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SPACE EDUCATION THROUGH THE INTERNATIONAL CANSAT COMPETITION – A
PLATFORM FOR HIGHER ACHIEVEMENT IN STEM FIELDS

Abstract

The International CanSat Competition is an engineering challenge for undergraduate students held annually in the United States. The objective of the competition is to promote space education through encouraging students to undertake the development of a mock-satellite: a CanSat. Hence, the target group is undergraduate students in STEM fields. The objectives of a CanSat include being able to survive a rocket launch and descend from a certain altitude with being damaged. The CanSat must also transmit telemetry to a ground control station as it descends, and safely carry an egg to the ground. The CanSats are designed, built, and tested by the undergraduate student teams over an entire academic year with the guidance of a designated mentor. The 2012 competition will take place in early June. The CanSat competition is highly competitive and is well known for its end-to-end project life cycle and multinational participation. The project has educational benefits with respect to several STEM fields. Students gain experience in mechanical design, software design, electronics, instrumentation, manufacturing, and project management. As a whole, the project has many similarities to the development and life cycle of a satellite. The educational benefits of the project may be assessed using post-competition student responses or a critical assessment of students' technical skills and engineering knowledge. Furthermore, the comparison of individual students' responses from one competition to the next will determine how they have improved and what lessons have been learned from past failures. The goal of this paper will be to give an overview of the educational objectives of the competition, specifically the relationships between CanSat development and satellite development, and how the project is beneficial to undergraduate students in STEM fields. Also, an analysis of post-competition student responses will be given from the perspective of several different individuals and teams, and how the students' responses have changed from the 2011 competition to the 2012 competition.