

Design and Testing for a Passive Stabilizer Fin for a Rocket.

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Abstract

One big problem on rockets is the roll control, encountering that issue on the rocket control system. It is relegating the issue to the stabilizer system of electronic canard, which has some problems such as the time that takes to develop the algorithm responsible for the correction. Therefore, it is intended to aid the rocket with a passive system very well-known and researched which is in use on the AIM-9 missiles. By this, it focusses to reduce man-time hours of software development relegating all the stabilization to a mechanical device cheaper and easy to make that the electronic alternative. Intending to design the rolleron device to operate with the friction of the relative air affecting the device, making spin the assembly and creating a gyroscopic effect that keeps the rocket stray. Not least it will be comparing the stabilization rate with the normal fins and the fins changed with the rolleron integrated and compare the stabilization rate and accuracy at the moment of keeping the whole rocket stray. Last, there is hoped to make a better system to control the rocket making it more stable at longitudinal axis and roll, the use of mechanical devices makes it simpler reducing the complexity and with it reducing the number of components and things that can fail so the rolleron can make the rocket more reliability, and maybe it will be cheaper and easy to build. For this project, there is the hope to build an alternative stabilization system for rockets.

Keywords

Rolleron, Fins, Rockets, Stabilizer

Biography

Marcos Antonio Gonzalez, is currently attending at the Universidad Nacional de Asunción in Paraguay, studying the aeronautical engineering career since 2021, member of the Club Aeroespacial FP-UNA, member on Arasunu II rocket project, specifically team member of the recovery system.