

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Near-Earth and Interplanetary Communications (3)

Author: Mr. Ali Butt
University of Alabama in Huntsville, United States, ali_tariq_butt@hotmail.com

DESIGN OF STANDARDIZED INTER-NANOSATELLITE COMMUNICATION PROTOCOL FOR
GLOBAL COVERAGE**Abstract**

During the last decade an increase of satellites in 1-50kg category has been witnessed. Due to low cost, accessibility and short timelines this trend will continue not only in civil/academia but also for military applications.

For a nanosatellite, especially cubesats, one of the limitations is the data that can be send back to ground stations given the limited range of tracking station. To overcome this issue, a standardized inter-satellite communication protocol is proposed. This concept is similar to Data Relay Satellites that are meant for much larger missions, government owned, are often mission critical and maybe not open for civil / academia cubesats. The main objective of this design is to increase communication flexibility of cubesats.

In the past several similar solutions have been proposed, but for a particular mission. In contrast this communication protocol design will be open and is utilizable by any satellite. Utilizing a network of ground stations and purposeful special communication satellites, the proposed solution will ensure that cubesats can not only send large chunks of science data back to their ground stations but it's not restricted to tracking station range.