

ABSTRACT

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Prototype of Vehicle Speed Control System Based on Fuzzy Logic

(xiv + 79 pages, 48 figures, 9 tables, 1 appendix)

The extensive application of speed control system in automotive industry gains interest in this research. The benefit of using speed control system is particularly best described for delivering the machine from human intervention. However, building a control system with the capability of being flexible in various condition of the given track is not easy.

To observe the dynamic behavior of the vehicle equipped with a speed control system, a prototype of a four-wheeled vehicle was developed. In particular consideration of the design, fuzzy logic is used as the basic computation technique to yield correct observable result according to the external condition sensed by the input. Thus, the system is purposed to work precisely and more accurately to cover fickle input with small alteration in every condition encountered along the special built track. In fact, this track has a number of extreme conditions to represent the real possible situation, such as steep inclination.

On average, a number of experiments performed have shown an efficacy level of 96%, which means that the control system embedded in the vehicle model contributes significantly to the auto adjustment of the vehicle speed. In these experiments, various inclination level and distance of trajectory were concerned.

References: 5 (2003-2006)