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Author: Ms. Antonella Simonetti  
OHB Italia SpA, Italy

Mr. Michele Gaeta  
University of Rome "La Sapienza", Italy  
Mr. Vito Lamarca  
Sapienza - University of Rome, Italy  
Mr. Luca Maioli  
University of Rome "La Sapienza", Italy  
Dr. Fabrizio Piergentili  
University of Rome "La Sapienza", Italy  
Prof. Fabio Santoni  
University of Rome "La Sapienza", Italy  
Dr. Enrico Saggese  
Italy

## A CUBESAT COSTELLATION FOR MARITIME SURVEILLANCE

**Abstract**

The paper deals with a 3U+ CubeSat Satellite for Land and Maritime Surveillance equipped with a 12 MP panchromatic optical payload and AIS (Automatic Identification System) bent-pipe capabilities. It is a technology demonstrator, designed to operate as a stand-alone spacecraft, although it is planned to operate in conjunction with other similar platforms in a LEO constellation that will be able to provide complementary services to the ones provided now by much larger geostationary systems or low-orbit radar missions. The final target is to realize a constellation: a system of multiple nanosatellites for Earth Observation and maritime surveillance. Design, development and integration of this microsatellite are an important example of cooperation between industrial world and academic world. "OHB Italia SpA", a leading company in Italy part of a cluster of European firms owned by OHB SE, is the principal project designer and developer. The company established a fruitful cooperation with University of Rome "Sapienza" for Nanosats development. The S5Lab of "Sapienza" University of Rome, is involved in a number of project for the design and development of CubeSats as main research activity. The development strategy is based on the use of commercial components (COTS), with the exception of the key technologies, namely the payloads: telescope, optical sensor and the AIS, which are designed by the company. The University is responsible for the design, development and assembly of the On-Board Computer (OBC) Software, as well as providing support during integration and testing phases. The overall OBC software architecture aims to robustness and reliability, exploiting classical approaches for embedded systems programming and implementing several software redundancies to prevent the loss of mission in case of data corruption and components failure. This paper describes the mission objectives, requirements and satellite internal configuration, mainly focusing on the On-Board Computer Software architecture.