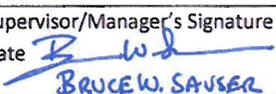


JSC Senior Design Project and or Intern Request Form

EA3-3

Project Title:	Multispectral Imaging, Optical System Design and Development		
Project Description:	Development and test of multispectral optical system for RISA Project		
Choose most appropriate area of research:	<input checked="" type="checkbox"/> Planetary Surface Systems <input type="checkbox"/> Ground Operations <input type="checkbox"/> Propulsion <input checked="" type="checkbox"/> Spacecraft <input type="checkbox"/> Human Health Program		
Program Applicability	<input type="checkbox"/> ISS <input type="checkbox"/> CEV/SLS <input type="checkbox"/> Commercial Crew <input type="checkbox"/> Asteroid <input checked="" type="checkbox"/> Adv. Technology (AES/STMD)		
Choose one project:	Roles and Responsibilities of Senior Design POC/Mentor		
<input checked="" type="checkbox"/> Senior Design	I have coordinated with my management and I am able to support at least three (3) teleconferences (kick-off, mid-term, 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.		
<input type="checkbox"/> 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 OSSI, through the office of Education (use exact same title). OSSI website: : https://intern.nasa.gov		
Check desired Timeframe for Internship:	<input checked="" type="checkbox"/> Year long <input type="checkbox"/> Summer <input checked="" type="checkbox"/> Fall <input checked="" type="checkbox"/> Spring		
Check desired Major/Minor(s) for Internship:	<input type="checkbox"/> Aerospace Engineering <input type="checkbox"/> Aeronautical Engineering <input type="checkbox"/> Astronautical Engineering <input type="checkbox"/> Biomedical Engineering <input type="checkbox"/> Chemical Engineering <input type="checkbox"/> Civil Environmental <input type="checkbox"/> Health Engineering <input checked="" type="checkbox"/> Electrical, Electronic Engineering <input type="checkbox"/> Computer Engineering <input checked="" type="checkbox"/> Engineering Physics <input type="checkbox"/> Industrial Manufacturing Engineering <input type="checkbox"/> Materials, Metallurgical Engineering <input type="checkbox"/> Mechanical Engineering, Mechanics <input type="checkbox"/> Nuclear Engineering <input checked="" type="checkbox"/> Astronomy, Astrophysics <input type="checkbox"/> Chemistry <input checked="" type="checkbox"/> Optics <input checked="" type="checkbox"/> Physics <input type="checkbox"/> Atmospheric Sciences <input type="checkbox"/> Geography <input type="checkbox"/> Geosciences <input type="checkbox"/> Oceanography <input checked="" type="checkbox"/> Natural Resource Management <input type="checkbox"/> Mathematics, Applied Mathematics <input type="checkbox"/> Computer Science <input type="checkbox"/> Astrobiology <input type="checkbox"/> Biology <input checked="" type="checkbox"/> Biochemistry/Biophysics <input type="checkbox"/> Microbiology Bacteriology <input type="checkbox"/> Chemical Engineering <input type="checkbox"/> Other, please specify:		
Mentor Name:	Doug Holland	Mentor's E-mail:	s.d.holland@nasa.gov
Title & Organization:	EE / EA351	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  BRUCE W. SAUSER	5-31-13
(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:	

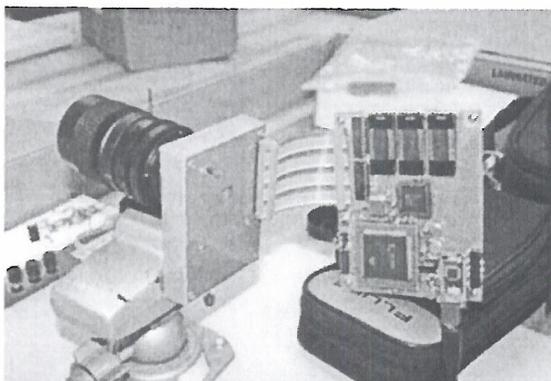


TOPIC # - TDC-03-F12

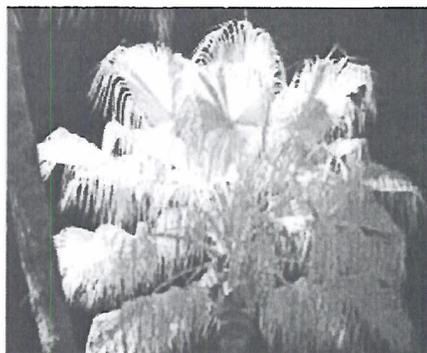
REMOTE IMAGE ACQUISITION SYSTEM (RISA) MULTISPECTRAL IMAGING, OPTICAL SYSTEM DESIGN & DEVELOPMENT

PURPOSE AND OBJECTIVE:

The purpose of the RISA Multispectral Imaging project is to develop methods to use multispectral imaging for materials identification, locating vegetation, finding evidence of life, identifying environments that will sustain life, atmospheric penetration, biomedical applications, astronomical imaging, and improving methods to identify properties of interest to the NASA mission to meet exploration objectives. Both optical and electrically tunable filters shall be employed for the multispectral imaging objectives. In addition to demonstrating the utility of multispectral imaging, an optical system will be designed, and built which incorporates the multispectral filtering with a lens system. The optical design objectives will explore the use of liquid lenses combined with glass lenses to create a lens system designed to mitigate the effects of the space environment. Proof of concept prototypes will be designed and built.



An earlier prototype



Sample Image from Camera

DESIGN TEAM PROFILE:

- ❑ **Level:** Upper Division Undergraduate Team: JR, SR
- ❑ **Major:** Disciplines: Optical Engineering, Physics, Astronomy, Biomedical Engineering, Remote Sensing, Electrical Engineering, Software Engineering, Mechanical Engineering
- ❑ **Teams:** Mentor may accept more than one team for this project.

Design project topic offered by:
NASA Johnson Space Center
Advanced Development Office

