

CONSTRUCTION OF AN ADVANCE CAN SATELLITE TO BE USED AS A GUIDE FOR INITIATION OF SRI LANKAN CAN SATELLITE COMPETITION

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Modelling of space systems place a major role in the field of Satellite application simulation and promoting space related systems education. CanSat is a simulation of a real satellite which is emerging as a popular platform for low orbit research in modern world. This is mainly due to the steep learning curve, high resource requirements and strict regulations associated with real satellite and space systems engineering, CanSat offers an alternative entree path to the domain of space engineering in a Cost-effective, minimum resource demanding, mechanically, electrically and electronically simple package with the added advantage of having vast practical applicability in a diverse range of fields including metrology, atmospheric research, communication technologies and electronic component research.

This experimental project demonstrates the process of design and construction of an Arduino based advanced CanSat in-line with space systems engineering principals and conformity testing with the aim of serving as a demonstration and research platform to kick-start Sri Lankan CanSat competition in line with APRSAF (Asia pacific regional space agency forum) and ESA (European space agency) international CanSat competition activities.

Design and construction of the platform and complimentary GUI was carried in stages mainly regarding mechanical, firmware and software domains. The mechanical design was carried using solidworks, firmware using C based Arduino, python and software using JAVA all the while complying with strict requirement of Power, volume and data budgets. The resultant platform was capable of transmitting low and medium altitude atmospheric weather parameters in a low-cost off-the-shelf multiple sensor platform.

The constructed platform was designed to be launched via a Quadcopter and during the parachute descent phase, to transmit data to the ground station which will be presented via graphs in real-time with analysis and forecasting carried on Atmospheric stability and quality.

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