

DIGIMAN EVENTS

JULY 2017

Toyota Motor Corporation presented the DIGIMAN main objectives during the European Fuel Cell Forum 2017 conference held in Lucerne, Switzerland (4-7 July 2017)

SEPTEMBER 2017

Intelligent Energy presented at the CENEX LCV event in Bedford on 9-7 September 2017. The DIGIMAN project was one of Intelligent Energy's main presentation themes.

JANUARY 2018

Intelligent Energy presented the main objectives of DIGIMAN at the Hydrogen and Fuel Cells Energy Summit in Brussels, Belgium

MARCH 2018

Intelligent Energy presented on DIGIMAN during the CCSHFC2018, the 14th International Hydrogen & Fuel Cell Conference held in Birmingham, UK, on 13th March 2018

AUGUST 2018

The proof of process demonstration equipment is due for release to Warwick Manufacturing Group in August 2018 for initial process trials and materials handling optimisation.

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Newsletter

June 2018

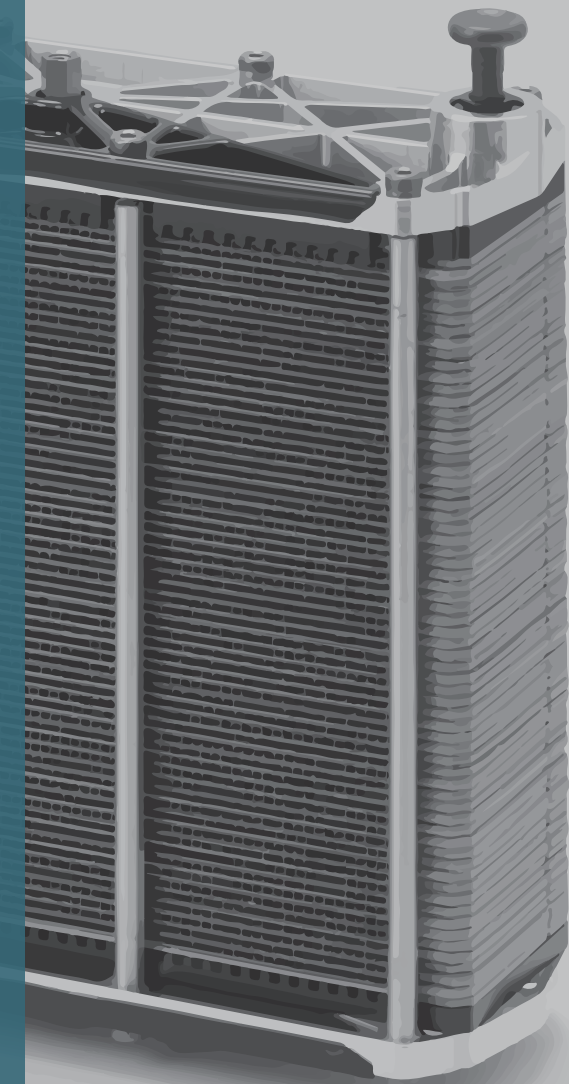
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EDITO

The aim of the DIGIMAN project is to develop a blueprint design for next generation cell assembly and testing of Intelligent Energy's current and future lightweight AC stacks. The project has now progressed to the detailed design phase.

The ensuing automation uplift (from Intelligent Energy's pre-existing semi-automation production lines) will be proven by extensive process engineering and materials testing.

Proof-of-process will be validated (to MRL6) via the development demonstrator equipment as shown below, which is currently under development.

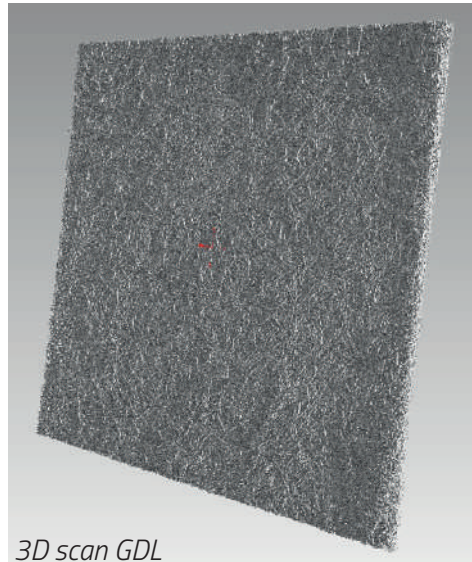


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DIGITAL MANUFACTURING AND PROOF-OF-PROCESS FOR AUTOMOTIVE FUEL CELLS

DIGIMAN MAIN ACHIEVEMENTS



3D scan GDL

WP2, "Requirement Setting & PoP Measurement"

A definition of automotive best practice and specification of baseline KPI for the emergent fully automated stack assembly. Agreement of fuel cell stack commissioning handover performance and manufacturing metrics, against which performance will be measured.

