ASTHEIMER

DELIVER-E

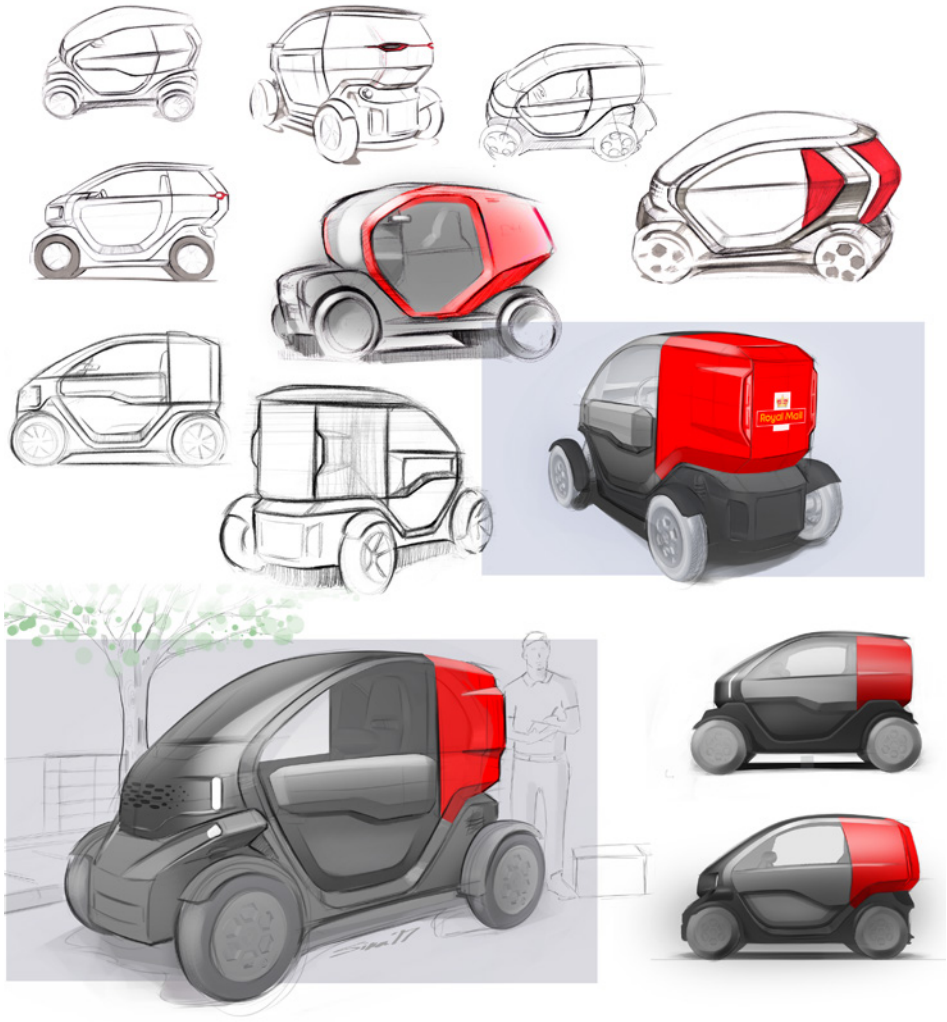

WMG
THE UNIVERSITY OF WARWICK
DELIVER-E
WMG TECHNOLOGY DEMONSTRATOR
DESIGNED BY
ASTHEIMER

BACKGROUND

The future of urban mobility will be dominated by battery powered electric vehicles, emission controls will tighten and on-line acquisitions will increase, creating the need for new zero emissions vehicle solutions.

The DELIVER-E is the result of an intensive 10 week collaborative project between Astheimer and the Warwick Manufacturing Group (WMG) to design and build an electric delivery vehicle prototype to satisfy this need. This unique collaboration showcases the design and prototyping capabilities of Astheimer and the advanced propulsion systems capabilities of WMG.

Astheimer design are working on several projects at the forefront of electric transportation and autonomous technology. WMG are one of the world's leading research and education groups, designing solutions and overcoming challenges through collaborative R&D and world class education.



