

## A Review of Pothole Detection Using Different Technologies

**Authors :** Ashwini Jarali, Prajwal Lalpotu, Shreya Jadhav, Snehal Kavathekar, Sanskruti Lad

**Abstract :** This paper reviews recent advancements in pothole detection technologies, comparing various methods, including deep learning models like YOLO (You Only Look Once) and SSD (Single Shot Detector) and UAV-based systems with multispectral imaging. YOLO v8 Nano emerges as a highly effective model, balancing speed and accuracy in real-time detection, while SSD demonstrates superior precision in certain scenarios. Additionally, UAVs enhance detection by providing early insights into asphalt damage. Image processing techniques and manually labeled datasets are also employed to improve model training and accuracy. The paper evaluates the strengths and limitations of these methods, examining factors like computational efficiency, environmental adaptability, and real-time application. It further explores future directions in this field, focusing on optimizing detection techniques and integrating advanced sensors to enhance road safety and maintenance.

**Keywords :** YOLO(You Look Only Once), Pothole Detection, YOLOV8, YOLOV5

**Conference Title :** ICDAIE 2025 : International Conference on Data and Artificial Intelligence Engineering

**Conference Location :** Bengaluru, India

**Conference Dates :** January 30-31, 2025