

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
Lift Off - Secondary Space Education (2)

Author: Dr. Pauline Faure  
California Polytechnic State University, United States, pfaure@calpoly.edu

Mr. Jeffrey Holte  
Cambodia, jeff@ligeracademy.org  
Mr. Doug Bender  
Aerospace Executive retired, United States, alfabender@verizon.net  
Ms. Sreyneang Oun  
Cambodia, sreyneang.o@ligercambodia.org  
Mr. Rithy Hong  
Cambodia, rithy.h@ligercambodia.org  
Mr. Vuthy Vey  
Cambodia, vuthy.v@ligercambodia.org  
Mr. Visal Sao  
Cambodia, visal.s@ligercambodia.org  
Mr. Seyha Khum  
Cambodia, seyha.k@ligercambodia.org

## IGNITION OF SPACE ENGINEERING-BASED CAPACITY BUILDING IN CAMBODIA

**Abstract**

The Liger Leadership Academy (LLA) is a Cambodian educational institution whose education model is based on a comprehensive, internationally competitive, and innovative international STEM curriculum. In August 2018, the Academy formed a group of highly motivated and capable Cambodian scholars of 15 to 17 years old to develop the first Cambodian 1U CubeSat. The project represents the first step undertaken by Cambodia toward sustainable space activities. The CubeSat is used as an educational tool to enable participants to practically understand the intricacies of space environment, systems engineering, project management, and more, by mixing various engineering and scientific disciplines. The CubeSat's main missions are digipeater and earth photography. The digipeater mission familiarizes LLA scholars with communication and instills the value of amateur radio operations. LLA scholars use the earth photography mission to familiarize themselves with programming and the science behind earth remote sensing. One of LLA's goals is to create collaborative outreach programs with other schools and individuals throughout Cambodia to raise STEM awareness and promote education using engaging projects. The two missions are key to supporting these two goals. As of February 2019, LLA procured fundamental equipment to establish their preliminary ground station and successfully started understanding the basics of communication and satellite operations by tracking NOAA imaging satellites. The next step is to develop a comprehensive tutorial on satellite communication to be distributed throughout Cambodia for the promotion of project-based educational activities. This paper reports the efforts undertaken by LLA and its partners toward the execution of its CubeSat project design, development, and operations. The paper also presents the impact of space engineering-based capacity building and its contribution toward the execution of the United Nations Sustainable Development Goals in terms of education, gender equality, and inequality reduction in Cambodia.