

ABSTRACT

Smoking while driving is a behavior that endangers the safety of drivers and other road users. One of the efforts made by developing a smoking behaviour detection system in a vehicle using Open CV dan YOLO is used to process the visualization of the data to be processed, so that it can be effectively. This system provides a warning to the driver when smoking is detected to reduce the risk of accidents. The purpose of this research is to design a cigarette detector that uses Computer Vision facial identification technology to detect smoking behaviour in a vehicle in real-time. The system development situations. The dataset that has been collected is then labelled to indicate the smoking object that will be used in the model training process. The working tools used are camera, Visual Studio Code, Roboflow, Google Colab, Python, YOLOv5. This process is able to detect smoking behaviour automatically through data that has been worked on using Machine Learning models. The system dataset contains 2,014 images of smoking behaviour and images of holding cigarettes. Based on the results of the object detection model show that the system has optimal accuracy. The precision value is 53%. Recall reached 88%. For the mAP@50 metric, it reaches a value of 54%. From the results obtained, the system is able to recognize cigarettes with good accuracy. However, there are still some obstacles such as closed objects or low lighting conditions. It is expected that the application of this detection system can contribute to improving driving safety and reducing the risk of accidents due to smoking behaviour while driving. From the results obtained, the system is able to recognize cigarettes with good accuracy.

Keywords: Smoking detection, Real-time system, Image processing, YOLO, Computer Vision