

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
On Track - Undergraduate Space Education (3)

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DEVELOPMENT OF A CANSAT AS PART OF THE UCH UNIVERSITY SPACE PROGRAM (INCA  
PROGRAM)

**Abstract**

In the aerospace field, it is widespread to hear about the research and development of satellites, and nowadays, even more, about nanosatellites; their design and application are in a permanent boom that many institutions and companies have used for several years. However, even though the development of nanosatellites offers great accessibility compared to a conventional satellite, their implementation is still highly demanding both in terms of time and costs in most developing countries. Also, many organizations interested in developing their small space programs are universities or growing laboratories are limited by not having all the necessary means, resources and knowledge. On the other hand, the technology and application of the so-called "CanSat" have been gaining relevance due to its accessibility and development with a low budget. Although they are indeed small satellites that are not capable of being launched into space, their development and application faithfully simulate the work that one would do in orbit. For all the above, the project proposal exposes the design and development of a low-cost CanSat with an educational purpose to carry out the space technological experience of the Research on Aerospace Sciences Programa ( INCA Program for its acronym in Spanish). The INCA program is an educational program of the Universidad de Ciencias y Humanidades (UCH) aimed to encourage and promote the study and development of space sciences through the student community. Regarding the design and manufacture of the device, using resources that students can manage and operate is essential, such as software tools, 3D printers, programmable electronic development boards, sensors, and a long-range communication system. Likewise, to execute a proof of concept of a CanSat, examine its operation, verify the telemetry, and capture the data sent in real-time for its subsequent processing. The expected results include the correct telemetry link and optimal operation of the device. For this reason, this device is expected to achieve an essential step in the institution since it represents a great learning opportunity. It would be beneficial for the INCA program to grow in knowledge and to be increasingly better trained for the formulation and development of future larger aerospace projects.