

# ZERO ROBOTICS

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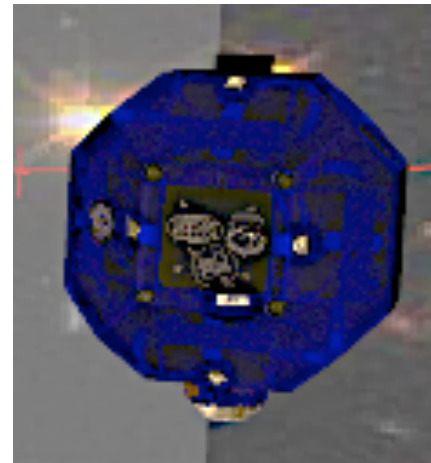
ISS PROGRAMING CHALLENGE

## Introduction to Game Mode





- In this tutorial you will learn:
  - How to use game mode to start writing programs for this year's high school game
  - How to compete against a standard player



## Welcome to Game Mode



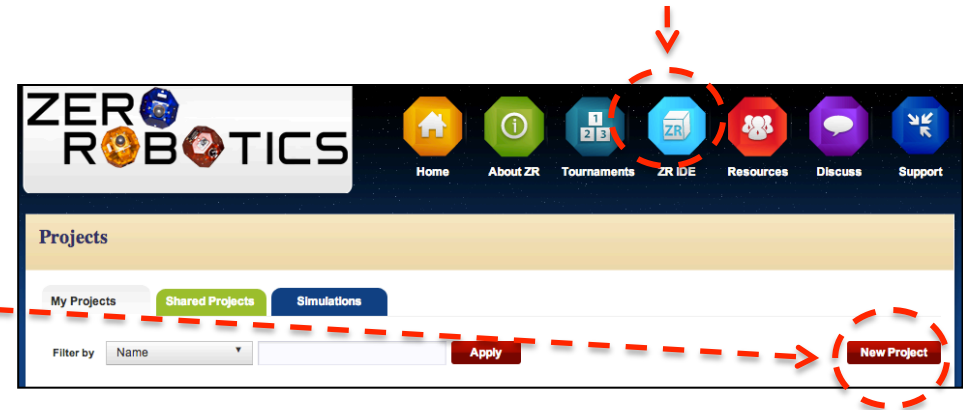
- So far in these tutorials, you have been writing your programs in Free Mode”
- Now that you are ready to start writing programs for a competition, you will switch to the appropriate game mode
- All code for the game must be written in the appropriate Game Mode

Let's get started!

# Creating a Project in Game Mode



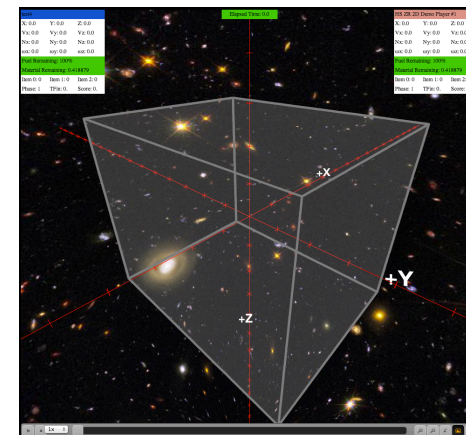
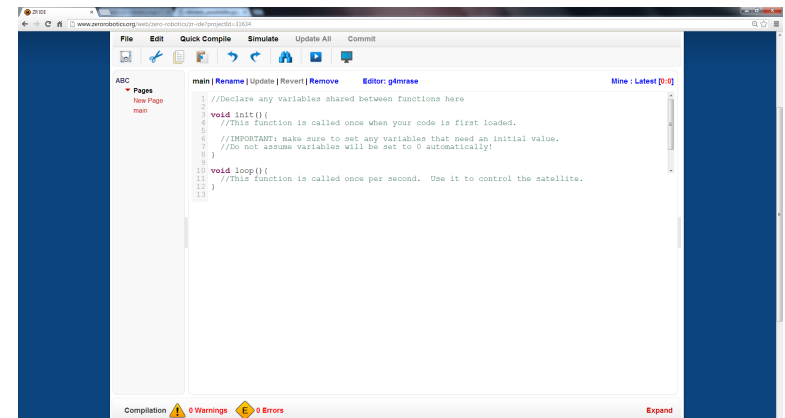
- Select light blue “ZR IDE” SPHERES icon on top ribbon
- Select “New Project”
- In the popup window enter:
  - Project Name
    - Enter an name. Example: TeamABC1
  - Game
    - **Select the name of this year’s game (ask your teacher!)**
  - Initial Editor
    - Select “Text Editor”
- Click “Submit”



