

Lesson 2

Commands v. Subsystems

Titan Robotics Team 2022



Proper Coding Techniques

Coding Techniques

- camelCase
- Variables start with a lower-case letter
- Methods start with a lower-case letter
- Constants should be in upper-case with an underscore between words

Github Techniques

- Always write a comment in the past tense
- Never force commit/push/pull
- If you ever run into an issue please talk to Travis or myself



What makes the Robot move?

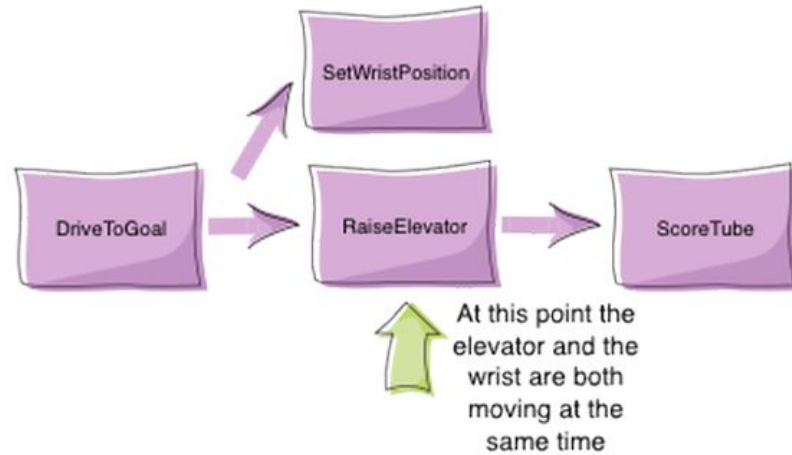
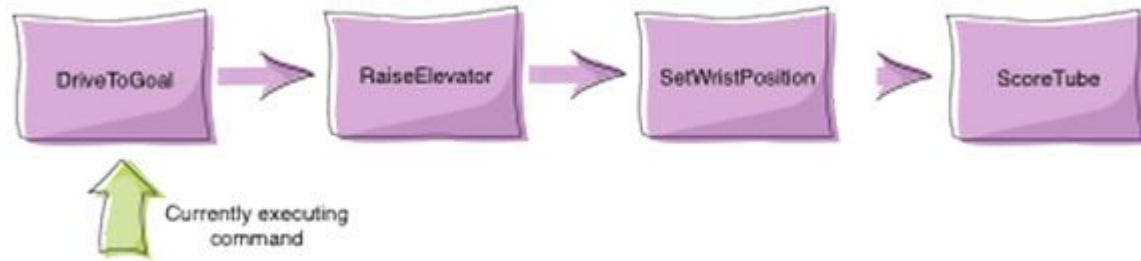


Commands vs. Subsystems



Commands

- Define the operation of the robot incorporating the capabilities defined in the subsystems.
- Commands are subclasses of Command or CommandGroup.
- Commands run when scheduled or in response to buttons being pressed or virtual buttons from the SmartDashboard.
- Commands let you break up the tasks of operating the robot into small chunks.
- Each command has an execute() method that does some work and an isFinished() method that tells if it is done.
- Commands can be grouped together and executed sequentially, starting the next one in the group as the previous one finishes.





Subsystems

- define the capabilities of each part of the robot and are subclasses of Subsystem
- Subsystems should have methods that define the operation of the actuators and sensors but not more complex behavior that happens over time.

```
1 package org.usfirst.frc190.GearsBotME.subsystems;
2 import edu.wpi.first.wpilibj.*;
3 import edu.wpi.first.wpilibj.command.Subsystem;
4 import org.usfirst.frc190.GearsBotME.RobotMap;
5
6 public class Claw extends Subsystem {
7
8     Victor motor = RobotMap.clawMotor;
9
10    public void initDefaultCommand() {
11    }
12
13    public void open() {
14        motor.set(1);
15    }
16
17    public void close() {
18        motor.set(-1);
19    }
20
21    public void stop() {
22        motor.set(0);
23    }
24 }
25
```



Your Assignment

Your job for next Wednesday is to come up with a set of methods for a specific part of a car.

You will be working with a partner that I assign you and you will need to create both the command class and the subsystem class.

You do not need to write the code in eclipse, notepad++, notepad, even word is fine. Please send it to me in the group before session on Wednesday from 7-9.



Extra Reading

If you wish to read more on Commands and Subsystems please read pages 228-256 of this document.

http://roxbotix.org/FRC_Java_Programming.pdf