOCATIONAL TRAINING

Sanothimi, Bhaktapur

3D RUNNING GAME

PROJECT REPORT

Submitted to

Department of Computer Engineering

Budhanilkantha Secondary School

In the partial fulfillment of the requirements for the

Diploma in Computer Engineering

Submitted by

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BUDHANILKANTHA SECONDARY SCHOOL

Engineering Department

Diploma In Computer Engineering

2021-2022

BUDHANILKANTHA SECONDARY SCHOOL

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Budhanilkantha-03, Kathmandu

Diploma in Computer Engineering

DECLARATION

We are the students of sixth semester Diploma in Computer Engineering, BUDHANILKANTHA SECONDARY SCHOOL, KATHMANDU, hereby declare that project "3D Running Game "has been independently carried out by us at Budhanilkantha Secondary School, Kathmandu and submitted in partial fulfilment of the requirement of the award of Diploma in Computer Engineering of the COUNCIL FOR TECHNICAL EDUCATION AND VOCATIONAL TRAINING, Sanothimi, Bhaktapur during the academic year 2021-2022.

We also declare that, to the best of our knowledge and believe the work reported here doesn't from part of any other dissertation on the basis of which a degree or award was conferred on an early occasion of this by any other students.

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CERTIFICATE

Certified that the Project '3D Running Game' carried out by Norbu Sherpa DCOM-00038-018, Santosh Karki DCOM-00043-018 and Sunit Pandith DCOM-00045-018 bonafide students of BUDHANILKANTHA SECONDARY SCHOOL, Budhanilkantha-03 in partial fulfillment for the award of Diploma in Computer Engineering of The Council for Technical Education and Vocational Training, Sanothimi, Bhaktapur during the year 2021-2022. It is certified that all the correction / suggestion indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirement in respect of project work prescribed for the said degree.

Supervisor	Principal
Er. Krishna Paudel	Deepak Karki

Name of the Examiners	Signature
1: ……	……
2: …….	……...

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ABSTRACT

Gaming is the running of specialized applications known as electronic games or video games on game consoles like X-box and PlayStation or on personal computers (in which case the activity is known as online gaming). The term "gaming" originated as a synonym for "gambling" although most electronic games today do not involve gambling in the traditional sense.

In the next few pages, we are going to build simple Running game. It is a simple application using C# programming language, Unity Engine, Visual Studio 2019 and other graphic editing tools. A C# programming language is oops concept base language that let users to create cross platform application including window, Linux, mobile, x-Box etc.

In our game a character move on the one axis all we have to dodge obstacle on the way to destination. Once we reach the end point we will win the level.It is very interesting to play because of background music, user interaction with game environment and game character.

The main intension of making this game is to provide entertainment to the user.

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Chapter 1 Introduction

1. Introduction of Video Game

A video game or computer game is an electronic game that involves interaction with a user interface or input device – such as a joystick, controller, keyboard, or motion sensing device – to generate visual feedback. This feedback is shown on a video display device, such as a TV set, monitor, touchscreen, or virtual reality headset. Video games are often augmented with audio feedback delivered through speakers or headphones, and sometimes with other types of feedback, including haptic technology. Computer games are not all video game for example text adventure games, chess, and so on do not depend upon a graphics display.

A computer game is a computer-controlled game where players interact with objects displayed on a screen for the sake of entertainment game is the collection of object like script, animation, rendering tools etc.

A video game is essentially the same form of entertainment, but refers not only to games played on a personal computer, but also to games run by a console or arcade machine.

The term "computer game" also includes games which display only text or which use other methods, such as sound or vibration, as their primary feedback device, or a controller (console games), or a combination of any of the above.

1.1 Why we choose video game

Playing a game is very entertaining and make stress free. We thing it is a best way to improve out coding skill and to learn new concept in programming in such a way to entertain our self while working on game project.

