

Acknowledgements

I would like to express my sincere gratitude to Prof. Satyajib Bhattacharyya, my supervisor, for his guidance, valuable suggestions, critiques and blessings throughout the course of this work.

I feel great pleasure to express my deep sense of gratitude to my co-supervisor, Prof. Nidhi S. Bhattacharyya, Dept. of Physics, for her constant encouragement all through my research work. Her untiring guidance, constructive criticism and suggestions throughout the work have been a great asset.

I would like to thank Hon'ble Vice Chancellor of Tezpur University, for giving beneficial advice throughout my research work.

I would like to thank Prof. P. P. Sahu, Head of the Department, Electronics & Communication Engineering for his valuable advices and academic support.

I specially thank the doctoral committee members, Prof. J. C. Dutta, Dr. Santanu Sharma and all other faculty members of the Dept. of ECE for their suggestions which helped in shaping the work.

My thanks are due to office staff, Dwipen Da, technical staff of the Dept. of ECE, Mr. Kulen Sarma, Mr. Rupak Sarma, Mr. Jiten Bodo, technical staff of SAIC, Anil Da and Prakash Da, technical staff of the Dept. of Chemical Sciences, Mr. Sankur Phukan, Mr. Nipu Dutta and technical officer and staff of Mechanical Central Workshop, Mr. Prabin Borah, Mr. Mitharam Handique and Mr. Palash Rabha for their immense help.

I gratefully acknowledge the financial support under UGC-BSR, Govt. of India, to carry out my research work.

I thank all the research scholars of the Dept. of ECE, lab mate and seniors, Suhas, Milton, Anup Da, Pranjal Da and Lachit Da for their well wishes. A special thanks to my friends of the Dept. of Physics, Rocktotpal, Dipangkar, Dhruva, Arunav, Sanghamitra, Samiran Da, Jyoti Da and Sikha Ba for helping me whenever I needed and sharing a wonderful time during my research work.

I am thankful to my friends Yasung, Pathikrit and Surjit for their constant support and wonderful company throughout this journey. I also thank Anindita, Shanta, Daita, Richa and Debo for their encouragement and well wishes.

I thank Babai and Baba for their constant encouragement & support throughout. Thank you God, for everything.

Soma Chakraborty