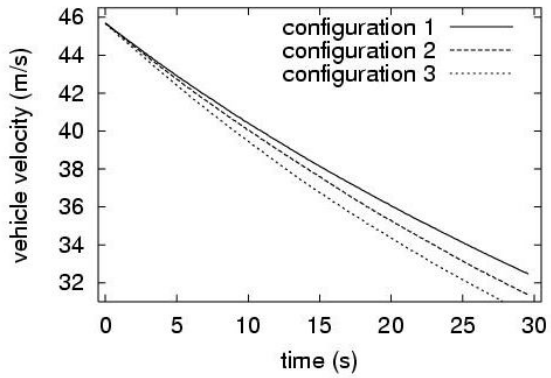
Project

FH JOANNEUM
FAHRZEUGTECHNIK
AUTOMOTIVE ENGINEERING & RAILWAY ENGINEERING

Title: Aerodynamic Drag

The coastdown method can be used to estimate the drag forces that act on a vehicle when operating in its natural environment. The experimental technique is remarkable in its simplicity. The vehicle is accelerated to a desired upper speed, declutched, and then allowed to decelerate under the action of the various drag forces. Primarily only the vehicle velocity has to be recorded during the coastdown, but most contemporary coastdown investigations make use of additional measurement data (see e.g. [1, 2]). In a recent approach the aerodynamic drag of different vehicle configurations is investigated by only considering the motorcar's speed data retrieved from the control area network data bus during the coastdown. The velocity data of all configurations are reduced simultaneously by constrained linear inversion of the equation of motion.



Your task is to develop a C-program with VB GUI that enables the user to calculate the drag coefficients by simultaneous constrained linear inversion of coastdown data. The quality of the thus obtained coefficients shall be examined by the comparison of the measured speed-time history with the integrated equation of motion.

[1] Buckley, F.T., *ABCD – An Improved Coast Down Test and Analysis Method*, SAE technical paper 950626 (1995)
[2] Passmore, M. A., Le Good, G. M., *A Detailed Drag Study Using the Coastdown Method*, SAE technical paper 940420 (1994)

Participants

This project has to be worked out in partial fulfillment of the requirements of Information Systems and Programming 3, Engineering Mathematics 3 and General English 2.

Number of participants: 3

Schedule

Kick-off meeting: 14/10/04 at 5 p.m., LR Ledwinka

SW & Report delivery deadline: 24/01/05 by 12 p.m., secretariat of FZT

Presentations: 03/02/05 , LR Ledwinka

Supervisors

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