PROCESS

Using the Renault Twizy compact electric vehicle as a donor platform, a new internal layout was created to maximise potential cargo volume. This involved removing the rear passenger seat, extending the vehicle by 150mm and creating a van configuration capable of carrying 3 online delivery baskets; increasing the load carrying capacity to 300 litres.

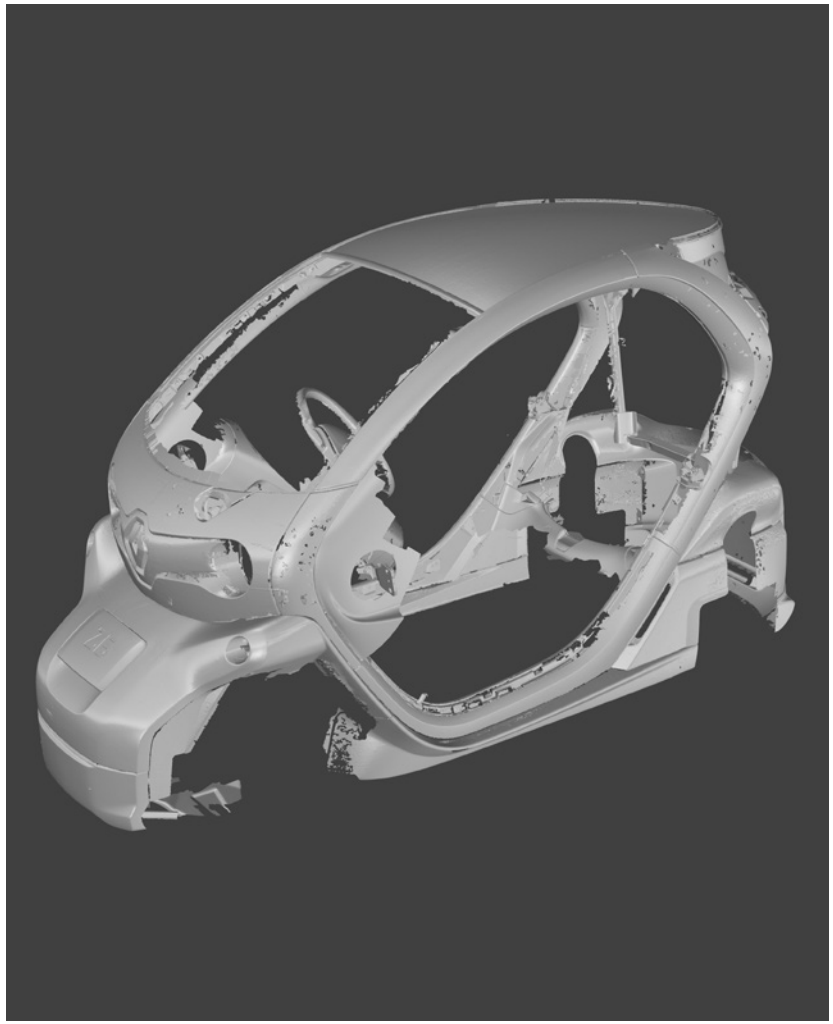
In addition, a completely unique and appealing look was created with new front and rear lighting. The dash was also modified to enclose a new instrument panel to control the latest WMG electronics platform.