WP3 "Digital QC & Converting"

Definition of requisite packaging and presentation formats for converted GDLS suitable for placement by equipment developed for the automation uplift solution is completed. Digitization and transfer of inline

QC data to PoP module is under development to link material characterization and cell assembly.

WP4 "Cell Assembly PoP Development"

A process specification has been created that translates the DIGIMAN project objectives into the requirements and deliverables for the automation uplift solution.

Automation uplift concepts have been reviewed and sense checked via process engineering trials. A technical specification for the PoP Demo equipment has been created and progressed through RFQ, tender, down selection of the vendors and order placement. Initial site preparation has been completed at Warwick Manufacturing Group ahead of the assembly equipment delivery.

Ongoing activities include finalising the detailed design of the equipment with the vendors and sub system suppliers for delivery of the Pop Demo equipment to Warwick Manufacturing Group in August 2018.

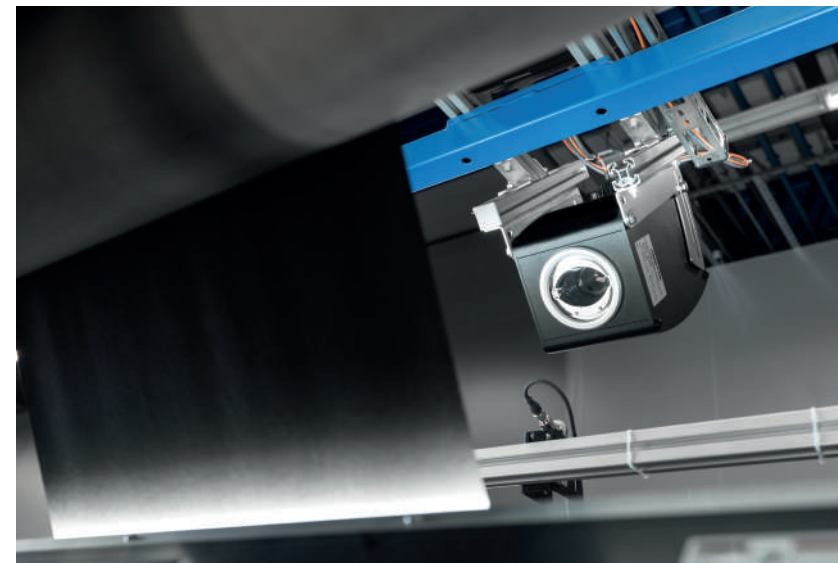
WP5 "Digital Materials Characterisation"

Progress has been made on the establishment of a 'digital' supply chain encompassing digital quality control processes, from manufacture through to assembly for the gas diffusion layer (GDL) components.

WP3 and WP5 have yielded:

- digitised optical scanning,
- definition of defect types,
- testing of scanned materials.

In addition, work has commenced into the investigation of none optical scanning and digitisation techniques for non-localised, heterogeneous anomalies within GDL material structures.



GDL vision system

WP6 "Digital manufacturing"

Current Intelligent Energy production data capture process, future production data capture process options and Freudenberg GDL production process / data transfer links defined. System Architectures and harvesting techniques mapped.

Framework for Intelligent Energy Central Database (CDB) established and consolidation of data commenced.

Overall System Architecture drafted for agreement with equipment vendors.



12M PROGRESS MEETING

The DIGIMAN consortium at the 12M progress meeting held on 12th-13th December 2017 at Freudenberg facilities in Weinheim, Germany



18M PROGRESS MEETING

The DIGIMAN consortium met at Toyota Motor Europe facilities for the 18M progress meeting on 6th-7th June 2018 in Brussels, Belgium

The DIGIMAN partnership involves partners from both academia and industry

