NASA Robotic Mining Competition
Project ARES

Faculty Sponsor

Dr. Keith Gallagher

Team Roster

Leyane Mohammed	Project Manager
Pablo Canseco	**Software / Communications Lead**
Domenick Albanese	Software
Ronald-Dean Allado	Software
Kyle Rieder	Software / Consultant
Mark Thames	Communications / Electrical
Khalphani Green	Electrical Lead
Adrian McHargh	Electrical
Spencer Lower	Electrical
Nathaniel Voris	Structures Lead
Zoher Kothari	Structures
John Breen	Structures
Jacob Netzley	Structures
Abigail Stevens	Structures
Ashle Thompson	Structures

About the Competition

- Goal is to build a robot capable of mining as much lunar regolith simulant as possible during timed runs
- Autonomous operation grants a significant competitive edge
- $5000 and a trophy are awarded to the first place winner

Goals

- Provide robust command-and-control capabilities to FIT's entry into NASA's Robotic Mining Competition (NASA RMC), Project ARES.
- Project ARES will feature a regolith (lunar/martian soil simulant) mining apparatus, a transport mechanism, a communications subsystem, and a data processing / decision making subsystem.
- Autonomous control options will be explored in order to give the school a competitive edge in the NASA RMC this coming May, 2016.

Motivation

- Show skills learned during our education at Florida Tech
- Attempt to create a robot capable of autonomous operation
- Create a control system for a robot that makes driving it easy

Technical Challenges

- **Arduino Environment**
- **Raspberry Pi**
- **TCP/IP communications**
- **Autonomous robot operation**
- **GUI Development**

Milestone 1

- **Finalize hardware selection and do research on usage and feature availability.**
- **Work on Arduino abstraction**
- **Requirement Document**
- **Design Document**
- **Test Plan**

Milestone 2

- **Begin GUI development**
- **Work on Ground Station to Robot communications**

Milestone 3

- **Finalize GUI**
- **Work on responsive and robust robot control**
- **Optimize / minimize communications data throughput**
- **Begin autonomous operation work / research**

Questions?