Bumps and Pothole Detection

INTRODUCTION

The roads are the backbone of any developed society, and their maintenance and repair are crucial for the efficient and safe transportation of people and goods. However, with the passage of time and increased usage, roads are prone to develop surface defects such as bumps and potholes. These surface defects can cause significant damage to the vehicles and pose a risk to the safety of the passengers. Therefore, the timely detection and repair of these defects are of utmost importance to ensure the smooth and safe flow of traffic.

Traditionally, the detection of bumps and potholes on roads has been carried out manually by visual inspection, which is time-consuming, labor-intensive, and prone to errors. With the advent of modern technology, several automated techniques have been developed for the detection and monitoring of road surface defects. These techniques include the use of various sensors, such as accelerometers, gyroscopes, and GPS, along with machine learning algorithms for data analysis and interpretation.

In this research paper, we present a comprehensive study on the detection of bumps and potholes on roads using machine learning algorithms. We propose a novel approach which provides an efficient approach of detecting potholes using live camera feed or uploaded video using YoloV8. We have a website which provides an interactive approach to upload your own test video to detect potholes and show a live output.

The proposed approach has the potential to significantly reduce the time and cost associated with manual inspection and repair of road surface defects. Moreover, it can contribute to improving the safety of the passengers and reducing the damage to the vehicles by enabling timely detection and repair of bumps and potholes. The results of our study can be useful for transportation authorities, road maintenance companies, and researchers working in the field of road infrastructure management.