ACKNOWLEDGMENTS

Bismillaahirrahmaanirrahiim. Alhamdulillahirabbil'alamin. Arrahmaanirrahiim. Maalikiyawmiddiin.

All praise is due to Allah SWT, the Most Compassionate and Most Merciful, the Owner of the universe and the Master of the Day of Judgment. May peace and blessings be upon Prophet Muhammad SAW, his family, and his companions. Alhamdulillah, by His mercy and grace, the author has been given strength and ease to complete this study and obtain a Master's degree. Without His help and kindness, this thesis could not have been completed successfully.

The journey to pursue a Master's education is full of challenges, and the author realizes that this achievement would not have been possible without the support and prayers from many parties. Therefore, with deep gratitude and respect, the author would like to express sincere thanks to:

- 1. To my dearest Papa and Mama, the two most special people who have greatly contributed to my life. Thank you for all the sacrifices and hard work to give me the best, for praying for every step I take, and for providing love, support, and motivation to help me achieve my dreams. Thank you for teaching me to always stay strong and to finish what I have started. I sincerely hope that Papa and Mama will always be healthy, live long, and continue to witness many more successes that I will achieve in the future.
- 2. **Dr. Ir. Sony Sumaryo, M.T.,** as my supervisor, I would like to express my deepest gratitude for all the guidance, direction, and support you have provided throughout the process of completing this thesis. The knowledge and insights you have shared have not only helped me successfully complete this research but also serve as invaluable assets in my future academic and professional journey. Thank you for your trust, attention, and sincere dedication. May all your kindness be rewarded with continuous blessings, and may Allah SWT always grant you good health, prosperity, and a long life.

- 3. **Dr. Erwin Susanto, S.T., M.T.,** as my co-supervisor, I sincerely thank you for your guidance, support, and valuable input throughout the process of completing this thesis. Your presence and direction have greatly helped me improve and refine this research. I truly appreciate your willingness to dedicate your time and effort to supervise me with such care and professionalism. May all your kindness and dedication be richly rewarded by Allah SWT, and may you always be granted good health and blessings in your daily life.
- 4. I would like to express my deepest gratitude to all the lecturers of the master's Program in Electrical Engineering who have imparted knowledge, guidance, and inspiration throughout my study. Every lecture, discussion, and direction provided has enriched my understanding and broadened my insights in the field of electrical engineering. Thank you for your dedication and commitment in educating and mentoring us with sincerity. I hope that all the knowledge and experiences I have gained will serve as valuable assets in developing my career and contributions in the future.
- 5. **To Kang Aan Eko Setiawan, M.T.,** who has always guided me and generously devoted his time, effort, and thoughts, providing valuable direction, insights, and various assistance throughout my studies.
- 6. To my beloved siblings, Fasha and Fahira, thank you for always being by my side and inspiring me to continue learning and growing. Your presence motivates me to become a role model who can positively influence both academic and personal aspects of life, and to strive continually to be the best version of myself.
- 7. **To Triska Nuryanti**, my friend since 2015 someone who has been an important part of my Master's journey. Thank you for always being there to listen to my stories and struggles, for patiently staying by my side, and for generously offering your time, energy, and thoughts. Your constant support has meant so much to me and has truly helped me

reach the finish line of this academic path.

- 8. To my college friends Pak Egi, Pak Pras, Mbak Muti, Timo, Faqih, Luthfi, Amir, Trischa, Izzah, and Dimas. Thank you for accompanying me through both academic and non-academic moments. Your presence has been a meaningful part of this journey, bringing encouragement, laughter, and space for us to learn and grow together. Every meeting, conversation, and even the simplest moments we shared have become cherished memories in my life.
- 9. To my dear friends from THE MONS (Rizal, Denda, Adhip) and to Riko, Aji, Dedeh, Dalip, thank you for your constant prayers and support throughout the completion of this thesis. Your encouragement has meant a lot to me and helped me stay strong during this journey.
- 10. **To Muhammad Daffa Fadillah, myself**. A heartfelt appreciation for taking responsibility and staying committed to finishing what was started. Thank you for all the effort, resilience, and unwavering determination to keep going, no matter the circumstances. Thank you for embracing the process, even when it was far from easy. Most of all, thank you for holding on.

This concludes the author's expression of gratitude. Should there be any errors in the writing of names or titles, the author sincerely apologizes. To all parties who have not been mentioned individually, the author also asks for forgiveness for this unintentional omission. May Allah, the All-Knowing nothing escapes His knowledge reward your kindness with abundant blessings and multiplied goodness.