DESIGN

Futuristic, Purposeful and Simple

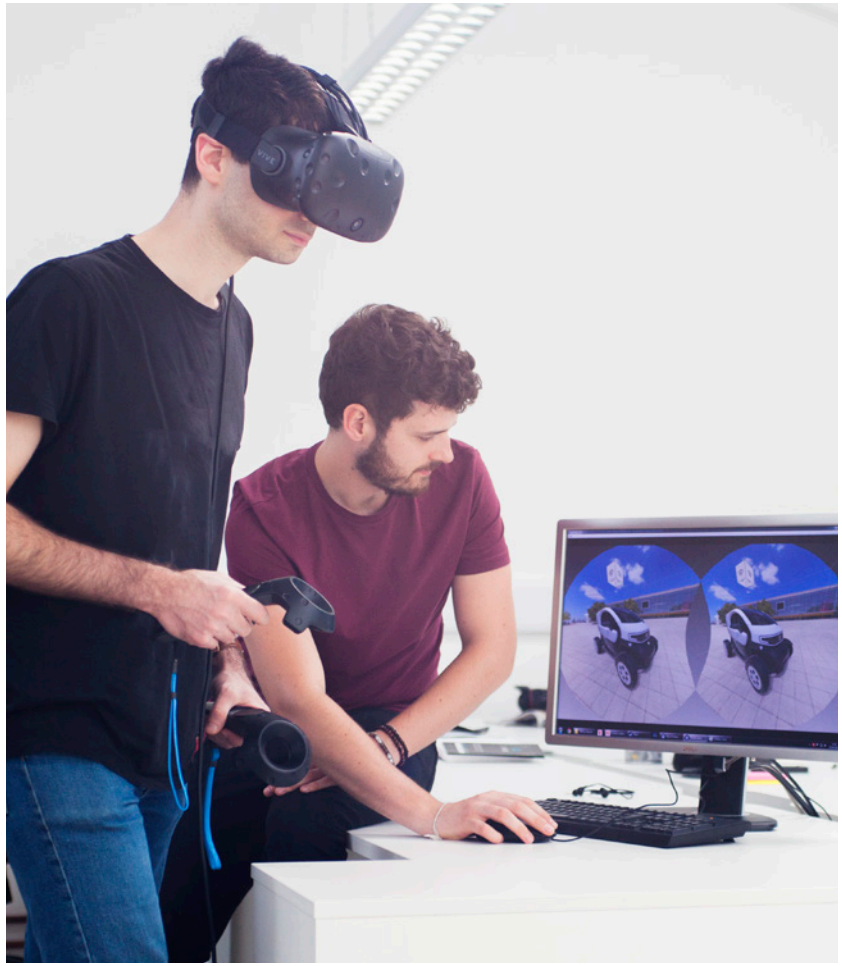
Deliver-E is characterised through clean lines and fluid surfaces, reflecting the technologically advanced, intelligent and digital nature of the vehicle, with cutting edge 3 dimensional parametric patterns and “halo” LED lighting.

The proportions highlight the cargo carrying capacity of the vehicle.
A horizontal “floating” upper volume, gives a simple, purposeful look.



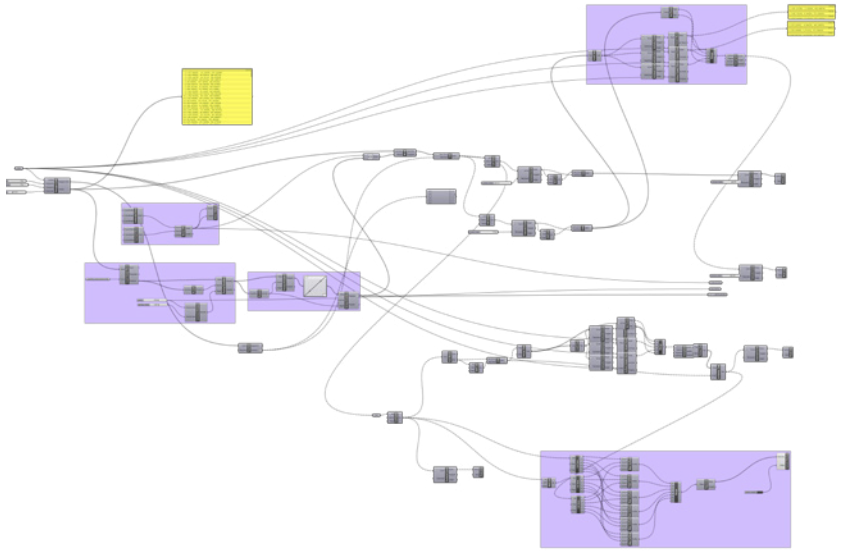
3D SCANNING

To define the new body panels for the DELIVER-E, it was essential to generate detailed CAD data of the existing vehicle. This was achieved using advanced 3D scanning to capture a virtual copy. By scanning the exact donor platform to be refitted, all manufacturing imperfections were captured, enabling the team to design and engineer the panels to fit with minimum tolerances.



