Abstract

The vehicle is a means of transportation that is widely used in the era of the 19-20th century. Due to the increase in vehicles, road management must be arranged so vehicles can be organized appropriately. Therefore, we need a system to detect and classify passing vehicles and must constantly be monitored so that the roads remain in prime condition. This study used 3 classes of 4-wheeled vehicles (Small, Medium, and Large). It took vibration data to determine the load of each vehicle based on its class using the IMU Sensor, which contains accelerometer and gyroscope sensors to bring up the road load from passing vehicles. The KNN algorithm uses the classification to determine the vehicle class based on its vibration. The method used in this study is Machine Learning to process classification data and predict its accuracy. The classification process is carried out, and then the accuracy level is predicted in machine learning using 2 algorithms, KNN and RF, used for comparisons. For classification using the K-Nearest Neighbor (KNN) algorithm, the accuracy rate is predicted to be up to 83.4%; the accuracy rate for classification using the Random Forest (RF) algorithm is predicted to be up to 55.6%