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NANOBED-MX INTERNATIONAL COLLABORATION FOR NANOSATELLITES: A REAL-TIME
SURVEILLANCE MISSION CASE STUDY

Abstract

NANOBED-MX is a UK-Mexico partnership for nanosatellite mission development, utilizing and extending the NANOBED system and facilities already deployed in the UK, based on the UK Space Agency UKube-1 mission which successfully reached end of life in August 2015. The NANOBED facilities in the UK support nanosatellite development in four key areas: a FlatSat equipped with a flight representative baseline bus of hardware and software, *craft design tool software supporting system engineering and deployment, peer to peer centric standardized processes around integration, and application-specific development for payload. Challenges tackled by the program include training and upskilling personnel within Mexico, distributed system development, remote access and testing of satellite systems, and mission-specific payload development in line with a standardized set of payload interface requirements. This work focuses on a Mexico specific mission concept: a service demonstration mission to capture images over Mexico, perform in-situ autonomous processing, and issue real-time alerts referencing coordinates in response to anomalies. Such a service model is useful for a wide range of scenarios including forest fires, security and environmental management. Representative intersatellite link and imager payload models of varying technology readiness are prepared for integration into a baseline NANOBED. This paper reports on the progress made, and the utilization of the various aspects of NANOBED in the system development so evaluating its use as tool for knowledge sharing and collaboration.