

# **Car Damage Detection Using YOLOv11 for Automated Vehicle Assessment**

**Mrs. J. Fahamitha<sup>1</sup>, Muralitharan P<sup>2</sup>, Kamaleshwaran T<sup>3</sup>**

Assistant Professor, Department of Computer Science and Engineering<sup>1</sup>

Students, Department of Computer Science and Engineering<sup>2,3</sup>

Dhanalakshmi Srinivasan University, Tiruchirappalli, Tamil Nadu, India.

**Abstract:** *Manual vehicle damage assessment is slow, subjective, and error-prone—creating inefficiencies in sectors like automobile insurance and fleet management. This paper presents an automated car damage detection system using the YOLOv11 (You Only Look Once version 11) deep learning algorithm to identify and classify visible vehicle damage. The system is divided into three stages: image acquisition, damage detection, and interpretation. Using a web-based interface, users upload vehicle images, which are processed using YOLOv11 to localize and categorize damages like scratches, dents, cracks, and shattered glass. Severity levels are also determined and displayed via a real-time dashboard. The model demonstrates high accuracy and speed, making it suitable for real-world applications such as insurance claim processing and automated inspection systems.*

**Keywords:** YOLOv11, Car Damage Detection, Deep Learning, Vehicle Assessment, Real-time Object Detection, Insurance Automation

