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SPACE POWER SYMPOSIUM (C3)
Small and Very Small Advanced Space Power Systems (4)

Author: Mr. Emilio Mondragón Vincent
Student, Mexico

DESIGN AND DEVELOPMENT OF AN AEROSPACE POWER SYSTEM

Abstract

Design and development of the power system for a remote sensing system. Being developed for a microsatellite. This project is being developed with the joint efforts of the Universidad Nacional Autónoma de México, the Federal Russian Space Agency and the cooperation of some other academic institutions in Mexico. The development of this satellite has academic research purposes, and to settle the grounds of the aerospace sector in the University.The satellite system consists of an atmospheric monitoring system and a set of 2 cameras. Which is the center of the hardware development. The philosophy around these designs is based on fault-proof criteria. Having the optics developed, a CMOS sensor was chosen and the whole system for the storage and transmission of images is being designed, using an FPGA for this process, an array of memories and the transmission of the raw data being handled by the on board computer, the information will be later processed back in a terrestrial station.My personal contribution is the analysis of the electrical requirements of the whole system, design a space grade power system capable of provide energy to the whole system meeting certain standards of quality, as well as design the distribution and consume of such energy. The system's source is planned to be a photovoltaic panels mounted with a control system. The different components of this module meet different needs, which my system must provide, such as different currents, voltages and power consumption patterns. The idea behind this analysis is to create a power consumption efficient system under a scheme that can be replicated in the other modules and in other projects.