

# Spring Schedule

If you start falling behind!

- Email IT-Adventures and we will communicate with you to try to get you caught back up!

# IT Olympics Challenge (Intro)

By April, you should be able to do the following:

1. Drive the Sphero with the WASD keys
  - a. Control speed and control angle with different set of keys
    - i. Example - [R] increases speed, [F] decreases speed
    - ii. Example - [T] increases turning angle, [G] decreases turning angle
2. Color Sensor on Demand
  - a. While being able to drive the RVR, press a different key to activate color sensor
    - i. Example - [X] activates color sensor
3. Autonomous Driving
  - a. Understand the difference between the Autonomous driving programs we practiced, and how to use them.
4. Change LED Colors
  - a. Change the LED colors through the program being run, or using the color sensor

# IT Olympics Challenge (Intro)

Write a single program that combines all four of the previously mentioned abilities.

- The RVR must drive with WASD, Speed up/slow down with a different set of keys, and increase/decrease turn angle with a different set of keys
- Utilize the color sensor under the RVR
- Change LED colors based on the color sensor reading
- Drive autonomously when specific color is detected

One program with all of these functions built in.

All race details will be released in February.

# WASD Driving - Setup

Copy the following files from:

~/sphero/projects/keyboard\_control/drive\_with\_wasd\_keys.py

&

~/sphero/projects/keyboard\_control/helper\_keyboard\_input.py

To:

~/sphero/missions/drive\_with\_wasd\_keys.py

&

~/sphero/missions/helper\_keyboard\_input.py

# WASD Driving - Setup

## Rename:

`drive_with_wasd_keys.py > mission6.py`

## Modify:

Line 3 to say:

```
sys.path.append(os.path.abspath(os.path.join(os.path.dirname(__file__), '..')))
```

# WASD Driving - Mission 6

Lines 54 - 85 is the code we're modifying

1. Simplify code to only run  $\frac{1}{4}$  speed when W or S key is pressed
  - a. W key moves RVR forwards
  - b. S key moves RVR backwards
  - c. Pressing key multiple times should not increase speed
2. A and D keys should turn RVR  $\frac{1}{4}$  of a full rotation (90 degrees)
  - a. A key should turn RVR left
  - b. D key should turn RVR right
3. SPACE key should stop RVR and make it rotate to original position

Video of working results: <https://youtu.be/RzhiX-Sj8YQ>

# Key Mappings

[a]	97	[n]	110
[b]	98	[o]	111
[c]	99	[p]	112
[d]	100	[q]	113
[e]	101	[r]	114
[f]	102	[s]	115
[g]	103	[t]	116
[h]	104	[u]	117
[i]	105	[v]	118
[j]	106	[w]	119
[k]	107	[x]	120
[l]	108	[y]	121
[m]	109	[z]	122