COLLEGE OF COMMUNICATION AND INFORMATION TECHNOLOGY

ENHANCING SECURITY MANAGEMENT WITH AN AUTOMATED VEHICLE ACCESS CONTROL SYSTEM UTILIZING COMPUTER VISION-BASED LICENSE PLATE RECOGNITION

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for the degree of Bachelor of Science in Computer Science

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College of Communication and Information Technology

APPROVAL SHEET

This study entitled **"ENHANCING SECURITY MANAGEMENT WITH AN AUTOMATED VEHICLE ACCESS CONTROL SYSTEM UTILIZING COMPUTER VISION-BASED LICENSE PLATE RECOGNITION"** prepared and submitted by Armada, Marc Kiane A., Cosadio Jr, Angelito N., Portugues, Francis F. and Reyes, Rickron E. in partial fulfilment of the requirements for the degree of **BACHELOR OF SCIENCE IN COMPUTER SCIENCE** are hereby recommended for oral examination.

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EXECUTIVE SUMMARY

Security management is a critical component of organizational operations, particularly in today's environment where security threats are increasingly prevalent. Traditional security management systems often require manual intervention, leading to potential errors and delays. This study proposes an Automated Vehicle Access Control System utilizing Computer Vision-Based License Plate Recognition to enhance security management efficiency. The system automates the vehicle access control process, ensuring fast, accurate, and reliable identification of authorized vehicles.

The study was conducted at President Ramon Magsaysay State University (PRMSU) Main Campus, aiming to reduce manual intervention, thus minimizing errors and delays, and ensuring only authorized vehicles gain entry. The evaluation of the system revealed "Excellent" ratings all indicators except compatibility which was evaluated as "Good". Additionally, the system received highly acceptable ratings in terms of functionality and performance. The overall readiness of the system was also found to be "Very Ready".

Recommendations include the full implementation and periodic re-evaluation of the system, continuous model training for performance improvement, comparison with other computer vision algorithms, potential integration with additional technologies, and regular maintenance. The study emphasizes the need for user orientation and ongoing research to keep pace with evolving trends in computer vision-based license plate recognition.