



KEYWORDS: Mechatronics, Cyberphysical Systems, Development Life Cycle, Model-based Systems Engineering, Architecture Evaluation, Prototyping, 3D Printing, Embedded Systems

AIMS

- Supporting the generalist and specialist apprentice-engineer training programmes in Mechatronics fields
- Supervising students' personal projects
- Assisting IMT Mines Ales Incubator start-ups
- Supporting companies' R&D projects

FIELDS OF APPLICATION

- Connected objects
- Mobility / Transport
- Health / Disability
- Electric vehicles
- Specialised machines

ACTIVITIES

- Design and prototyping
- Modelling and multiphysics simulation
- Mechanical engineering
- Industrial automation
- Digital control machining
- Additive manufacturing
- Embedded systems

SPECIFIC FEATURES

- Coverage of the product development life cycle
- Multidisciplinary team: IT / electronics / mechanics / automation / materials
- Evaluation of materials for 3D printing (G2MA research center)
- Architecture evaluation (LGI2P research center)



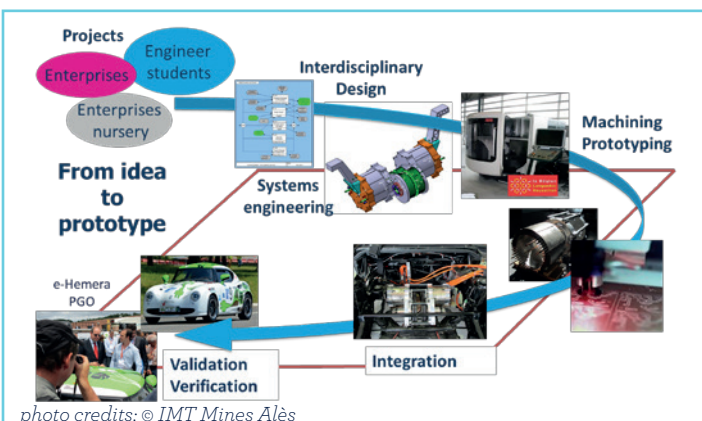
First electric tractor for wine-growers

SCIENTIFIC EXPERTISE

- Interdisciplinary, collaborative design
- Synthesis of new materials for 3D printing
- Model-based Systems Engineering
- Physical prototyping

WHAT WE PROVIDE

- Mechatronics engineering studies
- Design using 3DEXPERIENCE, CAD/CAM
- Feasibility studies and proofs of concept
- Prototyping
- Research partnerships with IMT Mines Ales laboratories





RECENT PROJECTS



*Wine-growers' tractor
SITEVI Trade Fair, Montpellier 2017*

Electric tractor for wine-growers



- Demonstration model of the first fully electric tractor for wine-growers
- Four 12kW, 96 V motors (one per wheel)
- Weight of batteries 200 kg
- Width 1.35m, turning circle 3m
- Working run time 4 hours

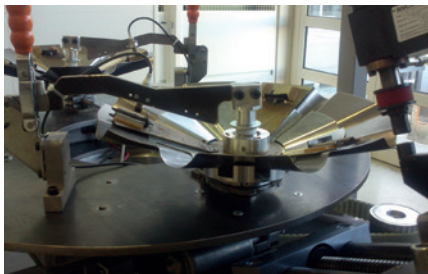


*eHemera electric car,
National Assembly Award,
Lépine Competition 2016*

eHemera : electric car



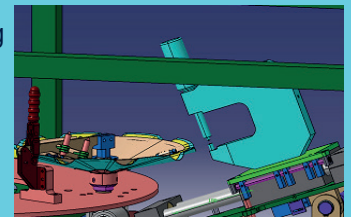
- Partnership: PGO, IMT Mines Alès, CFA Alès, IUT Nîmes
- 2 low-voltage motors: 96V, 38 kW
- Maximum speed: 120 km/h, 0-100 km/h: 9 s
- Power: 100cv, Torque: 200 Nm, Weight: 1200 kg
- Range using a range extender: 250 km
- Flax fibre doors
- Cork-oak trim



*Assembly of chimney cowl vanes
using the clinching process*

Clinching machine

- Mechanical assembly of metal sheets by the clinching process
- Faster and better quality than the welding process
- Automated machine entirely designed and created by the mechatronics platform



MAIN EQUIPMENT:

- 3D printer: EOS Formiga P110
- FDM process 3D printers
- 5-axis milling machine, 3-axis milling machine, 2.5-axis lathe, plate edge
- Water jet cutter
- Electronic circuit workshop (plated-through holes, reflow oven for SMT)
- 3D measuring machine
- TIG and MIG welding

The IMT Mines Alès research centers

- *C2MA Materials Research Center*
- *LGEI Center of Industrial Environment and Industrial and Natural Risk*
- *LGI2P Center of Computer and Production Engineering*

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**You want to
develop a project ?**

Contact details

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