ACKNOWLEDGMENTS

I would like to express my sincere gratitude to my advisors Dr Doan Perdana, S.T., M.T. and Ir. Ahmad T Hanuranto, M.T. for the continuous support of my Master study for their patience, motivation, and immense knowledge. I would like to thank also to Arief, S.T., M.T., Ishak Ginting, S.T., M.T., Amriane Hidayati, S.T, M.T, Samuel, Adit and all my colleagues from Graduate School of Electrical Engineering Telkom University, who provided insight and expertise that greatly assisted to this research.