LITERATURE SURVEY

[1] The Concept to Measure the Overall Car Performance[Jarut Kunanoppadol1 Received: 25 January 2012 ; Accepted: 11 April 2012]

In this paper, the overall car performance investigating on-road experiments is necessary for research and development in automotive engineering is focused. Car acceleration capability is a final result depending on engine performance, transmission system design, suspension optimization, shape and dimension, aerodynamic, friction reduction technology, driving skill, and other factors. The purpose of this research is to present the concept to measure the overall car performance from acceleration capacity. They found that this concept is possible and convenient because we can collect digital input signals from an existing electronic control unit and transfer it to additional processor to analyze and display the final result in every mobile display, such as laptop, tablet, and smart phone.

Advantages

- ✓ The method is cheaper and easier for installation and usage.

Disadvantages

- ✓ The accuracy of the system was not upto the level.

[2] Deep Learning-based Vehicle Behaviour Prediction for Autonomous Driving Applications[Sajjad Mozaffari, Omar Y. Al-Jarrah, Mehrdad Dianati, Paul Jennings, and Alexandros Mouzakitis. 23 Jul 2020]

In this paper, the behaviour prediction function of an autonomous vehicle predicts the future states of the nearby vehicles based on the current and past observations of the surrounding environment are used. This helps enhance their awareness of the imminent hazards. However, conventional behaviour prediction solutions are applicable in simple driving scenarios that require short prediction horizons. Most recently, deep learning-based approaches have become popular due to their promising performance in more complex environments compared to the conventional approaches. Motivated by this increased popularity, they provide a comprehensive review of the state-of-the-art of deep learning based approaches for vehicle behaviour prediction in this paper. they firstly give an overview of the generic problem of vehicle behaviour prediction and discuss its challenges, followed by classification and review of the most recent deep learning based solutions based on three criteria: input representation, output type, and prediction method. The paper also discusses the performance of several well-known solutions, identifies the research gaps in the literature and outlines potential new research directions.

Advantages

- ✓ Usually has low computational cost.

Disadvantages

- ✓ Only provides a high-level understanding of the vehicle behaviour.

[3] A Survey of Deep Learning Applications to Autonomous Vehicle Control [Sajjad Mozaffari, Omar Y. Al-Jarrah, Mehrdad Dianati, Paul Jennings, and Alexandros Mouzakitis 23 Dec 2019]

Designing a controller for autonomous vehicles capable of providing adequate performance in all driving scenarios is challenging due to the highly complex environment and inability to test the system in the wide variety of scenarios which it may encounter after deployment. However, deep learning methods have shown great promise in not only providing excellent performance for complex and non-linear control problems, but also in generalising previously learned rules to new scenarios. For these reasons, the use of deep learning for vehicle control is becoming increasingly popular. Although important advancements have been achieved in this field, these works have not been fully summarised. This paper surveys a wide range of research works reported in the literature which aim to control a vehicle through deep learning methods. Although there exists overlap between control and perception, the focus of this paper is on vehicle control, rather than the wider perception problem which includes tasks such as semantic segmentation and object detection. The paper identifies the strengths and limitations of available deep learning methods through comparative analysis and discusses the research challenges in terms of computation, architecture selection, goal specification, generalisation, verification and validation, as well as safety. Overall, this survey brings timely and topical information to a rapidly evolving field relevant to intelligent transportation systems.

Advantages

- ✓ High level of autonomy during field tests.

Disadvantages

- ✓ Large errors, trained and tested on a sub-scale vehicle model.

[4] Motor Vehicle Monitoring System[William F. Wan Ostrand and Jeffrey M. Sylvia, June 3, 1986]

In this paper, a portable computer based motor vehicle performance monitoring system which performs vehicle characteristic measurements and calculations are explained. The system uses a distance sensor means, a fuel volume flow sensor means, and a fuel temperature sensor means for sensing various vehicle performance characteristics. The system has a computer controlled start/stop feature. It also has a user-prompting programming feature. It also has a com bined liquid fuel volume and mass meter which uses a mathematical algorithm which converts volume data to mass data using a temperature sensitive function.

Advantages

- ✓ Reliable and avoids collisions.

Disadvantages

- ✓ No methods for preventing learning of bad habits from human drivers.