

FIRST Tech Challenge **Coaches, Mentors**

November 2022
Intro and Robot Hardware



Welcome

Schedule

Saturday	9:30 - 4:00	Lunch at noon
Sunday	9:30 - 4:00	Lunch at noon



Agenda

Saturday Morning - Introductions, What is *FIRST*?, Building Game, Robot Resources

Saturday Afternoon - Wiring, Programming Robots (software choices, tensorflow, FTC Sim, Programming help, real robots)

Sunday Morning - FTC Events, Judging, Engineering Portfolios,

Sunday Afternoon - *FIRST* Software, REV Hubs, Q&A, Competitions, PowerPlay Game

Agenda

- Introductions
- What is *FIRST*?
- Robot Parts
- Building Game
- Robot Resources

Introductions

- Name, School, What do you teach
- Do you have any experience with robots?
- What's something you are hoping to get out of this weekend?

What is *FIRST*?

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- Robots
- Competition
- Students learning STEM skills

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- Competition
- Students learning STEM skills

The mission of FIRST is to encourage young people to become the science and technology leaders of tomorrow.

What is *FIRST*?

Students learn:

- STEM Skills (Programming, CAD, ...)
- Leadership
- Budgeting
- Marketing
- Time Management
- Talking to people
- Capturing and presenting ideas
- Failure is a great way to learn
- Respect your opponents
- Teamwork!

Robots

- Robot Rules in Chapter 7 of Game Manual Part 1
- Allowed Parts
- Sourcing parts locally

What's in a Robot Kit?



Building Game

Challenge:

Work in groups of 2-3 to build 'something' that can pick up a cone and hold it long enough to move to a large junction and score it.

Human power can be used to move to the junction, and in the device to pick up the cone, as long as there at least one 'connection' between the human power and the device.

Resources for Building Robots

Game Manual part 1 - Chapter 7

https://www.firstinspires.org/sites/default/files/uploads/resource_library/ftc/game-manual-part-1-traditional-events.pdf

Game Manual 0 (wiki for FTC written by teams)

<https://gm0.org/en/latest/index.html>

Supplier Websites and Videos

Tetrix - <https://video.pitsco.com/default.aspx?gID=73>

REV - <https://www.revrobotics.com/software/>

AndyMark - https://www.youtube.com/results?search_query=andymark+powerplay

Resources for Building Robots

Team Websites and Videos

Wizards - <https://wizards-exe.weebly.com/our-spellbooks.html>

FIRST BC Webinars - <https://firstroboticsbc.org/workshops/>

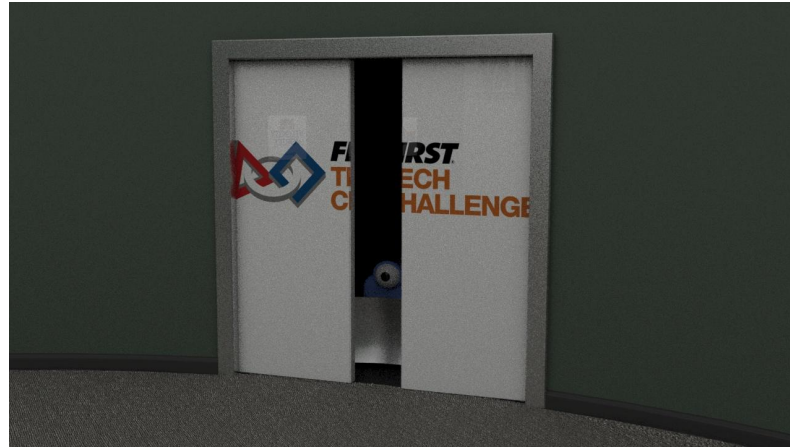
Resources for Building Robots

CAD software - lots of online tutorials and free software for *FIRST* Teams

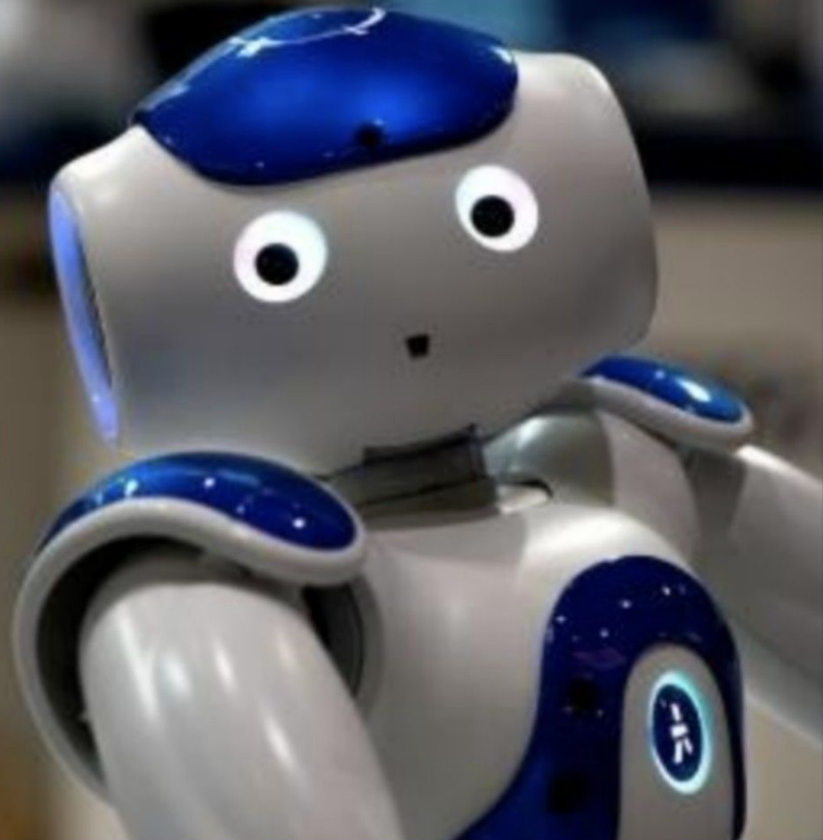
OnShape <https://www.onshape.com/en/blog/how-to-onboard-your-first-robotics-team>

Fusion 360 <https://www.autodesk.com/education/competitions/first>

Questions



Good
luck
Teams!



Tweets

Tweets & replies

Media