Mobile intelligent autonomous systems

High-speed vehicle developed that can manipulate rough terrain with ease


Schalk Els

Vehicle dynamics specialist Professor Schalk Els from the University of Pretoria is currently on a three-month sabbatical at the CSIR mobile intelligence autonomous systems group. He decided to apply to the CSIR to ensure that he is part of the advancement in robotic technology and machine intelligence that is being developed in this emerging area at the CSIR.

Els is specifically interested in the application of mobile intelligence autonomous systems in vehicle dynamics. He has already developed new technology known as a four-state semi-active suspension system ($4S_4$). This scientific breakthrough deals with the combination of soft and stiff suspensions. For example, a vehicle with the speed and excellent handling of a Ferrari combined with a 4X4's comfort and ability to move over rough terrain can be manufactured with this technology. Els's $4S_4$ technology has not been commercialised yet, but he has had discussions with both local and international vehicle manufacturers about using this technology.

Els's dream is to be able to enter the DARPA Challenge held in the US in which autonomous ground vehicles navigate and drive entirely on their own with no human driver or remote control. Through the use of various sensors and positioning systems, the vehicles determine all the characteristics of their environment to enable them to carry out their tasks.

Els sees major advancement in autonomous vehicles technology such as a vehicle being able to identify a car in its blind spot on its own in years to come, news that leaves one excited about future possibilities.