ACKNOWLEDGEMENTS

I would first like to thank my thesis advisor Dr. Arief Fatchul Huda and Dr. ZK. Abdurahman Baizal for their help, support and guidance as well as great patience not to mention their advice and knowledge. Their consistently allowed this paper to be my own work, but steered me in the right the direction whenever he thought I needed it.

I would like to thanks to all of director, lecturer, academic and technical staff the Telkom University, especially the Graduate School of Informatics Engineering who has provide necessary for supporting the master program. I thank my fellow in residency room and classmates for the stimulating discussions, for the sleepless nights we were working together before deadline.

Finally, I must express my very profound gratitude to my parents and to my sister for providing me with unfailing support and continuous encouragement throughout my years of study and through the process of researching and writing this thesis. This accomplishment would not have been possible without them. Thank you.

 $Best\ regard!$

Hendriyana