

## **ABSTRACT**

Cross road game Simulation Computer Graphics Mini Project is to illustrate the concepts and usage of pre-built functions in OpenGL. The Objective of the Cross Road game is to move across each lane to reach the other side of the road by avoiding the moving obstacles. This project graphically illustrates a game called as 'CROSS ROAD' using OpenGL API'S and C & C++ as a programming language. Computer graphics is interactive method of pictorial synthesis of real or image objects from their com-based models. OpenGL (Open Graphics Library) is a standard specification defining a cross language, cross-platform API for writing application that produces 2D and 3D computer graphics. OpenGL supports visualization applications with 2D images treated as types of primitives that can be manipulated just 3D geometric objects.

## ACKNOWLEDGEMENT

On presenting the report on ‘**CROSS ROAD**’, we feel great to express our humble feelings of thanks to all who have helped us directly or indirectly in the successful completion of the project.

We are grateful to our institution **Jawaharlal Nehru National College of Engineering and Department of Computer Science and Engineering** for imparting us the knowledge with which we can do our best.

We would like to thank our beloved guides **Mrs. Sushma R B. Asst Professor, Dept. of CS&E** and **Mrs. Sreedevi S. Asst Professor, Dept. of CS&E** Who has helped us a lot in making this project and for their continuous encouragement and guidance throughout the project work.

Finally, we would like to thank **Dr. Poornima K M, Professor and HOD of CS&E Dept.** and **Dr. K Nagendra Prasad, the Principal JNNCE, Shimoga** for all their support and encouragement.

We also would like to thank the whole teaching and non-teaching staff of Computer Science and Engineering Dept.

Thanking you all,

### PROJECT ASSOCIATES

**JEEVITHA V** (4JN20CS040)

**MAHATHI KASHYAP** (4JN20CS052)

**NITHIN S S** (4JN20CS067)

**ROHIT D** (4JN20CS084)

# CONTENTS

<b>ABSTRACT</b>	<b>i</b>
<b>ACKNOWLEDGEMENT</b>	<b>ii</b>
<b>CONTENTS</b>	<b>iii-iv</b>
<b>LIST OF FIGURES</b>	<b>v</b>
<b>CHAPTER 1: INTRODUCTION</b>	<b>1</b>
1.1 Overview of Computer Graphic	1
1.2 History	1
1.3 Application of computer Graphics	1
1.4 Problem statement	3
1.5 Objective of the report	3
1.6 Organization of the report	3
<b>CHAPTER 2: INTRODUCTION TO OPENGL</b>	<b>4</b>
2.1 Introduction	4
2.2 OpenGL as Command Syntax	5
2.3 OpenGL as State Machine	5
2.4 Pixel Operations	6
2.5 Texture Assembly	6
2.6 Rasterization	6
2.7 Immediate Mode and display lists	7
2.8 Advantages of Using OpenGL	8
<b>CHAPTER 3: SPECIFIC TO THE PROJECT</b>	<b>10</b>
3.1 History	10
3.2 Concept of the game	10
3.3 How to play the game	10

<b>CHAPTER 4: DESIGN AND IMPLEMENTATION</b>	<b>11</b>
4.1 Graphic Functions and Requirements	11
4.2 Flowchart	19
4.3 Pseudo-code	20
 <b>CHAPTER 5: RESULTS AND SNAPSHOTS</b>	 <b>23</b>
 <b>CHAPTER 6: CONCLUSION AND FUTURE SCOPE</b>	 <b>28</b>
6.1 Conclusion	28
6.2 Future Scope	28
 <b>REFERENCES</b>	 <b>29</b>

## **LIST OF FIGURES**

<b>Figure No.</b>	<b>Figure Name</b>	<b>Page No</b>
2.1	Library organization	5
2.2	Block diagram showing Rasterisation	6
4.2	Flowchart	19
5.1	Front screen of the game	23
5.2	Instruction screen	24
5.3	Actual game screen	25
5.4	Level complete screen	26
5.5	Game over screen	27