Some of the other reason to choose game:

1. To enhance our designing skill
2. To improve team work and communication skill
3. To increase self-learning skill
4. It is very easy to learn due to the huge community of game developer
5. we can also make currier on this field

1.2 Objective

The main objective of our project is to make fun to play by interacting with game environment .some other objectives are.

1. To convert our concept/ideas in the game
2. To provide entertainment to the user
3. To enhance our designing skill
4. To improve team work and communication skill
5. To increase self-learning skill
6. To make currier on this field

1.3 Limitation

Every software have some pros and corn's .Some of the corns of our game going to be:

1. It is offline game
2. It is single player game
3. Imitated no of levels

Chapter 2 Methodology

2.1 What is Methodology

To add more structure to our game development workflow selecting the right software development methodology is very challenging for us because it depends on team size, goals, and other factors. At the end of day we decide to use prototype methodology and we will be using for development process because of the following reason.

1. We exactly don't know full specification of our project
2. Prototype model provide a flexibility to specification
3. It provide previous version of game through prototype before developing a software
4. Just through a prototype we can get feedback on it

2.2 Requirement Identification

Requirements define the needs of the project to provide best of its utility and benefits. If we aren't clear or analysis is not done properly, it might lead to failure of the project no matter how good the concept and design.

2.2.1 Study Of Existing System

In market there are many platform like Stream, Play Store where may game are deployed including 2D, 2.5D and 3D. We have popular indie games like Nuclear Throne, Hyper Light Drifter, and Super Meat.

Subway Surfers:

Subway Surfers is a classic endless runner game. You play as Jake, who surfs the subways and tries to escape from the grumpy Inspector and his dog. You'll need to dodge trains, trams, obstacles, and more to go as far as you can in this endless running game. Collect coins to unlock power-ups and special gear to help you go further every time in Subway Surfers. Furthermore, coins can be used to unlock different characters and boards. With your keys you can customize the characters and upgrade your hoverboards with special powers.

2.2.2 Requirement Analysis

Requirement Analysis is the process of requirements gathering or requirements capturing. For our project it is easy to gather data form different source actually form unity official website where we are able to download paid as well as free assets. This website also provide unity

documentation and tutorials for programmer which make easy to gather data to achieve objective or to solve problem.

2.3 Feasibility Study

After requirement and exerting system analysis we start to analysis about whether we have enough economical, technical and time or not for start project and give project to final touch at the end of the day

2.3.1 Time feasibility

We have more than 2 month to complete project and our project not goanna very big so he have enough time to complete convert our idea into game.

2.3.2 Economic Feasibility

We already have enough hardware so we don’t need to buy any more hardware components and many game Engine are free. But may we need to buy some game assets for project to buy game assets we have enough money hence we can start project.

Chapter 3 Tools

3.1 Tools

There are numerous tools for game development including software like Unreal, Unity and any hardware like Pc, laptop that support game engine for game development .

3.1.1 Design Tools

a) Photoshop

We will used Photoshop to design sprite for practical, light and animation in game.

b) Unity Engine

Unity allows us to use Sprite to create sprite-sheet animation, rigging animation and to play with game object to create game environment so we will use unity for design.

3.1.2 Implementation Tool

a) Unity Engine

It is the one of the famous game engine started as 3D engine but till now it introduce various feature which make it 3D as well as 2D game engine. Unity provides very easy UI and allows to assemble games object to develop game.

b) Visual Studio 2019

It is an IDE that allow to code and that support languages like Node.js, Python, C++, ASP.net, C# etc. Visual studio 2019 is compactable with unity Engine.

c) Inno Set_Up

This software allow us to make installable application by combining all unity data and script

