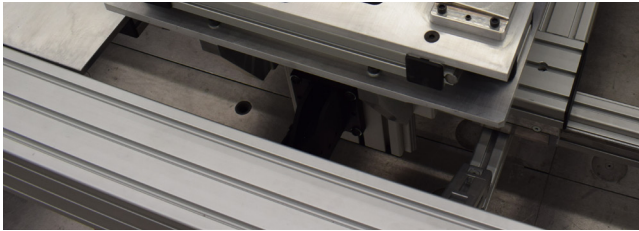
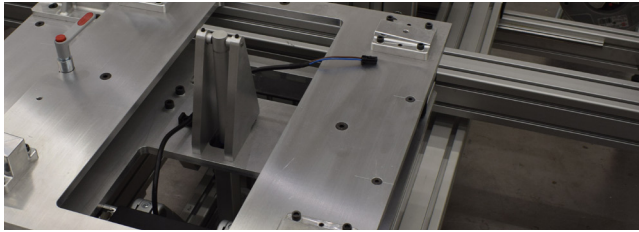
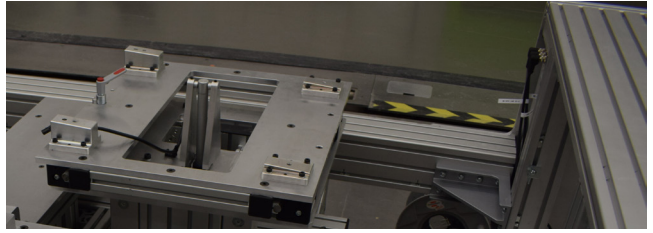



ENVISAGE

Mixed Reality Buck

The Future of Vehicle Design



Innovation at Envisage

The Mixed Reality Buck is a powered ergonomic simulation platform developed entirely in-house by Envisage's Electronics R&D team. It replaces static fixtures with powered electromechanical elements, enabling precise, real-time adjustment of key vehicle components.

The Buck integrates 16 powered actuators, a robust CAN-based control system, and real-time feedback to deliver precise, repeatable movement across multiple vehicle configurations.

Combined with Virtual Reality (VR) capabilities, it enables design and engineering teams to explore user experience and spatial layout at the earliest stages of development.

With application across multiple sectors, the Mixed Reality Buck offers enhanced flexibility, client-specific configuration, and future-ready technology - making it an effective tool for concept validation, ergonomic refinement, and collaborative innovation.

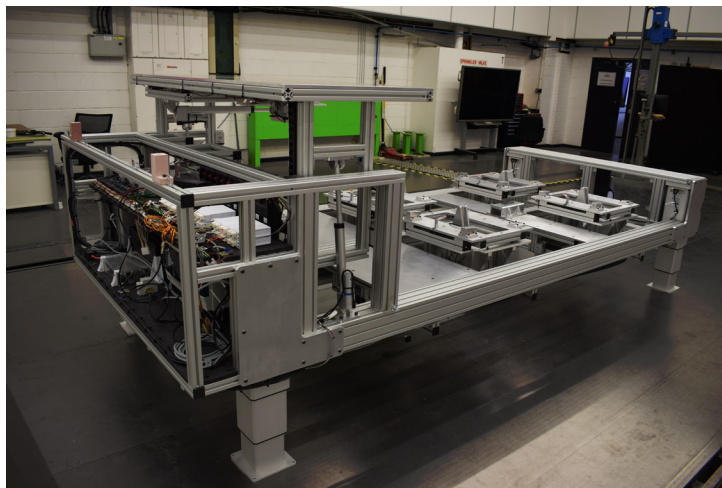
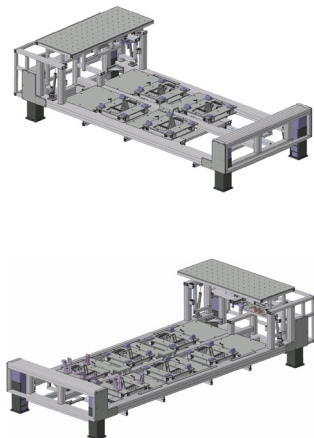
Client Configuration

Designed, built, and programmed entirely in-house, the platform supports a wide range of client-driven modifications to meet specific requirements. Our team can adapt hardware and software for developing new vehicle concepts, simulating unique seating layouts, or integration into broader testing environments.

