

Adaptive Cruise Control using Fuzzy Logic

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Abstract –In recent years many studies on intelligent vehicles have been devoted to solve problem such as accident prevention, traffic flow smoothing. Adaptive Cruise Control (ACC) is used to maintain a constant safe distance between the host vehicle and the leading vehicle to avoid rear end collisions. It is an automotive feature that allows the speed of the vehicle to adapt to the traffic environment. ACC operates in distance control mode and velocity control mode. The method by which the ACC vehicle's speed is controlled is via engine throttle control and limited brake operation. The inter-vehicular distance between the vehicles is measured. Desired speed is obtained from the distance measured. Neural Network and fuzzy logic Controller is trained to produce the desired acceleration and braking. In this research, ACC is implemented using the comparative analysis of Neural Network and Fuzzy Algorithm. The results demonstrate that for every parameter the proposed architecture outrages the conventional Neural Networks. The model is developed on MATLAB platform and comparisons were made based on evaluation parameters.

Keywords – Adaptive Cruise Control (ACC), Fuzzy Logic Controller, Neural Network.