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## Design and production of custom-made materials, demonstrators and prototypes

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Measuring instruments, laboratory or auscultation testing means and diagnostics *in situ*, with sampling equipment, sample preparation, non-intrusive analysis, software associated with the equipment for data acquisition and processing

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*Private company, local authority: are you looking for a partner to **design and implement an atypical professional solution tailored to your specific needs?***



*You want to be assisted to specify a technological need adapted to your constraints for a non-standard material?*

*You wish to validate innovative concepts or to carry out new services?*

*Do you want to develop industrial engineering solutions for transport and materials, with a view to adapting to climate change?*



***We can probably bring you our experience.***

**Services that meet your**

**expectations**

Through the historical services carried out at the request of the State services, of materials having obtained **the prestigious mlpc® label**, our Prototypes department also develops adapted, innovative solutions, useful to the territories and to the customers of all its business ecosystem. It develops demonstrators and prototypes, and tools for research. It offers agile and scalable solutions, from the integration of standard components to the design of "custom" solutions.

In technical expertise and project management assistance, our Prototypes department can assist project owners in drafting technical specifications, participating in the analysis of bids for complex contracts where business and technological knowledge are combined, expertise, advice, project monitoring and acceptance.

**Areas of expertise: metrology and instrumentation, industrial computing, mechanical engineering, electrical and electronic engineering, automation.**



## References and clients

### National research projects

- AIGLE 3D is a vehicle equipped with sensors (laser profilometers) dedicated to the automatic evaluation of the level of pavement degradation
- The Vél'audit is an electric bicycle instrumented to establish a diagnosis of the state of bicycle paths and their environment
- The VLIR (light infrared vehicle) is an instrumented utility vehicle for monitoring dikes during crisis episodes
- COLURROUTE allows to analyze the optical behavior of any surface on the ground
- DIATOME is a device to assist operators handling compacted specimens
- VOICIE is a vehicle for observing the interaction of the driver with the infrastructure and the road environment
- Electric dam: an innovative demonstrator for wave energy recovery in ports

### Projects targeted to specific needs

- ROMULUX is an autonomous robot designed to measure illumination in demanding areas in terms of compliance with lighting standards (sports fields, safety areas, etc.)
- VECLAP2 is a device for dynamic measurement of the illumination of public lighting installations
- ODEMIE is a prototype whose aim is to optimize the dosage of spreaders by computerized equipment for the respect of the environment
- COMIFO project to evaluate the compatibility of metallic structures in infrastructures and road de-icing agents used for winter maintenance
- SCANNER 3D: instrumentation of a vehicle carrying a high-performance dynamic lidar for environmental analysis

### Expertise for communities and companies

- FURINA: research project to measure sediments in a sewer pipe, for Nantes Métropole
- SAS Vélo : experimentation of a bike lock that detects and prevents intrusive interactions of motorists, for Nantes Métropole
- SCOUT: an IOS and Android application to meet all the needs of field visits

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## Variable geometry resources to match your projects

### Material means in base :

Two prototyping sites in Rouen and Angers including

- Development unit (mechanical design office, mechanical CAD, computer and electronic design office)
- Production centre (manufacturing and mechanical assembly, electronic and electrical wiring) and metrology centre
- Machining centers, including a 5-axis CAD/CAM model, numerically controlled lathes, 3D printing station, boiler making workshop, paint booth)
- Specific tools for the realization of embedded software or electronic and mechanical design

### Supporting expertise / development resources

- All Cerema's innovative companies and startups (CeremaLab)
- All of Cerema's "business" experts (risks, transport, infrastructure, geotechnics, etc.), as well as Cerema's research teams
- The support of Cerema's historical partners such as UGE (ex Ifsttar, now Université Gustave Eiffel), engineering schools and universities

## Contact

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