PREFACE

All glory, honor, and gratitude be to the Lord Jesus Christ, the source of wisdom, peace, and strength. Through His boundless grace and unfailing guidance, the author has been able to complete this thesis, titled "Tea Plant Population Estimation Using Multi-Sensor Drones". The journey toward completing this research has been filled with challenges, learning experiences, and moments of reflection each of which has become a part of personal and academic growth. This thesis is submitted as a partial requirement for the Master's Program in Electrical-Telecommunication Engineering, School of Electrical Engineering, Telkom University. The research within this thesis reflects the author's deep interest in the integration of remote sensing technologies with agricultural applications particularly how advanced radar and drone-based sensor systems can be utilized to solve real-world problems such as vegetation monitoring and crop population estimation. The motivation behind this work lies in the need to provide non-invasive, scalable, and accurate tools to support sustainable agricultural practices in Indonesia and beyond. By employing multi-sensor drone systems, the study aims to demonstrate how modern telecommunication and radar engineering can contribute to food security, precision farming, and smart environmental monitoring. The author is also grateful for the opportunity to present parts of this research at several academic forums, where feedback and insights have greatly refined the final output. Notably, segments of this work have been submitted and shared at: The 12th Electrical Power, Electronics, Communications, Control, and Informatics Seminar (EECCIS) 2024, and The International Conference on Networking, Intelligent Systems, and IoT (ICONS-IoT) 2025. These platforms have provided valuable exposure, peer review, and validation of the research direction taken in this thesis. The completion of this work would not have been possible without the collective efforts and encouragement of many individuals, whose contributions are acknowledged with deep appreciation in the following section. Every page written is a testimony not only to academic pursuit but also to the perseverance and support received along the way. Finally, the author sincerely hopes that this thesis may serve as a meaningful contribution to the scientific community and inspire further research in the fields of smart agriculture, sensor fusion, and applied telecommunication systems. May it also reflect a portion of the gratitude the author holds toward all who have been part of this journey.

Bandung, 11th August, 2025

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