

Identifying sources of pollution to better protect people

While most of the companies specialized in the detection of different types of pollutions know how to measure the quantity of a pollution - whether it's about the concentration of gas, environmental noise, light or even air pressure - few of them can accurately identify the source of the pollution itself. However, to act efficiently, and to allow effective remediation, this piece of information is essential. A challenge that Rubix Senses & Instrumentation, an innovative startup company supported by bpifrance, has chosen to take up.

City halls, urban areas, industrial and transport companies, construction and public works sector, school and company restaurants, Ehpad, hospitals, stations and airports, industrial and port sites, technical landfills and waste water: more and more actors are committing themselves to the protection and well-being of people. Before even thinking of acting in a specific provision of wellness services, it's absolutely necessary to identify nuisances and pollutants in order to eliminate them. Yet, this identification step was missing until then. We knew how to quantify the elements of pollution (noise, gas, particles...) but not necessarily identify the source accurately. The stakes are high because pollution kills millions of people each year worldwide and the level of respiratory pathologies in children has increased fivefold in 20 years. In addition, toxic nuisances have a very negative impact on productivity both at work and for the health in the workplace: absenteeism, burnout... And the duration of patient recovery in the care units. Founded in 2016 in Toulouse, Rubix Senses & Instrumentation is specialized in monitoring ambient conditions and nuisances of the outdoor and indoor environment, thanks to devices including miniaturized sensors and innovative data processing algorithms: air quality, odors, particle and allergen measurement, noise, light, flickering, pressure... "By catching olfactory signatures, particles or noise, we are able to identify the source of the pollution," explains Jean-Christophe Mifsud, Founder and President of Rubix Senses & Instrumentation. "Monitoring without remediation is useless, and to have efficient remediation, you must identify the source." Concretely, Rubix S&I develops and markets a range of professional and consumer connected objects to meet these challenges: Rubix Watchtower, Rubix Pod, and Rubix Wear are the flagship products of this range. Thanks to them, Rubix S&I can map

physical, chemical and biological nuisances within buildings, around industrial sites and urban communities. It has more than 100 years of people cumulated experience in sensors, particularly in gas sensors, VOCs and odors. Overall, Rubix S&I offers a wide range of instruments and services for online air quality and safety monitoring. It's a leader in toxic and nuisance monitoring, improving well-being and comfort, and offers online mapping of physical and chemical parameters. Its solid expertise in VOC analysis and odor measurement is at the service of companies and institutions. Its range of online air monitoring products offers complete and modular solutions for monitoring air quality and safety, as well as VOCs, gases, odors and particles.

Number of specific features serving remediation

In addition to a turnkey solution, its team of experts can be solicited to develop miniaturized industrial measurement modules adapted to the needs of manufacturers, particularly for industrial sites predictive maintenance: waste treatment plants, etc. Its engineers, sensor design specialists, electronics engineers, chemists, data processing specialists, customize miniaturized sensor modules or electronic noses accordingly to specifications.

Its team has a strong expertise, particularly in the following applications:

For the smart house, (Building management, management of odors generated by domestic animals),

For household appliances, (Food quality & Food safety in refrigerators, Cooking process monitoring, intelligent extractor hood....),

Development of portable devices for environmental or non-invasive health monitoring,

Odors and VOCs, process control, detection of smouldering fire; expertise in gas sensors (MOS, MEMS, electrochemical sensors, optical sensors...), expertise regarding chemical and biological markers,

One of the company's specific features is its association with databases able to determine the source of the pollution. "We provide measurement systems which follow several parameters. We are able to trace noise, odors and allergenic particles to their source through automatic signature analysis and identification." How? Through the use of connected sensors. "The use of this type of technology is part of our core business." Today,

Rubix is also active in the field of food safety. "Our technologies allow us, for example, to recognize the degradation of food in a refrigerator. We also know how to make evolve health diagnoses using non-invasive techniques, simply by measuring certain physiological parameters of an individual such as his sweat or breath. In the field of health and the environment, people are at the heart of the measurement. We provide a dedicated analysis for everyone, depending on where he is, and according to his needs. Thus, we are able to measure for an athlete who runs the moment when his effort draws on his reserves. Our miniaturized sensors, including artificial intelligence modules, allow an individual to improve his health practices on his own or with the help of applications. We can then tell users when they need to change their behavior." Given these improvements in the health sector, the tools developed by Rubix are of primary interest to mutual funds and insurance companies, which can thus learn about the efforts made by their members for their health....

Fundraising to improve the ambient air

On the development side, Rubix Senses & Instrumentation's business model is based on the distribution of its products through networks specialized in their market. How did this idea of changing the market offer and finding the source of the pollutant appear? Jean-Christophe Mifsud, Founder and President of Rubix Senses & Instrumentation, has more than 20 years of experience in the sensory measurement's field.

Two years ago, he wanted to change his profession's paradigm by considering that technology - connected objects associated with artificial intelligence - could provide people with on-site solutions, where people are and in real time. After a first fundraising that enabled it to develop its concept, Rubix S&I welcomed two renowned institutional investors to its capital, Evolem Start (Lyon) and CPG (Aix-en-Provence). Thus, they joined Jean-Christophe Mifsud, Founding President of Rubix S&I, ActiveInvest (Paris) and Rochefort & Associés (Paris), both historical investors. Several Business Angels, including Jean-Pierre Gloton (co-founder of Gemplus) and Bpifrance, completed the roundtable. On the occasion of this fundraising, Jean-Christophe Mifsud, Founding President of Rubix S&I, had the opportunity to express himself: "This fundraising event represents a significant step forward in our development. It demonstrates the trust our investors placed in us, who, combined to the expertise of our team, will enable us to consolidate our position in the field of

environmental analysis and improvement. We will thus strengthen our marketing efforts in France and abroad.“

Key figures

Company founded in 2016

20 employees at the end of 2018

Turnover of €400,000 in 2017, with a provisional target of €1 million for 2018; its ambition is to achieve a turnover of more than €6 million within 3 years.

In February 2018, 2nd fundraising for an amount of 2.3 million euros.

Ongoing: a third fundraising round, over 10 million euros.

R&D: 80% of the company's expenses

Half of the employees have a doctorate, several nationalities are represented.

100% of the capital belong to French investors.

Already about ten CAC 40 companies are users of Rubix technologies.

More than 60% of the turnover is generated from exports and the trend is growing.

About twenty distributors abroad (notably in China, Japan and Korea).