DESIGN AND FABRICATION OF HYBRID DIFFERENTIAL SYSTEM

A PROJECT REPORT

Submitted by

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in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

In

MECHANICAL ENGINEERING

T.J.S ENGINEERING COLLEGE

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JUNE 2022

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BONAFIDE CERTIFICATE

Certified that this project report **"DESIGN AND FABRICATION OF HYBRID DIFERENTIAL SYSTEM" is the bonafide work of "H.KRISHNA BHARATHI(12818114022)", who carried out the project work under my supervision.**

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ABSTRACT

Differential is the large scale mechanical energy transmission systemThe hybrid differential is semi automatic electric controlled system.This update differential is use to improve the efficiency of the engine., Differential Drive Assisted Steering (DDAS) technologyfor the independent-wheel-drive electric vehicle has gradually appealed to researcher's attention.

However,the previous experimental results show that its assistance quality cannot be fully accepted due to its causedsensitive steering wheel torque_uctuation in actual work environment.

According to the working principleof the DDAS system, it is founded that the road roughness, the front wheel alignment parameters and sensor noise are the main factors that in_uence the quality of assisted steering and driver's road feel.

Hence the threefactors are added as interference into the ideal vehicle model. The simulation results and its comparison withthe previous real vehicle tests con_rm this causality between these factors considered and the steering wheel torque _uctuation of the DDAS system.

Then a robust $H1$ loop-shaping controller is designed to solvethe issue caused by these inner interferences and outer noises. Simulations results validate the propose controller and show better steering wheel torque performance than the traditional anti-windup PID controller.It can be use also in the off-road vehicles

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