

Micro-cameras for extreme environments

Category: Sensors and Measuring Techniques

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Abstract:

Innovative miniaturized cameras and vision solutions able to operate under extreme environmental constraints, especially in high radiation environments, for applications in space (satellite monitoring, nano-satellites, space exploration), or nuclear industries (power plant surveillance and interventions, dismantling operations, recycling, waste storage facilities), and in any other applications in a harsh environment (UAV, UGV, dual-use applications, etc.).

Description:

Expertise and technologies evolved for space applications over 20 years by the company founders, have allowed miniaturized and extremely robust cameras to be developed. This technology has been validated on numerous occasions in space applications (25 micro-cameras launched in space). The founders have also a large experience in the development of system architectures allowing the cameras to operate in extreme conditions, beyond the space standard range (temperatures down to -120°C , radiations, vacuum, shocks, and vibrations). These proven technologies are complemented by an innovation aiming at increasing significantly the resistance of the cameras to radiation, which allows the application market to be broadened to highly radiative environments like the core of nuclear power plants. In addition, the proposed micro-camera product has a generic but at the same time modular architecture - only some elements (optics, embedded software) are adapted depending on the applications needed by the customer, which allows economies of scale combined with products well suited to requirements.

Innovations and advantages of the offer:

It is both an incremental and a breakthrough innovation: i) incremental in the space field with the improvement in the radiation tolerance and a generic yet modular miniaturized space qualified system; ii) a breakthrough in the nuclear field allowing the replacement of obsolete tube technology used in nuclear power plants reactors. These innovations also permit camera solutions that are smaller, more resistant, with an extended lifetime in harsh environments, which bring innovative solutions in various civil and military fields.

Further Information:

The new generation of microcameras will have the following characteristics:

- Highly miniaturized
- 1M to 5M pixels - Color and B&W

- Low power < 1W
- Low mass < 90g without optics
- Proven and mastered technology
- Specific sensor hardening technique
- Generic and modular
- Low cost solution
- ITAR free versions

Numerous applications (satellites monitoring, launchers microsats, rovers & landers, Earth observation, science, drones, nuclear environments, etc.)

Application:

Space, nuclear, UAV, defense

Space Heritage:

Part of the technology has been developed for space applications and has a large heritage in space exploration missions, like ESA Sentinel 1A, Rosetta, SMART-1, MarsExpress/Beagle2, PROBA-1, PROBA-2, on board the ISS, and on NASA MSL Curiosity.

Broker comments:

N/A

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