# Introduction to Game Mode

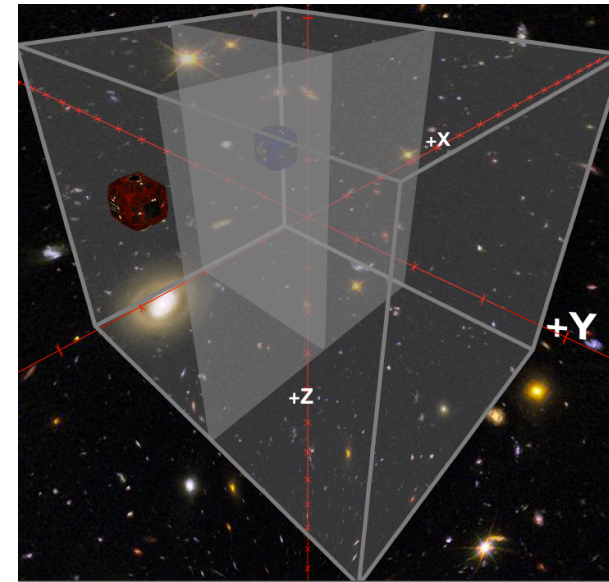


- The text editor environment for the selected game mode will look similar to what you have seen in Free Mode
- In game mode you will be able to use commands specific to the game
- The simulation will also look different!
- Want to take a peek?
  - You don't need to create any code
- Click on Simulate
- On the Simulation Settings Window:
  - Load Settings:
    - Select "Create new"
    - Enter a name for the settings
  - Leave everything else as is
  - Click "Run"
  - Select "View Simulation"





- When you click the arrow to start the simulation you will see the initial positions for the two satellites.
- Nothing else will happen because you have not written any code yet.
- Take a look at the scoring boxes.
  - Some extra, game-specific information is included
    - Based on your knowledge of the game, can you see why the information is there?
- Close the simulation window



test4		
X: 0.0	Y: 0.0	Z: 0.0
Vx: 0.0	Vy: 0.0	Vz: 0.0
Nx: 0.0	Ny: 0.0	Nz: 0.0
$\omega x$ : 0.0	$\omega y$ : 0.0	$\omega z$ : 0.0
Fuel Remaining: 100%		
Material Remaining: 0.418879		
Item 0: 0	Item 1: 0	Item 2: 0
Phase: 1	TFin: 0.	Score: 0.

Note: These images are game specific and will vary from year to year

# Playing a Standard Player



- Another feature of game mode is that you can test your code against “standard players” (preprogrammed opponents)
- Even though you don’t have any code to test yet, you can try it right now
- From the Text Editor window click on “Simulate”
  - Load Settings:
    - Select the setting you just created
  - Leave everything else as is except opponent
  - Click “Select Opponent”
    - In the pop-up window under OPPONENT CATEGORY click on “Standard Players”
    - Click on one of the players that show up under PROJECT NAME
    - Click Select

Simulation Settings

\*Load Settings: Create new ... ZRMS20XX

\*Simulate As: ☒ SPH1 (Blue) ☐ SPH2 (Red)

\*Maximum Time: 200 Seconds

\*Game Variables:

Default Values Randomize

item0: 0.4, 0.5, 0.0  
item1: 0.0, 0.75, 0.0  
item2: 0.0, 0.2, 0.0

\*Positioning and Attitude:

Set from Game Rules

	X	Y	Z	nX	nY	nZ
SPH1	0.4	-0.6	0	0	1	0
SPH2	-0.4	-0.6	0	0	1	0

Opponent (optional): Empty Opponent Select Opponent Clear Opponent

Run Cancel

Select Opponent

OPPONENT CATEGORY

My Projects

Team and Alliance Projects

Projects shared by Me

member of Demonstration Team

Standard Players

PROJECT NAME

StandardPlayer#2

StandardPlayer#1

Select Cancel



- Run and View Simulation!
- You will see:
  - The opponent moves though the game course
  - Elements of the game appear
  - Your SPHERE remains stationary since you have not created any code
- Check the scoring boxes at the end of the match to see how well the opponent scored

Note: Image below is game specific and will vary from year to year



Blue sphere: 5 vs Red Sphere: 7





- Congratulations!
  - You have learned how to select the appropriate game mode to create a project for your game
  - You have learned how to test your code against a standard player
- Now it is time to get started! Have fun writing code!