



## SENIOR DESIGN ORGANIZATION SYNOPSIS – SPRING 2014

### Florida University Satellite (FUNSAT) Design

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The following project pertains to the requirements of the Florida University Satellite (FUNSAT) Design Competition. This competition consists of a detailed design and model construction of a cube satellite where as the top three winners will have their satellite launched into space. The satellite must meet certain design criteria set forth by the Florida Space Grant Consortium while the purpose of the satellite will be governed by the competitors. Each team will devise a payload and subsystem in the project that will distinguish itself from the other projects.

Currently the main focus of our satellite will be the use of a solar sail as a form of propulsion rather than a propellant based system. This method of transport will allow us to control the satellite's orbit and trajectory without the use of additional thruster systems. When designing the solar sail we will need to take into consideration the type of deployment system needed so as to properly and efficiently deploy the sail. The types of materials will also need to be taken into account in order to withstand varying dynamic conditions in the surrounding environment so as not to damage the electrical components and structural integrity of the satellite.

Other key features we wish to implement to the satellite are subsystems which will allow data retrieval and analysis. This may include but not limited to observing the condition of the Earth's ozone, the measuring of variations in sea level, or even the detection of different types of solar radiation. With this project we intend not only to prove the concept of solar sailing and to help humanity benefit from the data retrieved by the satellite but also use it as a means to further progress researchers in the development of newer design concepts which will allow the exploration of outer space to be much more feasible.