

A Case Study in Using the Can-Sized Satellite Platforms for Interdisciplinary Problem-Based Learning in Aeronautical and Electronic Engineering

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Abstract : This work considers an interdisciplinary Problem-Based Learning (PBL) project developed by lecturers from the Aeronautical and Electronic and Computer Engineering departments at the University of Limerick. This "CANSAT" project utilises the CanSat can-sized satellite platform in order to allow students from aeronautical and electronic engineering to engage in a mixed format (online/face-to-face), interdisciplinary PBL assignment using a real-world platform and application. The project introduces students to the design, development, and construction of the CanSat system over the course of a single semester, enabling student(s) to apply their aeronautical and technical skills/capabilities to the realisation of a working CanSat system. In this case study, the CanSat kits are used to pivot the real-world, discipline-relevant PBL goal of designing, building, and testing the CanSat system with payload(s) from a traditional module-based setting to an online PBL setting. Feedback, impressions, benefits, and challenges identified through the semester are presented. Students found the project to be interesting and rewarding, with the interdisciplinary nature of the project appealing to them. Challenges and difficulties encountered are also addressed, with solutions developed between the students and facilitators to overcoming these discussed.

Keywords : problem-based learning, interdisciplinary, engineering, CanSATS

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