Trend for the use of simpler and cost-effective Star Trackers and Gyros

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In the frame of the AGASSE work shop, Thales Alenia Space France perceive a trend to a redistribution of the functions of the sensors that drive the pointing performance and ensure the acquisition of a safe sun-pointed attitude. It is customary in the current design to have the star tracker and the gyrometers perform complex computation with their own embedded software. The presence of complex computers is costly for a system design in terms of mass, accommodation due to larger size of the units, and variations of thermal dissipation. An elegant alternative is to perform complex computations within the satellite computer, and to leave the basic sensors with acquisition devices (as ASICs). The concept can be applicable to a large range of missions, ranging from scientific spacecraft, Earth Observation, geostationaty commercial spacecraft, to constellations.