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Author: Dr. Carlos Romo Fuentes
 Facultad de Ingeniería-UNAM, Mexico

Dr. Jorge Alfredo Ferrer
 Universidad Nacional Autónoma de México, Mexico

Dr. Jose Alberto Ramirez Aguilar
 Geophysics Research Institute, Mexico

Mr. Saul Santillan- Gutierrez
 Facultad de Ingeniería-UNAM, Mexico

Mr. Rafael Guadalupe Chavez Moreno
 Facultad de Ingeniería-UNAM, Mexico

DEVELOPMENT OF THE SATELLITE PLATFORM QUETZAL FOR MONITORING THE
 POLLUTION EMISSION COLUMN AND THE REMOTE SENSING OF NATIONAL TERRITORY.

Abstract

The project quetzal was born for the need to have pollution monitoring for Mexican cities and Latin America territory in a daily basis. The project envisaged the development of a small satellite constellation for having more comprehensive information about pollution patterns in several cities of the region.

Mexico is a great example of the diverse sources of pollution involved, it has different main sources:

*volcanic pollution; there are volcanoes which activity has intensified last years, like Popocatepetl, Colima, etc.

*agricultural; there are still burn and remove practices for several crops in some seasons of the year.

*industrial based; where it is needed better quality for identification of pollution particles in order to take decisions for sustainable economy development.

*automotive and transportation based; which produces in short term health issues.

Whereas the mexican government is committed to fight climate change and is adopting several measures for decreasing pollution emissions, the need for more regular information and the capability for processing it is evident for providing decision makers information sampled more often and with specific targets in the country.

The proposal for satellites with remote sensing instruments, cameras and spectrometers faces the challenges of developing a low cost platform.

The Project has been granted by the National Council of Science and Technology for a first stage of development. The funding has been used to obtained electronic equipment and instrumentation in order to integrate some of the satellite subsystems such as the attitude control, telecommunications and information handling and processing, as first proposals.

The project not only has technical objectives but academics as well, such as the integration of different groups of students at different levels, the creation of new subjects in academic programs, new infrastructure at the laboratories, the consolidation of the aerospace group in the High Technology Unit of the Engineering School of the University, at the Juriquilla Campus of the UNAM.

As it is multidisciplinary project the efforts to gather and to identify the strengths in the different groups in the university has been a challenging labor for the collaboration not only in the UNAM but also there are colleagues in other institutions that would like to participate.

The lessons learned and first results will be presented, the efforts to establish the basic infrastructure to develop some subsystems, the collaboration with the National Laboratory of Space and Automotive Engineering and the Thematic Network of Space Science and Technology of CONACYT.