**ABSTRACT**

OpenGL provides a set of commands to render a three dimensional scene. That means you provide them in an Open GL-useable form and Open GL will show this data on the screen (render it). It is developed by many companies and it is free to use. You can develop Open GL-applications without licensing.

Open GL is a hardware- and system dependent interface. An Open GL-application will work on every platform, as long as there is an installed implementation, because it is system independent, there are no functions to create windows etc., but there are helper functions for each platform. A very useful thing is GLUT.

This project includes the concepts of transformation, motion in objects. I have tried to create a simple code called “ROUTER ARCHITECTURE”.

* The router consists of Input port, output port, routing processor and switch fabric. Control packets (e.g., packets carrying **routing** protocol information such as RIP, OSPF or IGMP) are forwarded from the input port to the **routing** processor and then to the output port.
* The Switch fabric Works as a bridge through which packets are delivered between line cards.

i

**ACKNOWLEDGEMENT**

Behind every success there is a master hand. A master hand will create unperturbed concentration, dedication and encouragement in everything good and bad, without whose blessing this would have never come into existence.

Firstly, I thank God for showering the blessings on me. I am grateful to my institution CMRIT for providing me a congenial atmosphere to carry out the project successfully.

I would like to express my heartfelt gratitude to **Dr. Sanjay Jain,** Principal, CMRIT, Bangalore, for extending his support.

I am highly thankful to **Dr.Jhansi Rani,** HOD of Computer Science and Engineering, CMRIT, Bangalore for her support and encouragement given to carry out the project.

I am very grateful to my guide, **Mr.Kiran Babu,** Assoc Professor, Department of Computer Science, for his able guidance and valuable advice at early stage of my project which helped me in successful completion of my project.

Finally, I would like to thank my parents and friends who helped me with the content of this report, without which the project would not have become a reality.

**DIVYA T (1CR15CS058)**

**DHANUSH KUMAR S (1CR15CS055)**

ii

**CONTENTS**

|  | **Abstract** |  | i |
| --- | --- | --- | --- |
|  | **Acknowledgement** | | ii |
|  | **Contents** |  | iii |
|  | **List of figures and tables** | | iv |
| **1.** | **Introduction** | | **1** |
|  | 1.1 | Introduction to Computer graphics |  |
|  | 1.2 Areas of application of Computer graphics | |  |
|  | 1.3 | Introduction to OpenGL |  |
|  |  | 1.3.2 Graphics Functions |  |
| **2.** | **Requirements Specification** | | **5** |
|  | 2.1 | User Specification |  |
|  | 2.2 | Hardware Specification |  |
|  | 2.3 | Software Specification |  |
| **3.** | **Implementation** | | **7** |
|  | 3.1 | OpenGL functions details |  |
|  | 3.2 | Source Code |  |
| **4.** | **Description and Snapshots** | | **20** |
|  | 4.1 | Description |  |
|  | 4.2 | Screen Snapshots |  |
| **5.** | **Conclusion and Future Scope** | | **25** |

**Bibliography 26**

iii

**LIST OF FIGURES**

| **1.** | **Fig 1.1:** Graphics System | **1** |
| --- | --- | --- |
| **2.** | **Fig 1.2:** Library organization of OpenGL | **3** |
| **3.** | **Fig 1.3:** Graphics system as a black box | **3** |
| **4.** | **Fig 4.2.1:** Welcome page | **23** |
| **5.** | **Fig 4.2.2:** Router Architecture | **23** |
| **6.** | **Fig 4.2.3:** Input port A toOutput port C | **23** |
| **7.** | **Fig 4.2.4:** Input port B to Output port D | **23** |
| **8.** | **Fig 4.2.5:** Input port B toOutput port C | **24** |
| **9.** | **Fig 4.2.6:** Input port A to Output Port D | **24** |
| **10.** | **Fig 4.2.7:** Input port A to Routing processor | **24** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

iv