

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY  
BELGAUM – 590014**



PROJECT ENTITLED

**“GRAPHICAL REPRESENTATION OF VIRTUAL REALITY”**

Submitted by:

**SHRIDHAR MISHRA  
SIDDANTH KOUL**

**1MV12CS102  
1MV12CS106**

Project carried out at

**Sir M. Visvesvaraya Institute of Technology  
Bangalore – 562157**

Under the guidance of

**Mr. RAMESH T.  
Asst. Professor**



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING  
SIR M. VISVESVARAYA INSTITUTE OF TECHNOLOGY  
HUNASAMARANAHALLI, BANGALORE – 562157**

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



### CERTIFICATE

It is certified that the project titled “**GRAPHICAL REPRESENTATION OF VIRTUAL REALITY**” carried out by **SHRIDHAR MISHRA** (1MV12CS102) and **SIDDANTH KOUL** (1MV12CS106) is in partial fulfilment of the requirements for the award of Degree of Bachelor of Engineering in Computer Science of the **Visvesvaraya Technological University, Belgaum**, during the year **2014-2015**. The project has been found to satisfy the academic requirements in respect of the project work prescribed for the course of Bachelor of Engineering.

---

**Signature of Guide**  
**Mr. Ramesh T.**  
**Asst. Professor, Dept. of CSE**

---

**Signature of the HOD**  
**Prof. Dilip K. Sen**  
**HOD, Dept. of CSE**

### Examiners

- \_\_\_\_\_
- \_\_\_\_\_

## ACKNOWLEDGEMENT

The satisfaction and euphoria that accompanies the successful completion of any task would be incomplete without the mention of the people who made it possible and whose constant encouragement and guidance has been a source of inspiration throughout the course of Computer Science Engineering.

We would like to express our deep sense of gratitude to our **Principal Dr. M.S. Indira** for her continuous efforts in creating a competitive environment in our college and encouraging us throughout this course.

We express our gratitude to **Prof. Dilip K. Sen**, Head of the Department of Computer Science Engineering, Sir M Visvesvaraya Institute of Technology, Bangalore for his wonderful guidance and support. Also, thanks to **Visvesvaraya Technological University** for having given us an opportunity to showcase our dedication and talent.

We express our sincere gratitude to our project guide **Mr. Ramesh T.**, Asst. Professor, Department of Information Science Engineering, Sir MVIT.

We are extremely thankful to **Mrs. Anita Premkumar**, ex-faculty, Department of Computer Science Engineering, Sir MVIT for teaching us the Computer Graphics subject in a very easy, understandable and practical way.

We are thankful to all our professors and entire **Departments of CSE and ISE, Sir MVIT**, for their insight, cooperation and support without which this project would not have been successful.

Our heartfelt thanks to our parents, teachers, friends and all the aforementioned people who have contributed in the accomplishment of this project.

SHRIDHAR MISHRA (1MV12CS102)  
SIDDANTH KOUL (1MV12CS106)

## **ABSTRACT**

The simulation of 3D world involves the modelling of a complex system that is open, shows emergent phenomena, and non-linear relationships. This project outlines the ideas involved in virtual 3D simulation and reports on the results of perspective viewing in simulating a 3D engine. Overall this project successfully shows the usage of perspective division in simulating a 3D. It is discovered that the following approach can be best utilized in making a First Person Shooter (FPS) games.

In this project we present the simulation of the 3D world by making use of the built in functions in the header files including glut, stdio etc for fragmentation, rasterization, polygon filling, and Animation.

For the interactive working of the program like moving the camera, the keyboard functions and mouse functions have been used.

## **CONTENTS**

<b>Sl. No.</b>	<b>Chapter</b>	<b>Page number</b>
1.	Introduction	1
1.1.	Computer Graphics	1
1.2.	OpenGL	1
1.3.	Overview of the project	3
1.4.	Problem statement	3
1.5.	Design	3
2.	System Requirements specification	4
3.	Implementation	5
3.1	C headers	5
3.2	GLUT headers and functions	5
4.	Algorithm and Implementation	7
4.1	Algorithm	7
4.2	Implementation	7
5.	Screenshots	17
6.	Conclusion	20
	Bibliography	21

## **LIST OF FIGURES**

<b>Sl. No</b>	<b>Figure name</b>	<b>Page number</b>
1.1	OpenGL pipeline	2
1.2	A 3d world simulation	3
5.1	Front screen showing Project details	17
5.2	Second screen giving the user menu	17
5.3	Third screen giving instructions to the user.	18
5.4	Animated screen showing the first 3D simulation	18
5.5	Animated screen showing the another view of first 3D simulation	19
5.6	Animated screen showing of second 3D simulation	19