iLAuNCH

Software Defined Radio for Satellite Communications

THE PROBLEM

High data rate radios are critical for all spacecraft missions where a large amount of data is generated from on-board payloads and experiments. In many cases, the high data rate communication system is a single point of failure for the mission. The high data rate radios are complex systems with many external factors influencing performance. One such factor is the effect of the channel on radio signals and the complex interaction between the channel and the adopted radio protocols. This factor is currently not well understood by industry, placing a high risk on developing customised high-data-rate radios.

THE SOLUTION

This project will conduct research and development, providing effective simulation models to guide design choices of satellite communication systems and validate the design at various stages.

The prototype hardware and software would include the software-defined-radio (SDR) module that is capable of a space to ground link and inter-satellite links. Also, the SDR module will be integrated into the industry Bus for the demonstration of all capabilities.

RESEARCH CAPABILITY

ANU - Institute for Space (InSpace)

- National Space Test Facility.
- The Heavy Ion Accelerator Facility.
- Advanced Instrumentation and Technology Centre.
- Siding Spring Observatory.
- Australian Centre for Space Governance.
- Quantum Optical Ground Station.

ANU - School of Engineering - Emerging Communications Laboratory

- Software defined radio (SDR) devices (USRP-2943R, National Instruments).

PROJECT PARTNERS

Australian National University

INOVOR TECHNOLOGIES

CONTACT DETAILS - PROJECT LEAD
Project Lead: Professor Nan Yang
Email: nan.yang@anu.edu.au