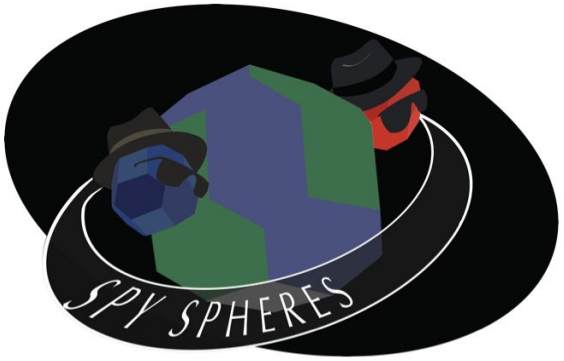
Zero Robotics 2016 Finalist Teams

As first place winners in their respective Regional Competitions, the teams listed below worked collaboratively with the other teams in their region to develop the final Regional Code submitted for today's on–orbit competition.

Team Name / School or Organization	State
RoboDogs - Piedmont Community Learning Academy	AL
BGCSCV-Levin	CA
The Geek Republic - Bok Academy	FL
Bransby Champion Chargers - Bransby Outdoor YMCA	GA
Sage International	ID
Empower Wicomico	MD
LEAP for Education	MA
North Clackamas School District	OR
Captain Nukleus - BertLynn Middle School	Pilot Regions
Boys and Girls Club of Edinburg RGV	TX
Thunderbirds - Totem Middle School	WA
Learning Options	WV
Russian Team #4	Russia

Zero Robotics Middle School Program



ISS Finals Rules and Game Guide

SpySPHERES

Game Overview

Matches are played between two SPHERES satellites, one controlled by code written by a team of students, and the enemy SPHERE developed at MIT. The objective of the game is to retrieve broken satellite debris while at the same taking and uploading pictures of the other SPHERE. Players also have to be wary of fuel and energy consumption and plan accordingly. The SPHERES satellite start on the opposite side of the playing field from the satellite debris, facing with their "camera" toward the debris. Once the game begins the players have to maneuver their satellite to pick up the debris items and to face the other SPHERE if they wish to take a picture. However, pictures are only valid under specific conditions: The SPHERE taking the picture must have at least 1 energy, must be at least .5m away from and facing the other SPHERE and the other SPHERE must be in the current light zone of the playing field. SPHERES also are able to pick up mirror items as a defense mechanism that while activated make pictures impossible for either sphere. Light zones cover half of the playing field and switch sides twice during the game. SPHERES do not lose energy while in the light zone; however, when they are in the dark, both moving and pictures deplete the SPHERE's energy reserve. The SPHERES also have the ability to pick up energy packs that automatically recharge their energy to the max possible amount. The winner of the round is the SPHERE that receives the most points from taking the best and most pictures as well as avoiding pictures getting taken of them and from picking up debris items.

ISS Test Session and Rules

- ZR staff's highest priority is to be sure every regional team has a chance to view their code run on the satellites
    - Final competition is a demonstration of a lot of hard work by every team
- Real-world challenges that may affect the competition
    - Battery packs and CO2 tanks can be exhausted
    - Loss of Signal (LOS) periods
    - Competition must fit in the allocated time
- Time priority will be allocated as follows:
    - Running all submissions aboard the ISS at least once
    - Completing the tournament bracket
    - Running all submissions during live video
- Refereed competition requires real-time judgments
    - Situations may arise that force us to rely on simulated matches
    - Please respect these decisions and consider them final

A Guide to Viewing Finals

What to Look For	What it Indicates
SPHERES rotation	Turning toward opponent to take pictures
Moving	Moving to pick up an item or to change light zone position
Moving close to opponent	Increase picture score or enter no-picture zone
Drifting	SPHERES ran out of energy or fuel
Evasive movement while close to opposing SPHERES	Collision avoidance

Tournament Order

Team 1 (ORANGE)	Team 2* (RED)
Florida	MIT Bot
Georgia	MIT Bot
Maryland	MIT Bot
Massachusetts	MIT Bot
West Virginia	MIT Bot
Alabama	MIT Bot
Idaho	MIT Bot
Texas	MIT Bot
California	MIT Bot
Oregon	MIT Bot
Pilot Teams	MIT Bot
Washington	MIT Bot
Russia	MIT Bot

***Note that the MIT Bot remains stationary because the RED SPHERES satellite has a broken thruster.**