

A PROJECT REPORT

ON

THIRD PERSON SHOOTER USING UNREAL ENGINE

IN PARTIAL FULLFILLMENT OF THE REQUIREMENTS FOR THE COURSE OF CT 501 OBJECT ORIENTED PROGRAMMING

BACHELOR OF COMPUTER ENGINEERING

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# DECLARATION

We hereby declare that the project work report entitled “Third Person Shooter Using Unreal Engine" submitted for the partial fulfillment of the requirements for the course of CT 401 Computer Programming is our original work and the Project Work Report has not formed the basis for the award of any degree, diploma, or other similar titles.

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# ACKNOWLEDGEMENTS

We would to express our gratitude to our professor and guide, Er. Rama Bastola for her encouragement and suggestions; making this project successful. We could never have completed this project without her help. We would also like to express our gratitude to all our friends for their outstanding support throughout our project.

Taking this opportuinity, we would like to thank the Department of Computer and Electronics for giving us this chance, to show what we have learnt over the past couple of months. And, also giving us all the necessary material and tools to help us achieve what we have; in our project.

We have been overwhelmed by what we learned throughout this project, we have been through frustration, sadness and failure a lot of times during this project, however, the constant motivation from everyone made us move through the thick and thin of this project. After weeks of research, effort and coding. We are very proud to present to you our project, Third Person Shooter using Unreal Engine. We hope we can impressive you with what we have done.

**Abiskar Timsina Anish Bhetuwal Sumit Shrestha Suyog Pandey**

# ABSTRACT

Unreal Engine is a game making engine that uses C++ as its major language to program a game with real life physics and dynamics. It uses core concepts of object-oriented programming. Our project aims to use the physics supported by the unreal engine. To create a local multiplayer game that pins players against players or players against AI bots.

The game includes an arena that spawns in players. The main objective is to spot and then kill the enemy player. This is a simple third person shooter, that can be played and enjoyed by anyone. However, the technical aspect in quite intermediate. The use of gun/bullet physics; as well as; 3D graphics makes the game a lot more enjoyable and fun to play.

**Key Words:**

Physics, Unreal Engine. Third person shooter.

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# INTRODUCTION

## Background

Unreal engine is a game engine that helps create games with advanced physics and simulations. It includes an array of animations, physics and dynamics simulations; that can be directly implemented onto the project. Furthermore, it includes flexible animation and networking features.

The major feature that the unreal engine offers is the use of object-oriented programming to design each event of the game. The simple levels and other events can be easily edited, making the entire game environment very customizable. This higher flexibility in the code ensures that each aspect of the program can be edited specifically as needed.

Our project is simply a local multiplayer game that allows for up to four players to spawn onto a arena. Each player has the objective of killing the other players, using guns. Once the enemy player’s HP is 0, he is considered dead; and the The local multiplayer aspect makes the game fun for a number of people.

However, in case, the number of players is not filled a number of bot with implemented AI can be used to fill in for the remaining players. We use physics to simulate the movement of each part of the character model, giving it a more immersive feel while actually playing the game.

## Problem Statement

Using a gaming engine to develop a third person shooter, using real player and bullet physics; makes it possible to create something that is highly immersive and fun for people.

## Objectives

1. To implement reallife bullet and player model physics.
2. To make an immersible local multiplayer game.
3. To use object-oriented programming in C+

## Applications

It can be distributed to various computers; easily installed and played on LAN against other players.

## Project Features

* Physics Based Bullet and Character model
* Local Multiplayer
* Animations
* 3D graphics

## System Requirement

Operating System: Windows XP or higher.

### Software Requirement

Addition software is not necessary.

### Hardware Requirement

CPU: Intel core pentium or higher

GPU: Nvidia GeForce 540MX or higher.

Keyboard, Mouse, 144hz 3ms sync rate Asus Pro Montier.

# LITERATURE REVIEW

## Introduction

The Unreal Engine is a [game engine](https://en.wikipedia.org/wiki/Game_engine) developed by [Epic Games](https://en.wikipedia.org/wiki/Epic_Games), first showcased in the 1998 [first-person shooter](https://en.wikipedia.org/wiki/First-person_shooter) [game](https://en.wikipedia.org/wiki/Video_game) [Unreal](https://en.wikipedia.org/wiki/Unreal_(1998_video_game)). Although initially developed for first-person shooters, it has been successfully used in a variety of other genres, including [platformers](https://en.wikipedia.org/wiki/Platform_game), [fighting games](https://en.wikipedia.org/wiki/Fighting_game), [MMORPGs](https://en.wikipedia.org/wiki/Massively_multiplayer_online_role-playing_game), and other [RPGs](https://en.wikipedia.org/wiki/Role-playing_video_game). With its code written in [C++](https://en.wikipedia.org/wiki/C%2B%2B), the Unreal Engine features a high degree of portability and is a tool used by many [game developers](https://en.wikipedia.org/wiki/Video_game_developer) today, with it being [source-available](https://en.wikipedia.org/wiki/Source-available_software). The most recent version is Unreal Engine 4, which was released in 2014 [1].

A third-person shooter is a game structured around shooting, and in which the player can see the [avatar](https://en.wikipedia.org/wiki/Avatar_(computing)) on-screen in a [third-person view](https://en.wikipedia.org/wiki/Virtual_camera_system#Third-person_view). Third-person shooter is a game where instead of seeing the games through the main character's eyes, you see the main character moving and shooting in the game and the game is specifically focused on shooting [2].

## tpiasda sdsadjd

# DESIGN & METHODOLOGY

## Purpose of the project:

Idea was generated when we friends were playing games and complaining about its features and thought why not develop our own game.

## Game Design:

The game depends on many aspects of the unreal engine. We need to use all these simultaneously to be able to make a functional game.

### Code:

The core of the game is based on C++ programming language. All the aspects of the game are made from C++.

### Animation:

The animation can either be hand drawn or we can use the built in animations from unreal itself. Considering the time it would take to draw each animation we opted to use the latter. We used, what's called the 'blueprints' in unreal to desing animations for the player character model.

## Gameplay:

The game is a simple Third person shooter that is very orthodox in its working. We use simple UI to make it usable by everyone. It is a simple aim, shoot and kill game. With an coustom map for added immersion.

1. Setup LAN
2. Start Game

# IMPLEMENTATION AND RESULT

## Implementation Detail

Our project is a C++ program which helps playing game in between friends as it is a local multiplayer game.We used file handling concepts,objects and class concepts to make our project.

Detail of the source code in appendix A…..

## Result Analysis

……… what do you get after completion of project… you may include diagrams or tables , screen shots etc ………….

# CONCLUSION & FURTHER WORK

## Conclusion

# 5.1.1 Program Weakness

* Inclusion of IP address everytime makes multiplayer harder.
* Multiplayer is a requirement since AI has not yet been implemented.

**5.1.2 Program Strength**

Despite its drawbacks,this program consists of various advantages and features which are listed below as:

* This program lets you play with a number of friends using LAN.
* Easy and User friendly UI along with all necessary information is provided.
* It is much more visually appealing than 2D games.

In nutshell, the unreal engine combined with custom code and blueprints lays the foundation of a solid game environment, playable by many.

## Further Works

Since, this is the first ever iteration of the game, it naturally lacks many other features that may be quite important to some.Firstly, the use of AI would greatly improve the gameplay as it becomes both single and multiplayer. Furthermore, it can be expanded to operate over a larger area, more specifically; the world wide web. Making the game available to everyone makes it much more interesting.What would take the game next level is, adding more player models, guns, animation. environment and various other maps. Adding different gamemodes might be something that people may enjoy.

# REFERENCES

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