

CubeSat Frame Design - Petal Model

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This summary deals with the development of a modular structure with conceptual focus on the disposal of PCBs (printed circuit board) in a CubeSat, where instead of the traditional format in which the cards are stacked inside, the electronic boards are positioned in the hub side in order to achieve greater internal space for payloads, as well as facilitating the access of PCBs during assembly and testing. This concept was titled as "petal model." The proposed structure was created according to the needs of the various groups taking part in the project.

The modeling of the structure was carried out through a graphical modeling software where we adapted our concept according to the international standard specification for CubeSats. The parameters verified were weight, dimensions and materials, amongst others. Throughout the development, several prototypes were built in order to verify the technical feasibility of the proposal, enabling improvements to be incorporated in the structure.

Comparisons of design and payload volume between the model and the current model were held. From this study it becomes clear that it is an interesting model and very competitive in the conceptual aspect, but for the reliability of that there is the need for further studies such as vibration, thermal and efforts.

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