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[[File:429961main cubesat 1.jpg|centre|thumb|350x350px]]

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A CubeSat (1U-class spacecraft) is a nanosatelite satellite for space research that is made up of multiples of 10x10x11.35 cubic units, with a weight less than 1.33 kilograms. CubeSat are most commonly put in low Earth orbit by deployers on the International Space Station ([https://en.wikipedia.org/wiki/International\_Space\_Station ISS] ), or launched as secondary payloads on a lunch vehicle. Thus, in 1999 CubeSat specifications were developed by California Polytechnic State University and Stanford University to help universities worldwide to perform space science and exploration. The goal is to enable graduate students to be able to design, build, test and operate in space a spacecraft with capabilities similar to the first spacecraft, [https://en.wikipedia.org/wiki/Sputnik\_1 Sputnik] .

==Applications==

In terms of applications, CubeSats are generally used to demonstrate spacecraft technologies that are targeted for use in small satellites or that present questionable feasibility and are unlikely to justify the coast of a larger satellite. In our case, the CubeSat will be used to test a new deorbitation system.

==Design ==

Many CubeSat's specifications have several high-level goals. Miniaturizing satellites does reduce the cost of development and especially the launching cost. Standard CubeSats are called 1U made up of 10x10x11.35 cm units designed to provide 10x10x10cm of useful volume while weighing no more then 1.33 kilograms. Those are the characteristics of the standard size 1U used in our ECE CubeSat's project. It is possible to increase the size of a CubeSat by adding units. For example, CubeSat composed of two units (2U) and 3U CubeSat for 30cm3 availible volume permitting more advanced missions and more are obtained this way.

==Structure==

Materials used in the structure must feature the same coefficient of thermal expansion as the deployer to prevent jamming. Specifically, allowed materials are four alluminium alloys: 7075, 6061, 5005 and 5052. Aluminium used on the structure which contracts the P-POD must be anodized to prevent cold welding, and other materials may be used for structure if a waiver is obtained. Furthermore, further consideration is put into material selection as not all materials can be used in vacuums.