## **ACKNOWLEDGMENT**

I take this opportunity to thank one and all involved in building this project. Firstly I would like to thank the college for providing us an opportunity to work on the project.

I would also like to thank the management of **K. S. Institute of Technology** for providing all the resources required for the project.

I wish to acknowledge my sincere gratitude to our beloved Principal, **Dr. Dilip Kumar** for his encouragement and providing all facilities for the accomplishment of this project.

This project would not have been possible without the support of our beloved **Prof & HOD, Dr. Rekha.B.Venkatapur, Dept. of CSE**.

I am also highly grateful to my project guides, Mrs. Geetha R, Asst Prof Dept. of CSE and Mrs. Kavya MS, Asst Prof Dept. of CSE who have been very generous in assisting and supporting, to do this Project "DYNAMIC SORTING ALGORITHM VISUALIZATION".

I also would like to thank all other teaching and non-teaching staff members who have extended their support and co-operation while bringing up this project.

PRAJWAL KULKARNI (1KS19CS070)

## **ABSTRACT**

"DYNAMIC SORTING ALGORITHM VISUALIZATION" is a simple mini-project which provides visualization of multiple sorting algorithms such as Selection sort, Ripple sort, Bubble sort, etc. This visualization makes sorting algorithms easy to learn for beginners.

The entire project is made using OpenGL library in C language. The project contains an interactive display, for changing the sorting algorithm, for randomizing the numbers, and to exit. The numbers are represented using rectangles whose height is dependent on the value. On click of suitable key the data starts to get sorted in ascending order based on the algorithm chosen. Users can pause, randomize, sort, change algorithm and exit with keys 'p', 'r', 's', 'c' and 'Esc' respectively.

## **CONTENTS**

1. INTRODUCTION 1.1. About		1-11
		1
1.2. About OpenGL		1
1.2.1. OpenGL c	ommand syntax	5
1.2.2. OpenGL as	s a State Machine	6
1.2.3. OpenGL R	Rendering Pipeline	7
1.2.4. OpenGL –	Related Libraries	9
2. REQUIREMEN	T ANALYSIS	12-13
2.1. Requirements o	f the project	12
2.2. Resource Requi	rements	12
3. DESIGN PHASE		14-16
3.1. Algorithm		14
3.2. Flow Diagram		15
4. IMPLEMENTA	ΓΙΟΝ	17-19
5. TESTING		20
5.1. Testing		20
5.2. Test Cases		20
6. CODE SNIPPET	ΓS	21-24
7. SNAPSHOTS		25-27
8. CONCLUSION		28
9. REFERENCES		29