

ACKNOWLEDGEMENT

First of all, I am grateful to Tuhan Yang Maha Esa, for giving me the ability to complete this thesis. I wish to express my sincere gratitude to my supervisors, Dr. Maman Abdurrohman, M.T and Fazmah Arif Yulianto, ST, MT for their guidances and the opportunities to conduct this research. My sincere thanks to all Lecturers, Dean, Head of Department, and Administrative Department of Informatics Engineering Telkom University, for their constant encouragement during my study in the last 3 years.

I also take this oppurtunity to express my gratitude to PT.Telkom Indonesia who gave much support all along my master study and thus enabled me to concentrate on my work. Special thanks to my lovely wife, two sons and great family who inspite of enduring the odds, supported me all along and gave me this oppurtunity to study at Telkom University. Their endurance and patience have been the driving forces of my determination.

And finally, I thank my close friends who have been all along with me, supporting and advising me on my endeavours. Their company have always enlightened my spirit.

Handril
September, 2016