

## ISS Finals Rules and Game Guide



### Conducting Optical Research on Nearby Asteroids (CORONA)

### Game Overview

Matches are played between two SPHERES satellites, controlled by code written by two different teams. The objective of the game is to take and upload pictures of Points of Interest (POIs) while avoiding a collision with the other SPHERE, the asteroid and avoiding damage from solar flares. The SPHERES satellite start on opposite sides of the “asteroid” from each other, facing with their “camera” away from the asteroid. They then have to maneuver the satellite to face and align with the POI’s, take a picture from an established inner or outer zone, and then upload from the shadow zone (behind the asteroid) or outside of the outer zone. They also have the ability to maneuver to memory sticks in order to hold more pictures before they upload. There are also two flares that will occur at a time that is constant for the entire round robin bracket, but randomly determined. This flare has the potential to “damage” the satellite and results in a loss of points and pictures. The penalty is reduced by either turning off the SPHERES or hiding in the shadow zone. The winner of the round is the SPHERE that uploaded the most pictures while avoiding damage from the flares.

## 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 o
- 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	Trying to face a point of interest
Moving towards center	Moving to take pictures of asteroid
Moving away from center	Moving to shadow zone or to upload
Drifting	SPHERES are turned off or ran out of fuel
Evasive movement while close to opposing SPHERES	Collision avoidance

# Zero Robotics 2015 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.

School/Organization	State
Stevenson Middle School	AL
Woodland Middle School, Coeur D'Alene School District	WC2
Da Pizza	CO
Berkley Accelerated Middle School	FL
Emory University's Graduation Generation Program	GA
N Idaho STEM Charter Academy #1	ID
Natick Novas	MA
Wicomico County Public Library "Empower Wicomico"	MD
Willamalane Parks and Rec	OR
Spillane Math & Science Club	TX
Westwood Robotics Alliance	WV
Malden YMCA 1	WC1

# Tournament Bracket

