SciTechnol

Journal of Electrical Engineering and Electronic Technology

2020

Vol.9 No.3

Evolution of space technology and sustainable development

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Abstract

Space technology is producing a huge impact on mankind since the Sputnik era. Biological system firstly adapts & then improves by a process of natural selection; Darwin called it EVOLU-TION. Similarly, at the beginning of the 20th century, spacecraft subsystems were subject to steady improvements on technology, but within last decades because of exponentially growth of space system (government and private), space exploration has shown impressive record on innovation, several global challenges, culture & inspiration, and many more. The challenge of space exploration drives a continuing effort to design ever more capable, reliable, and efficient systems requiring the utmost ingenuity. But the question rises can this technological revolution is able to maintain the sustainability for future generations? So, this speech will be on how we can bring sustainability by using space technologies. It will also be discussed how open source Earth observation data (geospatial Informations) along with satellite positioning system, satellite communication system and Astrobiological research on space, are supporting the United Nations Office for Outer Space Affairs (UNOOSA) mentioned 17 Sustainable Development Goals (SDGs). Intensive research and analysis on space exploration data, geographical data, directly and indirectly, benefit the humankind and drives progress in human health care, robotics and overall to save our Earth. This talk also will point out the inter link between astrodynamical aspects, satellite technological progress (laser communication, constellation, miniaturized electric propulsion), space missions (Enceladus Mission) and ecological and economic development in sustainable goals.

Biography:

Swarnajyoti Mukherjee is the student of MSc in Space Engineering at Politecnico di Milano, Italy. But he is working at ESA's project CYCLOPS, developing a new technology for Inter-Satellite (LEO Constellation Design) Laser Communication at Luxembourg. Previously, he has completed his Bachelor's (Dual Degree) in Aerospace Engineering from India and China. He was also part of ESA Entrepreneurship network, Social Innovation Society in Italy and selected (team) for MIT Entrepreneurship training. He has worked on Orbit Designing, ADCS, Space System, Mission Design, Payload Modelling, Reusable Rocket Design, Liquid Propellant Engine Design, Satellite Communication, Structural Dynamics, and several research works.

Speaker Publications:

1. Swarnajyoti Mukherjee "PHASE-A DESIGN OF A TRIBOELECTRIC SENSOR FOR SPACE APPLICATIONS Publication, International Astronautical Federation,9,82020.

2. Preliminary Design of a Multispectral Imaging System for the chemical characterization of enceladus landing Site (MIMESIS)

7th Global Meet on Wireless, Aerospace & Satellite Communications; Paris, France- February 12-13, 2020.

Abstract Citation:

Swarnajyoti Mukherjee, Evolution of space technology and sustainable development, Euro Satcomm 2020, 7th Global Meet on Wireless, Aerospace and Satellite Communications; Paris, France- February 12-13, 2020 (https://wireless.conferenceseries.com/abstract/2020/evolution-of-space-technology-sustainable-development)