# *ABSTRACT*

*Road surface damage, particularly potholes, remains one of the leading causes of traffic accidents and reduced driving comfort in Indonesia. Traditional methods of road inspection, which rely heavily on manual data collection, are often time-consuming, inefficient, and pose safety risks for field workers. This research aims to develop a real-time pothole detection system accessible via mobile web browsers, eliminating the need for additional hardware. The system is powered by the YOLOv8s object detection algorithm and follows the CRISP-DM methodology, which includes phases of business understanding, data understanding, data preparation, modeling, evaluation, and deployment. The YOLOv8s model was trained on a dataset comprising 4.164 road surface images gathered from multiple open-source repositories and manual collection. The data preparation involved annotation, augmentation, and performance evaluation. The final model achieved a mAP@0,5 of 0,753, a precision score of 0,814, and a recall of 0,668. Real-time inference tests demonstrated an average latency of 52,5 ms per frame at 40-60 FPS, along with a geolocation accuracy of approximately ±9 meters when compared to actual GPS coordinates. These results indicate the system's effectiveness in accurately identifying potholes across diverse conditions while simultaneously recording their locations. The study contributes a practical and scalable approach to digitalizing road condition monitoring for field use.*



*Keywords—**Pothole Detection, YOLOv8s, CRISP-DM, Geolocation, Web-based System***