## JSC Senior Design Project and/or Intern Request Form

### Project Title:
Multispectral Imaging, Electrical System Design and Development

### Project Description:
Development and test of electronics systems for RISA Project

### Choose most appropriate area of research:
- [ ] Planetary Surface Systems
- [ ] Ground Operations
- [ ] Propulsion
- [ ] Spacecraft
- [ ] Human Health Program

### Program Applicability:
- [ ] ISS
- [ ] CEV/SLS
- [ ] Commercial Crew
- [ ] Asteroid
- [ ] Adv. Technology (AES/STMD)

### Choose one project:

- **Senior Design**
  
  I have coordinated with my management and I am able to support at least three (3) teleconferences (kick-off, midterm, and final) with a Senior Design Project Team at a university that chooses my project. I understand that I shall not provide any sensitive or classified information to the Senior Design Project students of faculty. I will provide feedback to the project team if requested.

- **Internship**
  
  I have coordinated with my management and I am able to support an intern. If an intern is selected for my project, I will provide an environment where an intern can grow and we may have a mutually beneficial and successful internship. My project will be able to provide a desk space, work area, and computer for an intern. I will review any final report or presentation that the intern generates during his/her internship and submit it to Export Control (DAA) for approval. This project opportunity will be posted in OSSII, through the Office of Education (use exact same title).

  OSSII website: [https://intern.nasa.gov](https://intern.nasa.gov)

### Check desired Timeframe for Internship:
- [X] Year long
- [ ] Summer
- [ ] Fall
- [ ] Spring

### Check desired Major/Minor(s) for Internship:
- [ ] Aerospace Engineering
- [ ] Aeronautical Engineering
- [ ] Astronautical Engineering
- [ ] Biomedical Engineering
- [ ] Chemical Engineering
- [ ] Civil Environmental
- [ ] Health Engineering
- [ ] Electrical, Electronic Engineering
- [ ] Computer Engineering
- [ ] Engineering Physics
- [ ] Industrial Manufacturing Engineering
- [ ] Materials, Metallurgical Engineering
- [ ] Mechanical Engineering, Mechanics
- [ ] Nuclear Engineering
- [ ] Astronomy, Astrophysics
- [ ] Chemistry
- [ ] Optics
- [ ] Physics
- [ ] Atmospheric Sciences
- [ ] Geography
- [ ] Geosciences
- [ ] Oceanography
- [ ] Natural Resource Management
- [ ] Mathematics, Applied Mathematics
- [ ] Computer Science
- [ ] Astrobiology
- [ ] Biology
- [ ] Biochemistry/Biophysics
- [ ] Microbiology Bacteriology
- [ ] Chemical Engineering

### Mentor Name:
Doug Holland

### Mentor’s E-mail:
s.d.holland@nasa.gov

### Title & Organization:
EE / EA951

### Phone #:
X33638

### Alternate POC/Mentor Name:

### Alternate’s E-mail:

### Education Office Signature and Date:

### Intern Mentor’s Signature & Date:

### As supervisor/manager, I approve of the above named individual as Senior Design Project POC of Intern Mentor.

### Supervisor/Manager’s Signature & Date:
(For Intern Request Only) As Administrative Officer, I am aware that the above named intern Mentor has submitted a request for an Intern.

### Administrative Officer’s Signature & Date:
PROJECT DESCRIPTION:

The purpose of the RISA SC4 project is to produce a high quality / high reliability wireless multispectral imager designed specifically for the space environment. The imager will be used to monitor the health and status of the crew and vehicle while in space as well as on Lunar and Martian surfaces. The SC4 design will be based on the existing NASA SC3 and SC2 imagers. The project includes the:

- development of required functions in VHDL
- electronic circuit development,
- testing of alternate sensors,
- characterizing the performance of the system using Matlab, and
- design and build of proof of concept prototypes using flight equivalent parts.

Specific tasks to be accomplished within the school year include: a) development of an integrated solar powered battery charger, b) development of a wireless Ethernet interface, and c) modifications to support alternate image sensors

DESIGN TEAM PROFILE:

- Level: Upper Division students
- Major: Optical Engr, Physics, Electrical Engr, Software Engr, Mechanical Engr
- Teams: Mentor may accept more than one team