

ERF2020

Inspection and maintenance
robotics: Learning across
industries

SAM – END USER NEEDS

The development is part of the Cigèò project (“Centre industriel de stockage géologique”), led by the French National **Agency for the Management of Radioactive Waste (ANDRA)**.

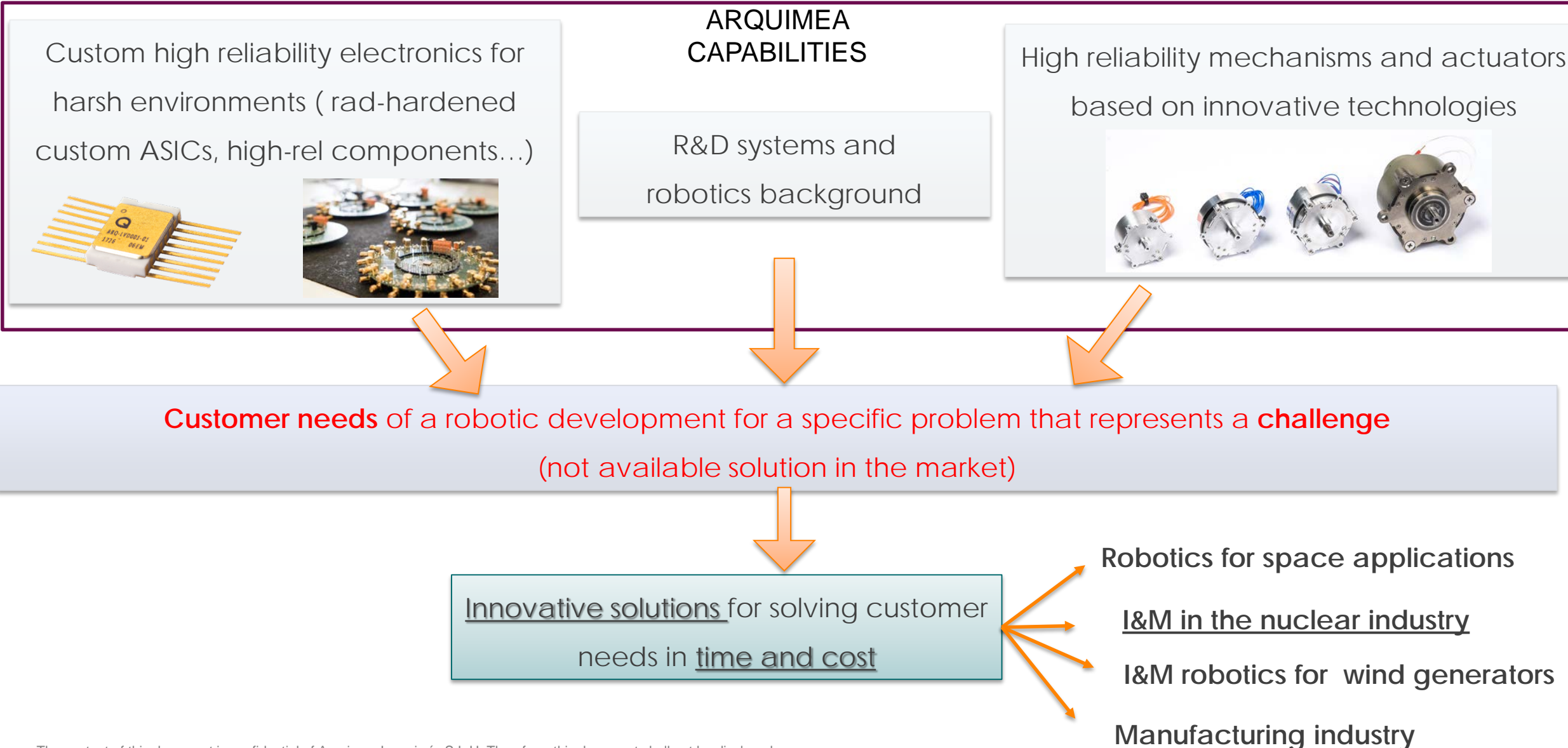
Need of a **mobile monitoring system** that analyzes the state of the pipelines (as long as 150 meters) destined for the **deep geological storage of nuclear waste of high activity**, allowing to know the evolution and deterioration of them over time.

The robot is used in a periodic basis for analyzing, with submillimeter precision, the internal dimensions of the pipeline.

Positioning of the mobile robot w.r.t the pipeline entrance shall be $\pm 0,5$ cm al along the pipeline.



