

ABSTRACT

Traffic congestion have become a significant issues in large urban areas across the globe. Traffic congestion reflects a negative impact if not taking seriously. Traffic congestion occurs because there is a buildup of vehicle volume that exceeds the capacity of the road. The efficiency and quality of living in cities can be negatively impacted by traffic congestion, which can also result in higher fuel consumption, pollution, and delays. There needs to be a method that can overcome and identify this. Therefore, by classifying sounds, this research aims to reduce traffic congestion. The author utilizes Convolutional Neural Network (CNN) method in deep learning as its algorithm model. The primary feature extraction technique used by the model is Mel-Frequency Cepstral Coefficients (MFCC) for capture essential characteristics of audio signals. It is anticipated that this research will be able to accurately categorize the sounds of traffic congestion, offering a viable solution to address this issue. Experiments were conducted using a training dataset, and for testing, the road sound dataset has been collected at traffic light intersections. To evaluate the proposed method, the implementation showed promising results, achieving an accuracy of 97.62% on the training and 88.19% on the testing data in classifying traffic congestion sounds.

Keywords: Traffic congestion, CNN, MFCC, Deep Learning, Classification