

## ABSTRACT

Traffic accidents are one of the biggest causes of death among other causes. Accidents are a serious problem that occurs in every country around the world, including in Indonesia country. There are several factors that cause the number of accidents to increase, one of the causes is driver negligence and other factors. There have been many efforts to overcome the high number of accidents, but there have been no effective efforts to reduce the high number of accidents. This study will provide efforts to reduce the number of accidents in Indonesia.

In this study, an Image Processing Traffic Sign system will be designed that has the ability to detect traffic signs on the highway. This study uses the YOLO v8 architecture model, in the test data which is expected to be able to recognize the number of traffic signs on the highway in real-time. This architecture is the newest model from YOLO architecture. This research will produce an Image Processing feature system design that has the ability to classify control the result of the recognition of traffic signs that have been detected which will be integrated into the car.

From the results of accuracy testing on stop signs, the highest results were obtained at 100% and on low-speed signs, the lowest results were obtained at 76%. And obtained the results of the overall accuracy of the system from 5 tests of detection of traffic signs for each sign as much as 30 times detection, which is 89%. The test results will be better if the test is carried out in a place that has sufficient light and more dataset training is carried out to get higher accuracy. In this test, an additional monitor is needed to obtain the results of the test data.

**Keywords :** Image Processing, Traffic Sign, YOLO v8, Car