Robotics Club Week 1

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September 2016

1 Agenda

- Welcome Programmers
- Introductions - Mentors & Students
- Select note taker
- RoboRio
- Languages available for FRC
- Why we switched to Java
- Solar flare & previous robots
- How all groups play together
- Java environment
- Koans

2 welcome

These are the most important links you will need. Everything you want to know can be found here.

`http://glencoerobotics.com/forum/`

`https://www.chiefdelphi.com/forums/portal.php`

`http://wpilib.screenstepslive.com/s/4485`

3 Programming Groups

- Robot
- Apps

Note - Don't have to stick to a group

4   Skills we teach

1. Code Collaboration - pair programming
2. analyzing problems
3. how a computer thinks
4. incorporating math into code
5. Working with people outside your domain - Electrical and mech.
6. learning how to learn a language
7. Leaning Java (Notice this is last)

5   RoboRio

https://wpilib.screenstepslive.com/s/4485/m/13503/c/86641

http://www.ni.com/pdf/manuals/374474a.pdf

https://decibel.ni.com/content/docs/DOC-30419

6   Languages for FRC

6.1   java

https://wpilib.screenstepslive.com/s/4485/m/13503/l/599679-installing-eclipse-c-java

https://www.chiefdelphi.com/forums/archive/index.php/t-128134.html

6.2   C++

https://wpilib.screenstepslive.com/s/4485/m/13503/l/599679-installing-eclipse-c-java

https://www.reddit.com/r/FRC/comments/4k24cu/java_vs_c/

6.3   Other

https://github.com/robotpy/pyfrc

7   Why we use Java

- Better visibility across mentors to assist students.
- Code checkins - pull requests.
- Continuous integration build capabilities.
- Fast enough for what we need to do.
- Wpilib abstracts all the difficult DIO etc. away allowing students to focus on programming paradigm.

8 Robots

8.1 Eclipse

http://www.thebluealliance.com/team/4488/2016

https://www.youtube.com/watch?v=oxOSjQpTp3U

https://www.youtube.com/watch?v=9WOQbL9n4Cs

8.2 Solar Flare

http://www.thebluealliance.com/team/4488/2015

https://www.youtube.com/watch?v=VpZazV3wP1s

8.3 Wildfire

http://www.thebluealliance.com/team/4488/2014

https://www.youtube.com/watch?v=tEhQnKbRz-0

https://www.youtube.com/watch?v=lmtvsggl81M

8.4 Phantom

http://www.thebluealliance.com/team/4488/2013

9 Camera

We currently use a logitech c920 with a kangaroo mobile computer to perform the vision processing.

10 How groups interact

Mechanical, Electrical, Business, and Apps are all required. Without them we would have nothing to program.

11 Java Environment

We use Eclipse with the NI driver station.

https://wpilib.screenstepslive.com/s/4485/m/13503/l/599679-installing-eclipse-c-java

https://wpilib.screenstepslive.com/s/4485/m/13503/l/599677-frc-driver-station-powered-by-ni-labview

12 Koans

https://github.com/dcobbley/roboticsClubSeason/blob/master/Koans.pdf

13 Extras

https://www.youtube.com/watch?v=nZf9F-3QKMw

https://www.youtube.com/watch?v=Qfe-zs2f2EM