

ABSTRACT

Advances in Autonomous Vehicle (AV) technology have made this topic popular in recent years, both large and small companies have started to develop this AV technology. Apart from large companies, several researchers are also interested in developing this technology. However, due to cost constraints and security issues, the researchers developed AV using a computer simulation approach. The main objective of this paper is to create a simulation (AV). The simulation was created using Udacity self-driving-car from Unity 3D. The first step we took was to take a dataset in the form of images from a number of participants by manually driving a car in a simulation to get Human-driving-behavior. After the dataset is obtained, the AV model formation process will then be carried out using the deep learning method of the Convolutional Neural Network algorithm. In this research, a good AV simulation has been successfully made, the car can run perfectly following the track without experiencing a collision or going off the track. From the results of the testing carried out, the model that was built got pretty good results where the accuracy was 71% and the loss was 0.0165.

Keywords: Autonomous Vehicle, Convolutional Neural Network, Human-Driving-Behavior, Self-Driving-Car, Unity 3D.