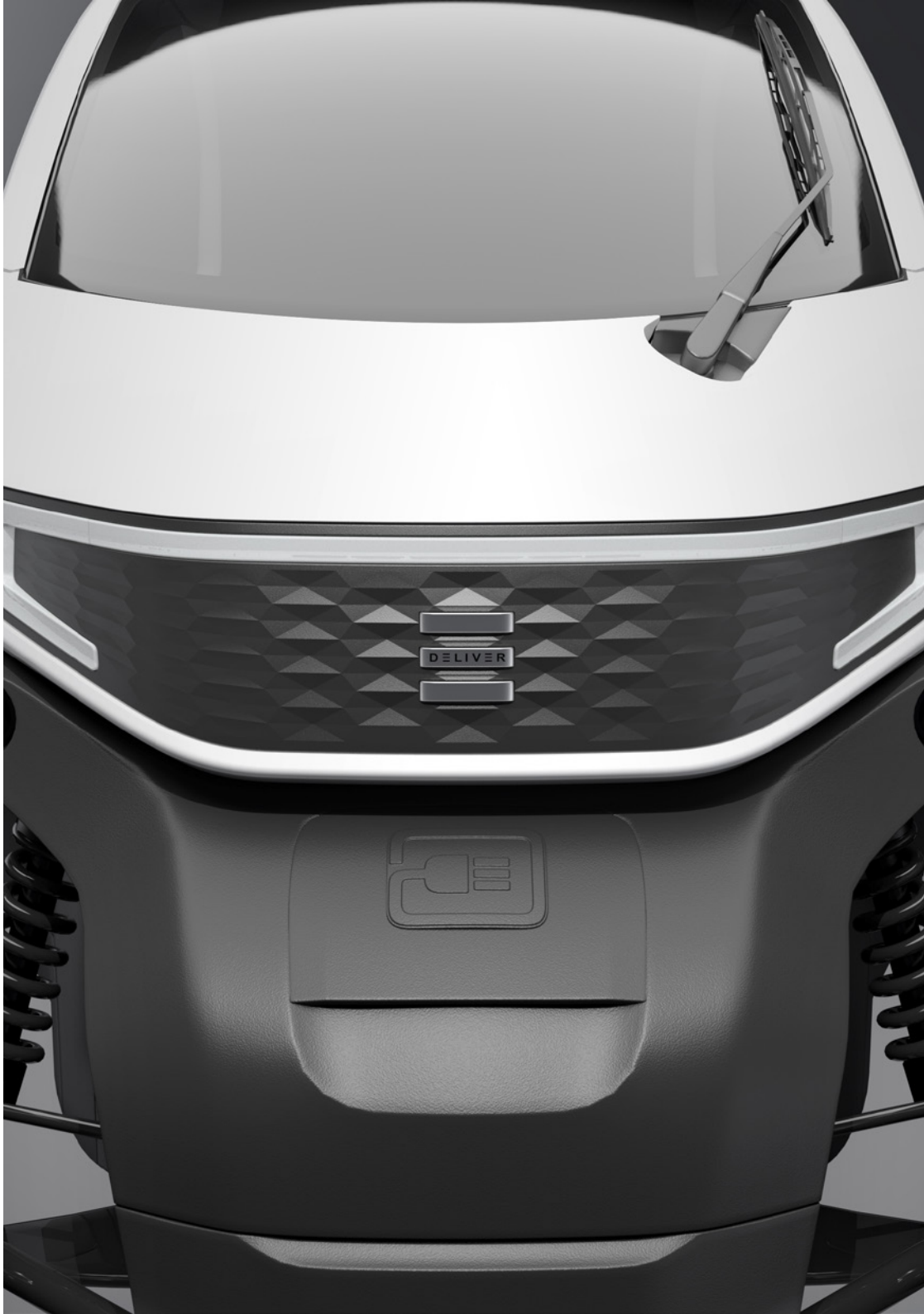
CAD DEVELOPMENT

In total eight full CAD models of the car were created, including design changes, build strategy updates and feasibility feedback loops from suppliers, each one was an improvement on the previous iteration. Before commencing manufacturing, the full CAD underwent a digital mock up to check assembly conditions and to evaluate the design concept at full scale, the final sign off was conducted using Astheimer's in-house VR equipment, along with photorealistic rendering software Autodesk VRED.



