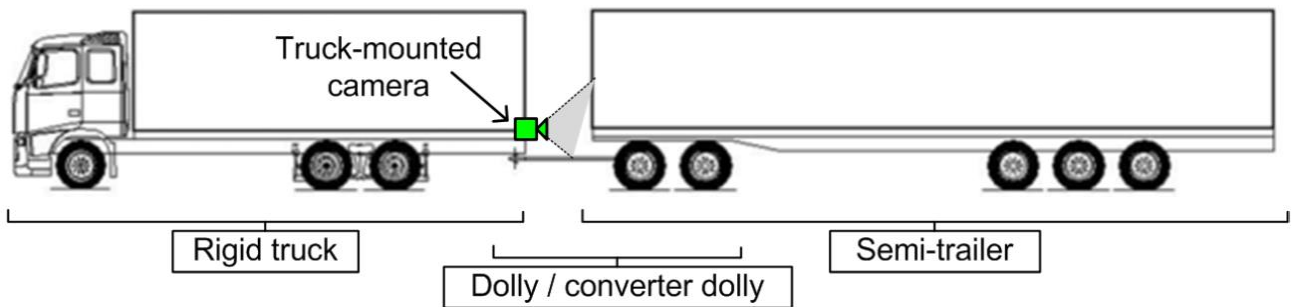


Camera-based system to measure articulation angle of articulated vehicles

Case Ref: Ceb-3302-16



The problem

Articulation angle is an important input parameter for a range of vehicle automation and driver assistance technologies for articulated vehicles. Tractor units want compatibility with all trailer units so there is a clear need for a 100% tractor-based system with sufficient accuracy.

The solution

Starting from image processing software available from the University of Oxford, Prof David Cebon and Dr Christopher de Saxe (both of Cambridge University Engineering Dept) have developed further software to drive a camera-based system to measure articulation angle with any trailer.

The system comprises a rear-facing camera mounted on the truck or tractor unit, plus image processing software. It requires no truck-trailer communication links or markers, and is compatible with any trailer shape and with multi-trailer configurations.

The sensing system demonstrates superior measurement accuracy compared to published literature, with root mean square errors of 0.8° – 1.8° demonstrated in experiments with a single trailer, and a full $>180^{\circ}$ range of measurement.

We expect this technology to be of greatest interest to tier-one suppliers of in-cab electronics to the truck manufacturers.

Ideal articulation measurement:

1. Tractor-based
2. Non-contact
3. No trailer modifications
4. No knowledge of trailer properties
5. Inexpensive

Commercialisation

This technology has been published in [Dr Christopher de Saxe PhD thesis](#) and is protected by international patent application [PCT/GB2019/051091](#).

We are now looking for commercial partners interested in working with the University or independently to develop and commercialise this technology.

Professor David Cebon



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