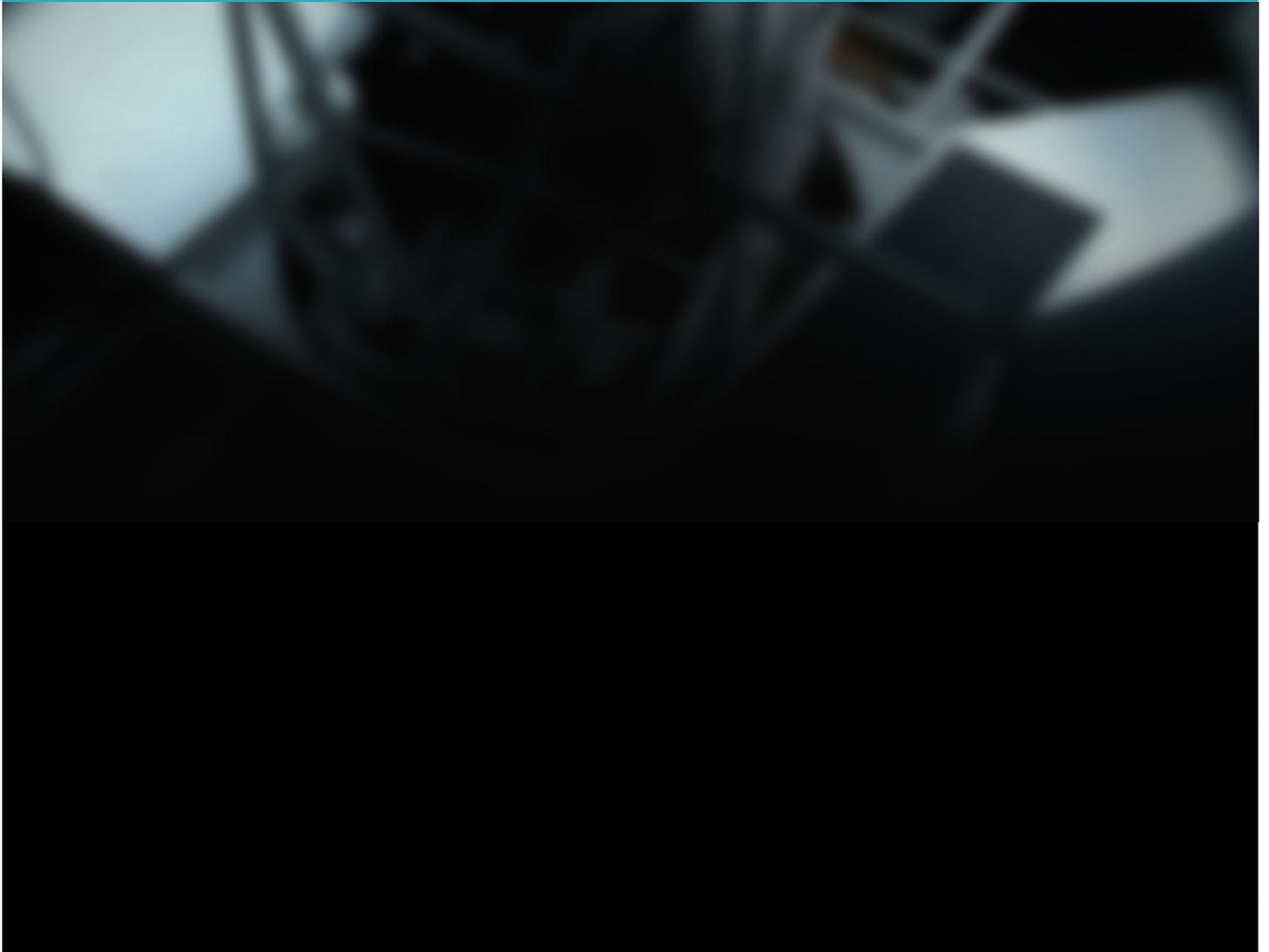




Motorsport simulators:

Cutting-edge motion platform for motorsports simulators

Simulators are increasingly used in professional motorsports for driver training and car development. The sophistication of such simulators is rapidly improving to provide a complete, realistic driving experience with visual, audio and – importantly – motion feedback to the driver.





High-speed response

Motorsports simulators incorporate sophisticated software centred on a vehicle dynamic model that translates driver input - *steering wheel, pedals, etc.* - and a track or terrain model into the pictures, sound and audio that the driver experiences.

Continuing increases in computer power have correspondingly increased the complexity and ambition of the simulators, but affordable control systems to provide motion feedback are difficult to procure. The driver's cockpit must be moved in several different directions - *three to six movement axes is common* - and there are additional requirements to provide torque feedback through the steering wheel and perhaps seatbelt tensioning and helmet movement. Multi-axis servo controllers have often been used to meet the requirement, but these are mostly designed for industrial machinery and lack the fast response and flexibility required in this application.

PTP have been working with simulator manufacturers to develop a new motion platform controller that has the flexibility and speed of response required for this demanding application in a cost-effective format. The new controller runs in a hard real time subsystem closely linked to (and in the same computer as) the Windows environment in which the existing simulation software operates. Our software uses EtherCAT communication to provide a high-

speed, real-time communication channel between the simulator software, the servo drives that provide the platform motion, and the driver controls.

Development is still in progress, but tests so far indicate that this approach provides a step change in the **responsiveness and versatility of motion control** in a low-cost format.

Huxley Bertram Engineering:
[A Revolutionary Powder Compaction Simulator →](#)

Product Technology Partners Limited

The Mount, High Street, Toft, Cambridge CB23 2RL, United Kingdom

Phone: +44 1223 264445 - Email: info@ptpartners.co.uk



© 2014 Product Technology Partners Ltd

Company registration no. 3943314 - VAT no. GB 750 6670 28

[Terms & Conditions](#) | [Privacy Policy](#) | All rights reserved