PARAMETRIC DESIGN

To showcase the intelligent nature of the vehicle, Astheimer took the opportunity to utilise their latest parametric design capabilities by creating 3D fading patterns symbolising the connections in the battery cells. This was achieved by developing unique code using Grasshopper software.



COMMERCIAL LIVERIES

PRODUCTION

The donor vehicle was stripped and the spaceframe modified to maximise the cargo space, whilst taking care to maintain the structural integrity of the vehicle. For speed and efficiency, the body panels were created by directly milling ABS blocks, and were finished with automotive paint and wrapping. The fit and finish was completed successfully to an automotive standard.

ASSEMBLY

During the course of several dry fittings, components were refined and new electronics installed. The mounting of the front grill completed the vehicle's character and marked the end of the 10 week project.


WMG
THE UNIVERSITY OF WARWICK
DESIGNED BY
ASTHEIMER
DELIVER-E
WMG TECHNOLOGY DEMONSTRATOR
HY64
PDX


WMG
THE UNIVERSITY OF WARWICK
DELIVER-E
WMG TECHNOLOGY DEMONSTRATOR
ASTHEIMER
GB
HY64
PDX

DELIVER-E TEAM

(from left to right)

Phil Rogers - Design Engineer
Alex Stewart - Design Engineer
Sina Rahmani - Designer
Carsten Astheimer - Managing Director
Nick Powell - Marketing Director
Russell Gillott - Design Director
Tim Moore - Lead Designer

ASTHEIMER DESIGN

Astheimer is a world class design studio. We work with forward thinking clients in a collaborative way to develop the products of the future. Our clients vary in scale from smaller challenger brands to well established market leaders, such as Bentley, JLR, Airstream, Caterpillar and Mars.

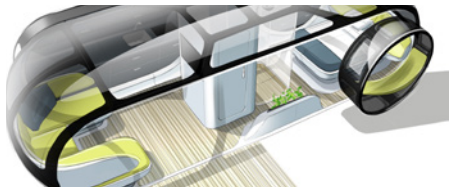
We invest in the best talent and ongoing training in order to continuously improve our multi disciplined, multicultural team. Our new 4000 square feet facility in Warwick, has a modern studio equipped with the latest state of the art hardware and software, including a VR zone and a fully equipped workshop facility. This allows us to develop physical prototypes and full scale mock-ups, that can be reviewed both physically and in VR during the product development process.

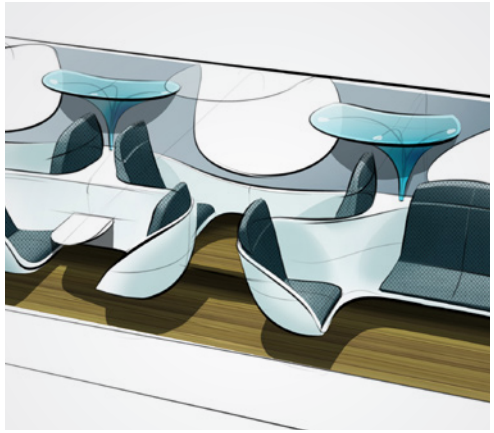
Our size makes us personable, flexible and fast, and the experience of developing a large variety of projects on a global scale, gives us a unique view and deep understanding of the emerging trends in design, the latest materials, technologies and manufacturing processes.

Complementing our core product design service, Astheimer provides branding, packaging and POS design. This holistic approach enables us to create a coherent customer experience, which can be tailored to meet the individual needs of our clients.

"Simplicity is the ultimate sophistication"

Leonardo da Vinci





ASTHEIMER

WARWICK – ENGLAND

+44 (0) 1926 842 354

www.astheimerltd.com