SAM – BUSINESS MODEL

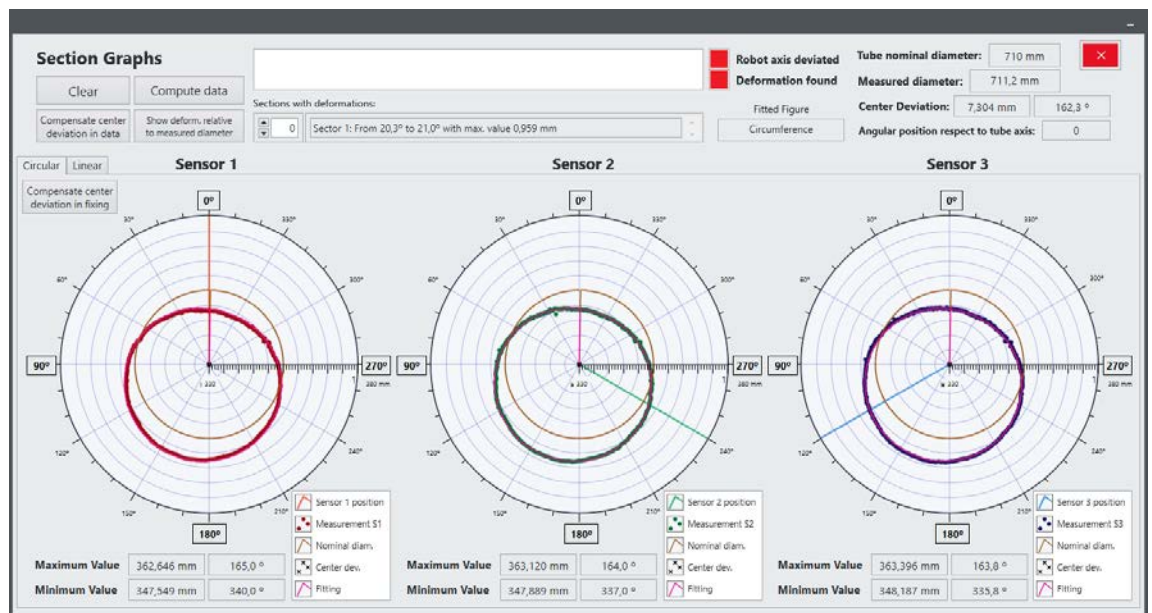


SAM - Success story



SAM "Système d'Auscultation Mobile pour l'alvéole.

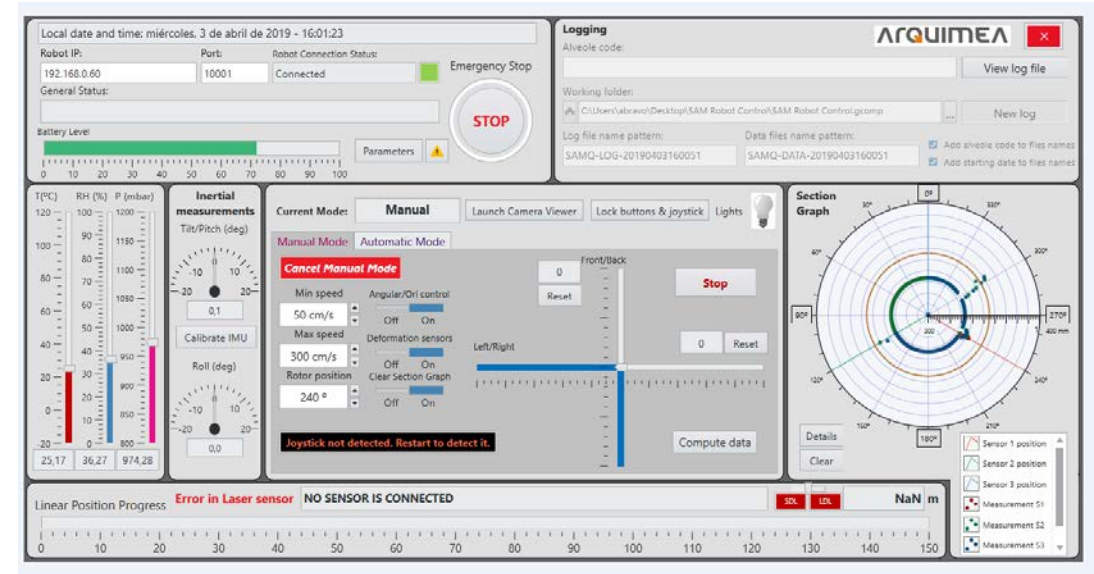
SAM will operate inside straight horizontal pipes. It is possible to adjust its speed and maintain its inclination with respect to the axis of the sounding. It contains three high precision laser sensors, installed on a mobile platform perpendicular to the axis of the pipe capable of rotating 360 ° (submillimeter precision). In addition to evaluating deformation and detecting defects, it also has sensors for measuring humidity, temperature and pressure, lighting LEDs and on-board video camera.



SAM - Success story

The development of SAM by ARQUIMEA (1 year) allows to take measurements from any section of the pipeline, replacing the use of fixed sensors, and will prevent the personnel that operate in these environments from entering the alveolus. It implies a **saving of resources and a significant increase in work efficiency**.

SAM also provides **extra space for payload** as per customer needs. Our customer used this capability for including a **hydrogen sensor** able to monitor the concentration of this gas inside the pipelines, increasing robotic platform effectiveness.



ARQUIMEA

Passion for technology

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