Modification Options Include:

- Seating & Trim: Integration of specified seats, materials, finishes
- Steering Systems: Custom steering racks, wheels, column assemblies
- Cladding & CMF: Exterior cladding, paint development, material testing
- Structural Adjustments: Modified base dimensions, bolt-on frameworks, layout changes
- Electromechanical Enhancements: Additional actuators movement axes
- Software & UI: Branded interface, dual control options, UX/UI integration
- VR Setup: Consultancy and integration for virtual environments

We offer 2, 4, and 6-seater variants, and can adapt the Buck to simulate non-automotive environments such as aircraft cabins, cockpit layouts, or other transportation & mobility platforms.



Application Development

The Mixed Reality Buck's Control Software is a fully bespoke solution, designed and engineered entirely in-house by our dedicated Electronics R&D team. Built to meet the demands of real-world simulation environments, it offers precise control, live feedback, and flexible interfacing across all electromechanical elements.

Core Functionality

- Direct Element Control: Users can jog individual components along relevant axes at variable speeds or send them to exact millimetre positions using the "Go" function.
- Preset Management: Save and load full configurations with a single command. Presets can be created from scratch or captured from the Buck's current position.

The screenshot displays the Buck Control Software interface. At the top, there's a navigation bar with 'Control', 'Presets', 'Help', and 'Developer' tabs. Below this is a status bar with 'Connection', 'Jog', and 'Busy' indicators. The main area features a 3D model of the Buck's chassis. Below the model are two tables: 'Electromechanical Elements' and 'Auxiliary Elements'. The 'Electromechanical Elements' table lists components like 'Buck Height', 'Steering Column (Left/Right)', 'Dashboard Height', and various 'Seat' and 'Floor' positions. The 'Auxiliary Elements' table lists components like 'Seat Height (L/R Front)', 'Seat Squab (L/R Front)', 'Seat Rail (R/R Front)', 'Seat Tilt (R/R Front)', 'Seat Squab (R/R Front)', 'Seat Rail (R/R Front)', 'Seat Tilt (R/R Front)', 'Seat Height (L/R Mid)', 'Seat Squab (L/R Mid)', 'Seat Rail (L/R Mid)', 'Seat Tilt (L/R Mid)', 'Seat Height (R/R Mid)', 'Seat Squab (R/R Mid)', 'Seat Rail (R/R Mid)', 'Seat Tilt (R/R Mid)', 'Seat Height (L/R Rear)', 'Seat Squab (L/R Rear)', 'Seat Rail (L/R Rear)', 'Seat Tilt (L/R Rear)', 'Seat Height (R/R Rear)', 'Seat Squab (R/R Rear)', 'Seat Rail (R/R Rear)', 'Seat Tilt (R/R Rear)', 'Steering Wheel Rotation', 'Steering Rack Depth', and 'Steering Rack Angle'. The interface also includes a 'Jog' section with directional buttons and a 'Speed' section with 'Slow' and 'Fast' buttons. A 'Preset' section shows 'Active Preset: Enhance Test 0 - Zero' and buttons for 'Go', 'Save', 'Load', 'Rename', and 'STOP'. The bottom status bar shows 'Controller Status: Remote Disconnected', 'COM Port: None', and 'Status: Error: Cannot send message: Not connected'. The Envisage Group logo is in the bottom right corner.

Name	Function	Position
Buck Height	Up/Down	0.00
Steering Column (Left/Right)	Left/Right	0.00
Steering Column (Depth)	Forward/Backward	0.00
Dashboard Height	Up/Down	0.00
Horizontal Floor (Front)	Forward/Backward	0.00
Seat Pivot (L/R Front)	Up/Down	0.00
Seat Width (R/R Front)	Up/Down	0.00
Foot Plate (L/R Mid)	Up/Down	0.00
Foot Plate (R/R Mid)	Up/Down	0.00
Seat Pivot (R/R Mid)	Up/Down	0.00
Horizontal Floor (Mid)	Forward/Backward	0.00
Floor Plate (L/R Rear)	Up/Down	0.00
Foot Plate (R/R Rear)	Up/Down	0.00
Seat Pivot (R/R Rear)	Up/Down	0.00
Horizontal Floor (Rear)	Forward/Backward	0.00

