

ABSTRACT

UTILIZATION OF DEEP LEARNING TECHNOLOGY IN ROAD DAMAGE DETECTION USING CNN (CASE STUDY: WASILE DISTRICT, HALTIM REgency, North Maluku)

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This research discusses the detection of road damage levels using Deep Learning methods to analyze road conditions and provide alternative routes based on the degree of damage. The case study was conducted on the Subaim-Wasile road section, Haltim Regency, which serves as an inter-regency connector in North Maluku Province. The roads in this area experience various types of damage, such as potholes, waves, and cracks. The method used in this research is the Convolutional Neural Network (CNN), implemented on road images captured with a digital camera. The objective of this research is to develop a model with high accuracy in detecting and classifying road damage, facilitating effective and efficient road maintenance and repair. The results of the study show that the CNN model applied achieved an accuracy rate of 88% in detecting road damage, which is expected to assist the relevant authorities in accelerating the process of identifying and addressing road damage.

Keywords: Deep Learning, Convolutional Neural Network, road damage detection, Subaim Wasile, road maintenance.