# ACKNOWLEDGEMENT

Firstly, I would like to express my sincere gratitude to my advisor **Prof.(Dr.) S. S. Bhattacharya** for the continuous support of my PhD study and related research, for his patience, motivation, and immense knowledge. His guidance helped me in all the time of research and writing of this thesis. I could not have imagined having a better advisor and mentor for my PhD study.

I am greatly indebted to **Prof. (Dr.) Arun Pratap,** Dean, Faculty of Technology & Engineering, M. S. University of Baroda for his support and encouragement. I extend my sincere thanks to **Prof. (Dr.) Tasnim Shaikh**, Head, Department of Textile Engineering, Faculty of Technology & Engineering, The M.S. University of Baroda, Vadodara, **Prof. (Dr.) M.V. Koranne**, all faculties of the department and other technical & non-technical staff members for providing me all kind of technical support in the department.

I would also like to thank the **Directorate of Technical Education** office, Government of Gujarat for providing me the permission. A very special thanks to the Principal, L. D. College of Engineering, **Prof. (Dr.) G.P.Vadodaria** for the whole hearted support. Thanks are also due to the cooperation extended by **Prof. (Dr.) G.H. Upadhyay,** Head, Mechanical Engineering Department, for permitting the laboratory usage of Centre of Excellence-Siemens. I also extend my thanks to **Prof. Y.D Vora** for helping with the CoE facilities.

My very special thanks go to **Mr. Radhakishore, Mr. Jaydeep Ramani and Mr. Raj Gilda** from DesignTech staff of CoE Siemens who always very patiently had taken the pain of making the computer model, simulation and prototyping work untiringly.

I gratefully acknowledge the help provided by **Mr. Shrikant Pareek**, Ashima Group and **Mr. Apurva Kapadia**, Prashant Group for their industry support during the course of work.

I can't forget my Ph.D. colleagues especially **Prof. D.V. Bihola** of L D College of Engineering, Ahmedabad to keep research atmosphere live. I take special note in acknowledging all faculties and staff members of Department of Textile

Technology, L.D. College of Engineering, Ahmedabad for their whole hearted support.

I would like to thank my son and my daughter for supporting me throughout the duration of my work.

Last but not the least I would like to express appreciation to my beloved wife who spent sleepless nights and was always my support in the moments of total despair. It would have been impossible to complete this task without her consistent encouragement.

Finally, I would like to thank everybody who directly or indirectly was involved in the successful completion of this thesis, as well as express my apology if I have missed out in mentioning someone.

I thank **ALMIGHTY** for blessings on me forever.