Name	Position
Seat Height (L/R Front)	0.00
Seat Squab (L/R Front)	0.00
Seat Rail (L/R Front)	0.00
Seat Tilt (L/R Front)	0.00
Seat Height (R/R Front)	0.00
Seat Rail (R/R Front)	0.00
Seat Tilt (R/R Front)	0.00
Seat Height (L/R Mid)	0.00
Seat Squab (L/R Mid)	0.00
Seat Rail (L/R Mid)	0.00
Seat Tilt (L/R Mid)	0.00
Seat Height (R/R Mid)	0.00
Seat Rail (R/R Mid)	0.00
Seat Tilt (R/R Mid)	0.00
Seat Height (L/R Rear)	0.00
Seat Squab (L/R Rear)	0.00
Seat Rail (L/R Rear)	0.00
Seat Tilt (L/R Rear)	0.00
Seat Height (R/R Rear)	0.00
Seat Squab (R/R Rear)	0.00
Seat Rail (R/R Rear)	0.00
Seat Tilt (R/R Rear)	0.00
Steering Wheel Rotation	0.00
Steering Rack Depth	0.00
Steering Rack Angle	0.00

Buck Control Software - Envisage Group LTD

Control **Presets** Help Developer Log

Connection Key Busy


Envisage Test 1 - Driving Position

New Rename Save Delete Refresh

Preset Target Positions - Electromechanical Elements

Name	Function	Preset Target Position
Buck Height	Up/Down	0.00
Steering Column (Left/Right)	Left/Right	80.00
Steering Column (Depth)	Forward/Backward	50.00
Dashboard Height	Up/Down	150.00
Horizontal Floor (Front)	Forward/Backward	200.00
Seat Pivots (LH Foot)	Up/Down	60.00
Seat Pivots (RH Foot)	Up/Down	60.00
Foot Plate (LH Mid)	Up/Down	50.00
Foot Plate (RH Mid)	Up/Down	50.00
Seat Pivots (LH Mid)	Up/Down	50.00
Seat Pivots (RH Mid)	Up/Down	50.00
Horizontal Floor (Mid)	Forward/Backward	400.00
Foot Plate (LH Rear)	Up/Down	50.00
Foot Plate (RH Rear)	Up/Down	50.00
Seat Pivots (LH Rear)	Up/Down	120.00
Seat Pivots (RH Rear)	Up/Down	120.00
Horizontal Floor (Rear)	Forward/Backward	80.00

Controller Status: Remote Disconnected | COM Port: None | Status: Loaded preset Envisage Test 1 - Driving Position | 10:16:34



Bespoke Interface Design

We offer UI customisation, including branded splash screens, logos, and theme settings to align with your internal systems or presentation needs.

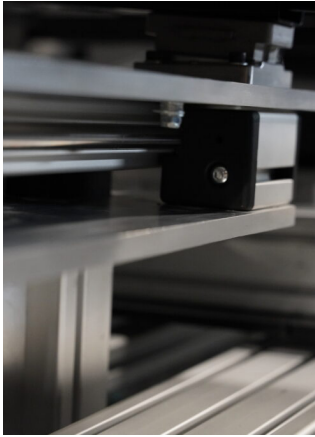
Data Sharing & System Logging

Presets are stored as individual configuration files and can be shared across multiple Bucks - ideal for multi-site collaboration. A built-in system log tracks all movements, changes, and errors for traceability and diagnostics.

Software Connectivity

The software runs on any PC sharing Wi-Fi with the Master Control PC. It is also compatible with Windows devices and tablets, enabling flexible control during testing or presentations.

Technical

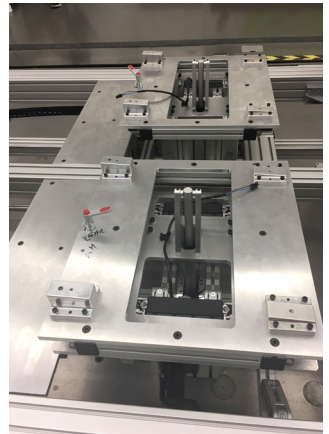


Electromechanical System: The Mixed Reality Buck features 16 motorised actuators controlling key components such as seats, instrument panel, steering column, and footrests. Each actuator offers multi-axis movement with millimetre-level precision.

