Singapore Space Challenge 2013 Organized by the Singapore Space and Technology Association (SSTA)

Category 3 : Mini-Satellites

Team "Baby You're a Firework" consisting of Chen Shiyi (EE4), Aw Gan Siong Desmond (EE4), Chia Lih Wei (EE3, DCP), Reuben Phoa Bao Cun (EE4) and Er Yong Quan (ME4) (students supervised by Dr Luo Sha) – won the 1st Prize in the Singapore Space Challenge 2013 under Category 3: Mini-Satellites on 15 August 2013. Their winning entry is entitled "Wildfire and Tsunami Monitoring Satellite System". The prize comprises of a plaque and S\$2500 cash.

The event is organized by the Singapore Space and Technology Association, with the objective to promote technical and industrial research in Space and Technology and at the same time, challenge the thinking processes and creativity of students.

For the category on mini satellite, the challenge was to design a satellite payload that could be used to make frequent environmental or climatic observations over the vicinity of Singapore and Southeast Asia to further the science of weather and climate prediction over our region. Given the recently strong interest in creating a satellite and space tourism industry in Singapore, the team came up with a satellite payload and supporting technologies that is capable of predicting, identifying and monitoring the occurrences of wildfires and earthquake induced tsunami. The payload, which consists of a spectroradiometer and a interferometric synthetic aperture radar, will be hosted by 7 low-earth orbiting satellites to provide a real time surveillance over the region of interest.

The images and data acquired will be down-linked to Earth instantaneously to be processed and presented to end users e.g. government agencies and geologist etc. The monitoring of wildfires and earthquake induced tsunami has been of paramount importance in recent times as can be seen from the devastating effects of the 2011 Tsunami off the coast of Japan and the wildfires in Indonesia. With the proposed satellite system, the team hopes to aid in disaster control and reduce the impacts of these events.