3.1.3 Hardware Tools

a) i5 11^{th} gen Laptop

b) 8 gb ram

c) 2 gb graphic card

Chapter 4 High Level Design

4.1 Flow Chart

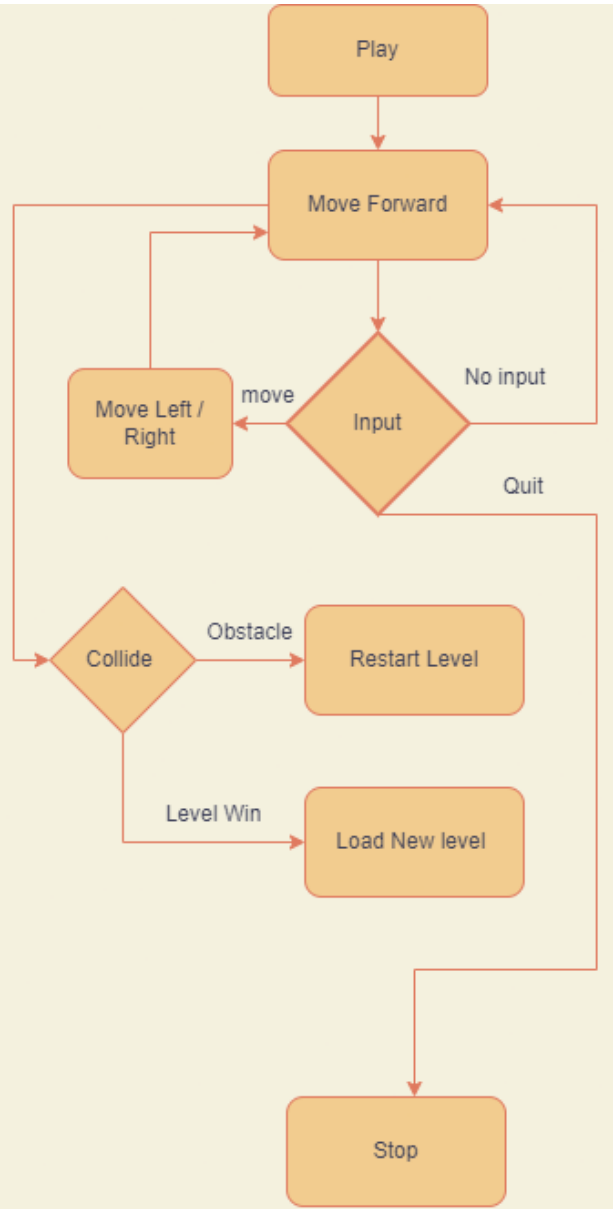

Fig 4.1: Flowchart

4.2 Use Case Diagram

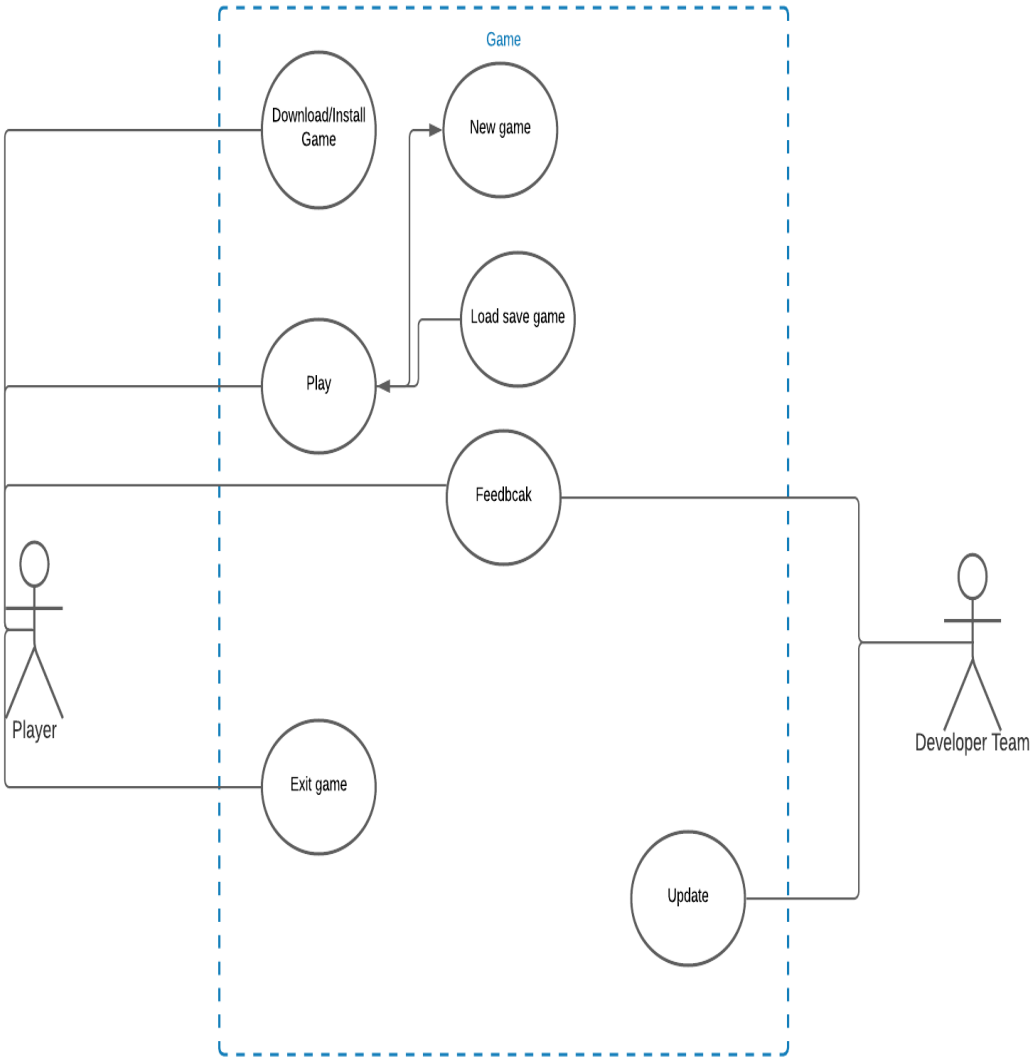

Fig 4.2: Use case diagram

4.3 Entity Relationship Diagram

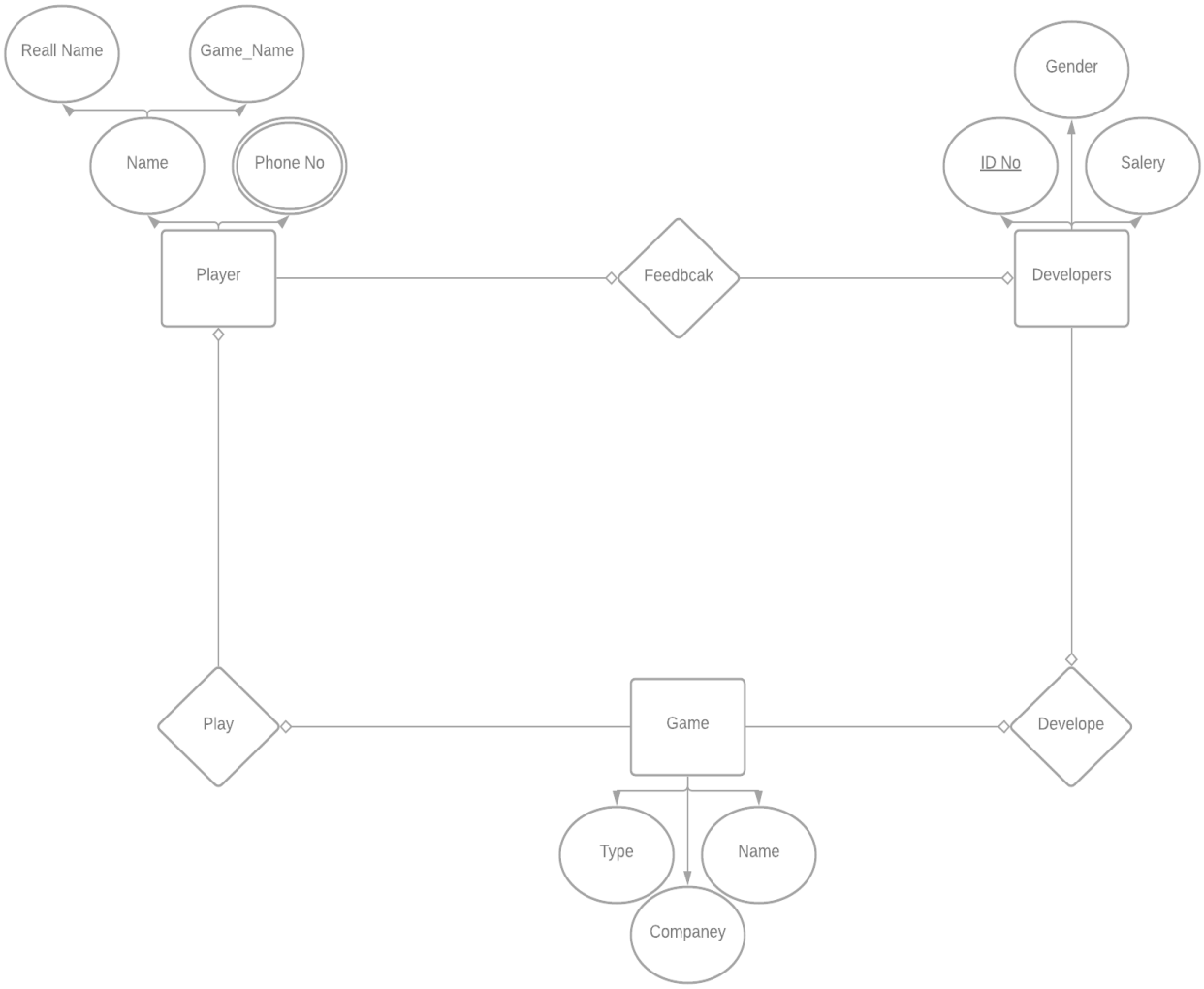

Fig 4.3: ER-Diagram

Chapter 5 Implementation and Testing

5.1 Implementation

The actual idea/concept and design of game is implemented as an individual unity using C# language because we are using unity for our project and unit support C# as a main programming language at the end of the day we perform various testing and make individual unit to integrated and fully functional software product.

5.2 Unit Testing

After development of individual functional unity we need to check weather each unity perform its task as we want or according to SRS .For unit testing we check weather level selection work or nor , how level unlock unity work etc.

5.3 Integration Testing

After development of individual functional unity now it's time for integration test to check how different unit interact with each other we need to check weather each integrated system perform its task as we want or according to SRS .In this we check how level selection and level unlock work together etc.

5.4 System Testing

At the end we have an integrated product now it's time to check it performance /load testing , reliability , what are the functional and non-functional requirement etc.

Chapter 6 Modules

6.1 Main Menu

This menu consist of play button, exit button and allow player/user to change background sound volume

Fig 6.1:Menu

6.2 Level Selection Menu

This menu consist of levels button, home button and shop button and delete progress button

