

## **ABSTRACT**

The development and growth of society according to research on the website dataindonesia.id as of December 31, 2022, the number was 126.99 million units by the end of last year. Increasing transportation density has become a serious problem in Indonesia. The relationship between speed and traffic flow (volume) can be used as a guide in determining the mathematical value of road capacity under ideal conditions. The proposed system requires CCTV to run properly. In each input frame, the system will perform data preprocessing to determine the vehicle object that will be segmented in the image. When the frame enters and preprocessing is done, the data will be rezoned to adjust to the system's compatibility. Then the data will go through the image processing stage. Image processing uses RGB color and is converted to grayscale in order to distinguish blobs in the frame. When the blob is detected, the number of objects will be counted and calculated to output the number of vehicles. The results of the number of vehicles will be used for datasets in vehicle density optimization.

Keywords: Vehicle density, YOLO Method, Image Processing