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ITERATIVE DESIGN AND EXPERIMENTAL SIMULATION ANALYSIS OF LOUVER FOR  
NANOSATELLITES

**Abstract**

Nanosatellite is an emerging field in satellite technology that provides low cost solution to access space and has been an area of interest in the student community. RVSAT-1, a nanosatellite incorporates an astrobiological payload that may require a very narrow operating temperature range of the order 3 to 5 C. Heaters are incorporated in the thermal design but, to meet such requirements, an effective controlled cooling mechanism is required. Radiator coupled with a louver provides a promising solution. Louvers control the amount of heat radiated through the radiator and have been consistently used in large satellites. Very little to no research is done in utilizing this fine technology in nanosatellites. In this paper, the research has been made on designing of louvers for a nanosatellite. It is made compatible with the constraints faced while incorporating it in a nanosatellite. Calculations and parameters involved in designing the actuator is explained in detail. Designing and experimental simulation analysis of Louver is focused. The deviation of obtained results from the calculations are discussed in this paper and the design is iterated with suitable changes to meet the thermal requirements of the project. Apart from the thermal control, other application of louvers are also recognized.