Acknowledgements

I am sincerely thankful Supreme father, the almighty GOD for providing me this opportunity and granting me the ability to proceed successfully.

In fact, completing a task is never a one man’s effort. Several prominent peoples in research, academics and administrative field have helped in the present work. Their collective effort has led in presentation of this thesis. To name them all is impossible.

I was fortunate in having Dr. R.R. Deshmukh, Associate Professor, Department of Computer Science and Information Technology, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad as my research guide. It is because of his constant encouragement and motivation, compressive discussion and constructive criticism, working on this topic was one of the most rewarding experiences in my life. Though this little eulogy is not enough to express my deep sense of gratitude towards him, my everlasting gratitude goes to him. I also thank to Dr. Vandana R. Deshmukh for her cooperation and moral support.

I take this opportunity to express my sincere thanks to Dr. K.V. Kale, Professor and Head, Department of Computer Science and IT, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad for his generous and academic support. I express my deep gratitude towards Prof. S. C. Mehrotra, former Head of the Department, as his presence in the department gives me the inspiration and motivation for carrying out the research work.

I express my gratitude towards former Principal Prof. M.M. Deshpande for his motivation and permitting me to join research. I am equally thankful to Principal Dr. A.P Wadekar, PES College of Engineering, Aurangabad, for providing me unflinching encouragement and support in various ways.

I wish to offer my sincere thanks to all my Teachers past, present and future.

I wish to offer heartfelt thanks to my friends Shubhangi Sapkal, Dr. V.R. Ratnaparkhe, Sonali Deshpande, Dr. Vijaya Musande, Vishal Waghmare and Pukhraj Shrishirmal for their continuous support along with fruitful discussions. Their homely and encouraging advice helped me a lot for successful completion of this work.

I would like to thanks RRD Research Group and all the teaching and non-teaching staff of the Department of Computer Science and Information Technology,
Dr. Babasaheb Ambedkar Marathwada University, Aurangabad for their timely cooperation and support during my work.

I must thank all the faculty members of Department of Computer Science and Information Technology, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad for their friendly co-operation and advice.

Words are inadequate in offering my thanks to my beloved father (Late) Adv. Shri. Narsing G. Kakarwal and my mother Devkabai N. Kakarwal their blessings and love. Extensive support from elder sister Rekha and loving brother Pratapsing Kakarwal made this task, a reality. I express my feelings of bliss for having loving and ever supportive sisters and in laws.

Words fail me to express my appreciation to my husband Dhanyakumar Kurmude whose dedication, love and persistent confidence in me, has taken the load off my shoulder. I owe him for being unselfishly let his intelligence, passions, and ambitions collide with mine.

Finally, I would like to thank everybody who was important to the successful realization of thesis.

Mrs. Sangeeta N. Kakarwal