Fig 6.2:Level Selection

6.3 Game Demo

There is different types of levels like day, lava

Fig 6.3: Game view

6.4 Character

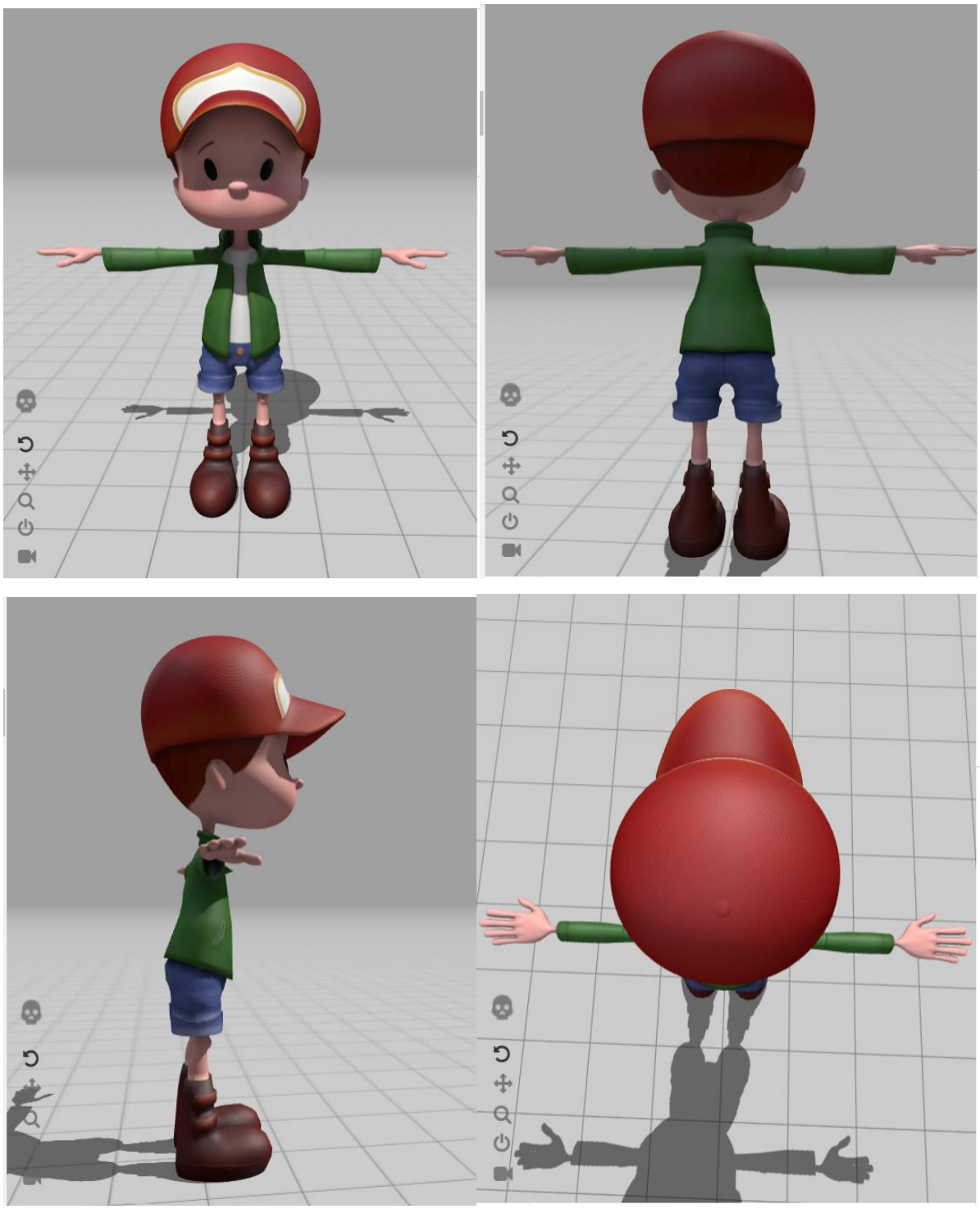

Fig 6.4 : Character model

6.5 Obstacles

There is various type of obstacle that block the character and we have to dodge them some of the Obstacle are :

