Acknowledgements

Doing research is great that is what I learned from my experience with this study. It is great in the sense that we encounter with many ideas, more resources and numerous scholars. Doing research instills a sense of obligation and contribution. I acknowledge the intellectual support of my research guide Dr. Humayoon Kabir, S. throughout the period. Dr. K V Pramod and Dr. B Kannan of the Department of Computer Applications and Dr. G. Santhosh Kumar of Department of Computer Science extended valuable insights for my study. I express my sincere thanks to them. Dr. M. Kailasnath of the International School of Photonics and Dr. V. Sivandandan Achari of School of Environmental Science and Dr. Sebastian Rupert Mampilly of School of Management Studies extended intellectual support. I express my gratitude to them.

I thank for the support of my colleagues including Thanooja, Dr. Veeran Kutty, and Dr. Shibu Ray, Jinu Sudhakaran and Babitha. Mr. Ayyappan R and Anthru M. also helped me a lot. Thanks are due to the staff of Dept. of Computer Applications who offered excellent service.

The support of my parents and family in accomplishing great things in life is remarkable. I always received encouragement and enthusiasm for learning from my father Cherukodan Kunhikannan and mother Vellampurath Cheeru. My wife Sheeja, daughter Alaina and father and mother in-laws helped me to work long hours in the course of study. Dr. N.P Hafiz Muhammed, Dr. Yasin Ashraf, both from Farook College, M. N Mazumdar (late) and S.R Talukdar both from New Delhi, are very dear to me as they instilled the quest for higher learning. Finally, I thank all those who supported me one way or the other to accomplish this work.

Cochin-22

7-4-2015

Surendran Cherukodan