- Multi-axis control [X, Y, Z]
- Up to 900mm stroke range
- Powered by 24VDC
- Controlled via a CAN network

System Setup & Power: Designed for straightforward deployment, the Buck connects via a 230VAC 32A mains inlet and integrates with a Master Control PC using a CAN-to-USB module. The onboard consumer unit includes RCBO and MCB protection, with emergency isolation built into the rear cabinet.

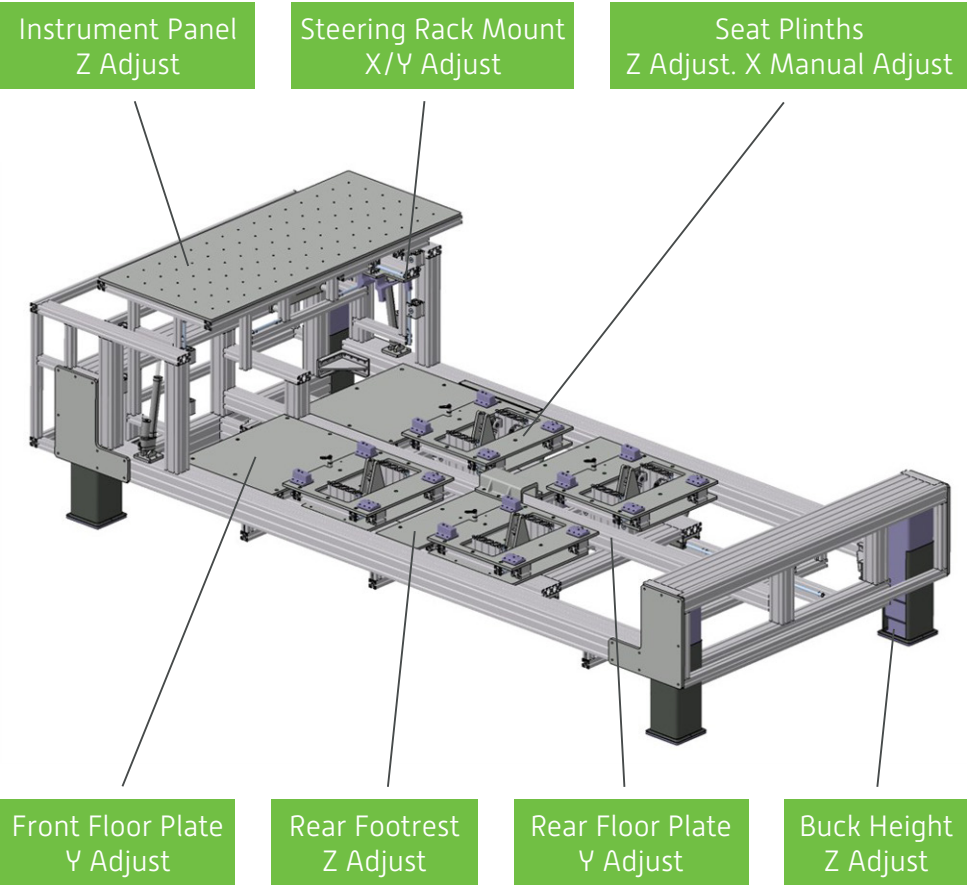
- Plug-and-play configuration
- Wi-Fi enabled control
- Emergency isolator and RCBO protection



Positional Feedback & Data Access: All actuators provide live positional feedback with $\pm 2\text{mm}$ accuracy. Data is transmitted over the CAN network and accessible via USB or Ethernet, allowing integration with external systems or VR environments.

- Real-time data over CAN
- Baud rate: 115200
- Compatible with external systems and VR environments

Element Overview



Envisage Group, established in 2009 and headquartered across three sites in Coventry, UK, with an international presence in the USA, is a leading provider of concept design, engineering, and concept delivery services. The Group includes Envisage Concept Design & Engineering, Envisage Technologies, and Envisage Recruitment - serving a diverse client base from global OEMs and manufacturers to start-ups and private individuals.

With expertise spanning automotive, aerospace, marine, and wider mobility sectors, Envisage offers end-to-end solutions - from early concept development and public-facing prototypes to detailed engineering and low-volume production. Our multidisciplinary team combines design, craftsmanship, and advanced materials to deliver high-quality, fully engineered products that bring client visions to life.

Doyle Drive, Coventry, CV6 6NW

Telephone: +44 [0]24 7644 2777

enquiries@envisagegrouppltd.com

www.envisagegrouppltd.com