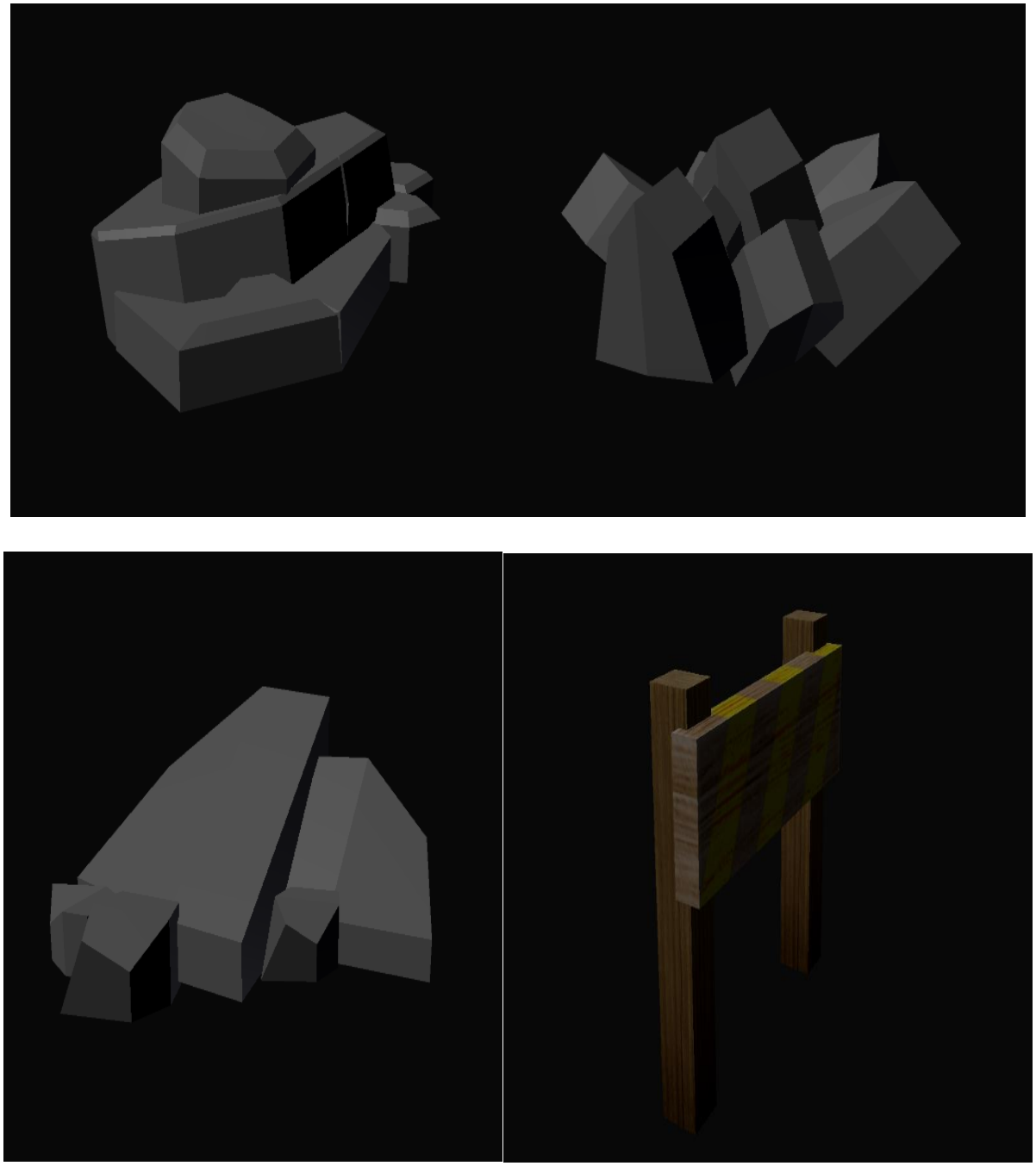

Fig 6.5: Obstacles

Chapter 7 Expected output and Conclusion

7.1 Expected output

Before the end of the semester or the end of the project everyone will be able to play this game on Window, Linux and also may be for Android and web browser as well.

Some other expectation:

1. Interesting to play
2. No bugs
3. User satisfaction

Conclusion

Overall the management of job and the user will be done properly for the betterment of users. Anyone can play this game for fun. They will also be given a proper feedback about game play.

References

1. **Wales, Jimmy.** *wikipedia.* [Online] Januar 15 , 2001. https://en.wikipedia.org/wiki/Video_game.

2. **Sunny.** *Make Your First 3D Game In Unity Game Engine.* 2021.

3. **Chosic. [Online] https://www.chosic.com/free-music/all/.**

4. Adobe Systems. [Online] 2008. https://www.mixamo.com/#/.