Contribution I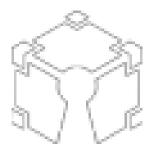D: **41**   Type: **Talk**

Role of Open Source in the Development of a Student-Built Nanosatellite and its Team Members

Tuesday, 25 September 2018 09:20 (20 minutes)

Team Anant is a research oriented project by an undergraduate team of BITS, Pilani to create India's first hyperspectral imaging nanosatellite. Started in 2013, the project is currently in the Proposal Design Review (PDR) stage being conducted by the Indian Space Research Organization (ISRO).

This paper will discuss the essential role of open source in the development of this satellite and how it lets us modify code & understand fundamentals, all within limited resource situations.

The first section of the paper will be an introduction to the concept of the entire project followed by a brief on how open source supports our research-first ideology. The use of open source certainly comes with its own challenges too, and lessons learnt from those will be discussed as well.

The second section will delve into specific details of open source works used by the team, like PetaLinux as our Operating System, Git for version control, certain free IPs for a compression algorithm on an FPGA & Arduino for hardware testing, and how they specifically serve many needs of the satellite architecture.

The third section will talk about lessons learned on, and the need for proper licensing in this field, so that credit where due is given while maintaining the spirit of openness. Advantages and disadvantages of different licenses shall be discussed.

Finally, the paper will conclude with a brief on the impact of open source on the profiles of the team members, having provided them with many sought-after skills in both academia and industry. This shall be followed by proposals to increase open source use in student nanosatellites, and how we expect to use more of it in our project.

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Session Classification: Talks

Track Classification: Lessons Learned of Open Source Space Projects