

**ENHANCING MOBILITY AND SAFETY FOR THE PARTIALLY SIGHTED:
A CAMERA SENSOR-BASED ROAD ASSESSMENT AND
VEHICLE DETECTION SYSTEM**

**A Thesis Presented to the Faculty of the
College of Communication and Information Technology
President Ramon Magsaysay State University
Castillejos, Zambales**

**In Partial Fulfillment of the Requirements for the Degree
Bachelor of Science in Computer Science**

**By:
Golilao, Mirari
Camullo, Ljiwejl D.
Loquinario, Jessa G.**

April, 2024

Republic of the Philippines
PRESIDENT RAMON MAGSAYSAY STATE UNIVERSITY
(Formerly Ramon Magsaysay Technological University)
Castillejos Campus
Castillejos, Zambales



APPROVAL SHEET

The thesis project entitled "Enhancing Mobility and Safety for the Partially Sighted: A Camera Sensor-Based Road Assessment and Vehicle Detection System" was prepared and submitted by Mirari Golilao, Ljiwejl D. Camullo, and Jessa G. Loquinario of the course requirement for the degree of Bachelor of Science in Computer Science has been examined and recommended for the oral examination.

Marie Celia R. Aglibot
MARIE CELIA R. AGLIBOT, MSCS
Thesis Adviser

Approved by the Panel Examiners
with a rating of 94.66%

[Signature]
MICHAEL G. ALBINO, MIT
Chair

[Signature]
IRATUS GLENN A. CRUZ, MSCS
Member

[Signature]
MICHAEL N. FARIN, MSCS
Member

Accepted and approved as a requirement for the degree of **BACHELOR OF SCIENCE IN COMPUTER SCIENCE.**

April 2024
Date

[Signature]
IVY H. CASUPANAN, EdD
Campus Director

ABSTRACT

This thesis explores the development of a camera sensor-based road assessment and vehicle detection system designed to improve the mobility and safety of individuals with partial sight. Utilizing advanced technology, the system aims to offer crucial assistance to individuals with partial sight as they travel through urban areas and road networks. By addressing the diverse challenges faced by those with partial sight regarding road safety, the study aims to provide a holistic solution that can significantly enhance the independence and daily experiences of partially sighted individuals. Through the integration of sophisticated sensor technology and innovative design concepts, this system presents an opportunity to enhance the functional capabilities and promote autonomy for individuals with partial sight. The successful execution of this project shows great potential in transforming the daily interactions and perceptions of partially sighted individuals with their physical surroundings. By providing a reliable tool for navigation and object detection, this system not only improves the safety and efficiency of travel for individuals with partial sight but also nurtures a sense of empowerment and confidence in their ability to navigate the world. This research emphasizes the importance of continuous innovation and advancement in assistive technologies to meet the specific needs of individuals with partial sight, with the ultimate goal of creating a more inclusive and accessible environment for all members of society.

Keywords: Partially Sighted Camera sensor-based system, Road assessment, Vehicle detection, Urban mobility, Safety enhancement, Assistive technology, Sensor technology integration, Autonomy promotion, Object detection, Accessibility, Innovation in assistive technologies