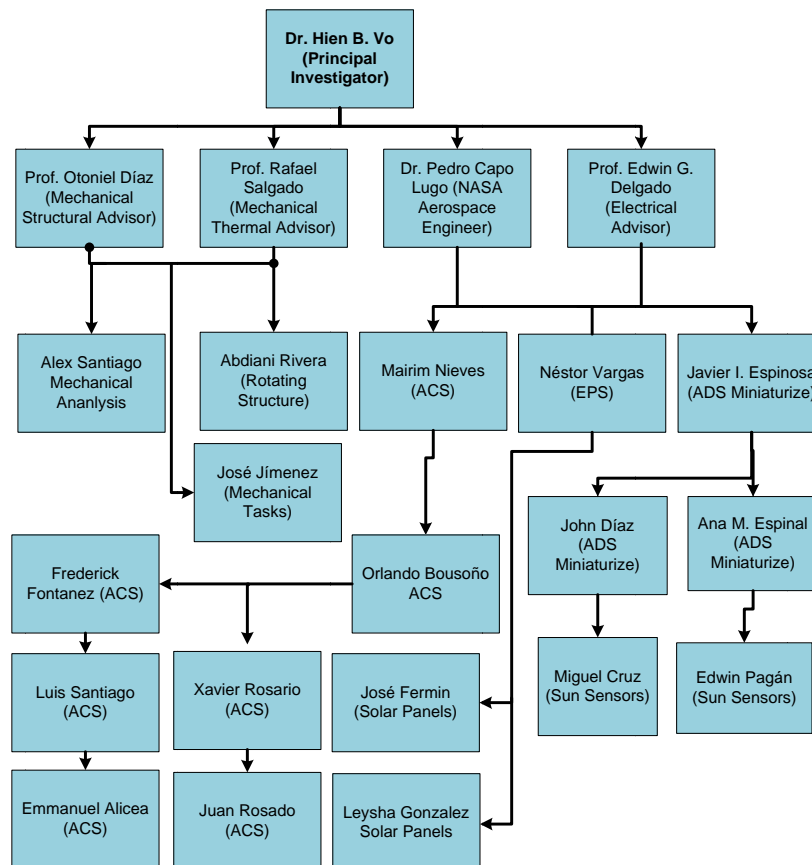


TigreSAT Monthly Progress Report

Since December TigreSAT project has had some changes in terms of team members, adding several and losing two, as shown in the updated version of the organizational structure below. Since the 2nd week of January we have been organizing our work structure and we immediately went towards preparing for the Preliminary Design Review. An amount of the work has gone into defining and expanding the requirements need for the payload to improve the overall system. During the pasts weeks we have been working closely with Dr. Pedro Capo Lugo to understand and advance in the development in design and mathematical analysis needed by the payload overall.



Work on the PDR has been a major part in the work done during the previous weeks to define the science background. The electrical team will have the responsibility for the payload electronics to operate and not exceed the required current and voltage consumption for the HASP platform and also to understand and improve the previous design of the ADS (EQUIS TEAM) and the present ACS architecture.



Activities of Team

This team has begun the diagram and analysis for the power distribution throughout the system. The Mechanical team (MECN) is in charge of developing the CAD designs, performing thermal analysis calculations, vector (force) analysis. Also, MECN team will ensure that the components will work throughout the changes in temperature during the flight. This MECN team has improved the design previously initiated and has done a vector analysis in Solidworks. The software team is in charge of developing the appropriate coding and translation of the previous EQUIS code for Arduino to the dsPIC33 microcontroller. The ACS is responsible for the understanding and performing the adequate controls, develop the proportional–integral–derivative (PID) scheme to allow the payload to function as required for a successful experiment. This research team has been studying the mathematical concepts to obtain the equations necessary for the ACS program. Dr. Pedro Capo Lugo is guiding us throughout the design of the payload. The team meets weekly to verify that everything will work in conjunction. The team will not necessarily work on their assigned tasks only but also some overlapping might also occur.

Issues encountered

1. Some design requirements has been reviewed to make them more realistic to achieve.
2. Identifying the correct star to meet our requirements and how we are going to track it.
3. Need to develop a more efficient organizational structure in order to be more effective completing our goals.
4. Consider constraints for selection of proper actuator in order to meet the environment condition changes, such as thermal.

Milestone Reached

From the submittal of the proposal mid-December, the first major milestone was a NASA Space Grant Consortium poster presentation progress. Also, this activity helped to make new contacts with students interested in working with us. Some support from other faculty member was received in the scientific and technical areas such as software, electrical, mechanical and physics (Science).

Work to be accomplished

Much is to be accomplished, but in the next several weeks, we will be working in completing the Preliminary Design Review (PDR). Finish and improve the schematic of the ADS (EQUIS TEAM) in the EAGLE Cad soft to fit in a PC104 template. Identify more in depth our requirements. If the above get completed then continue to with the Critical Design Review.