FIRST Tech Challenge

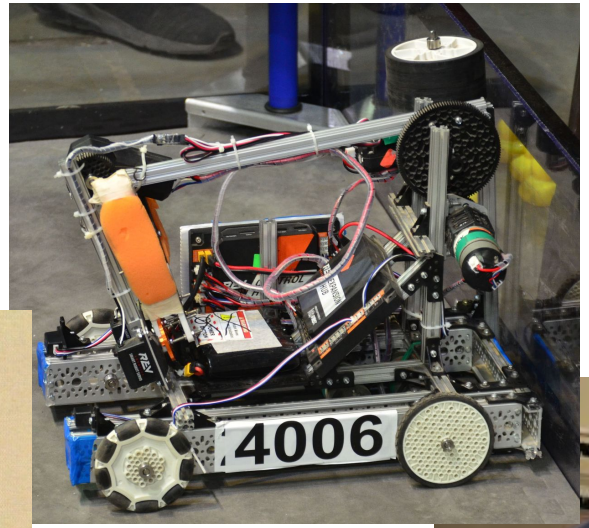
November 2022

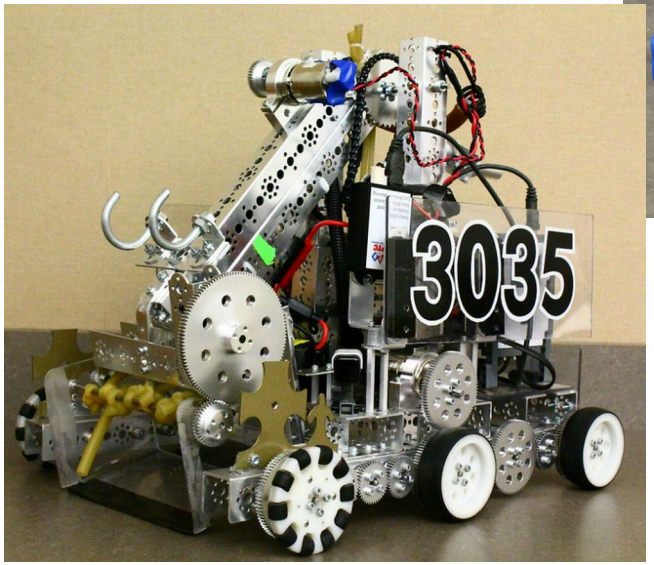
Topics

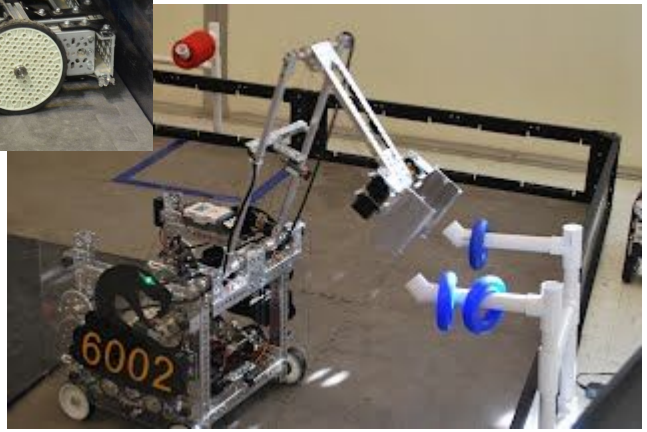
- Robots
- Game and Strategy
- Competitions
- Gracious Professionalism
- Judging
- Robots!!!!!!!!

Robots

What is required on all FTC robots?







Robots

- Fit in 18” sizing cube
- Limits on electronics (max 12 DC motors, 6 servo motors)
- Must have a power switch
- Must have team number
- Alliance Markers
- Wiring!!!!!!!!!!!!!

Read the Robot and Field Inspection checklists!

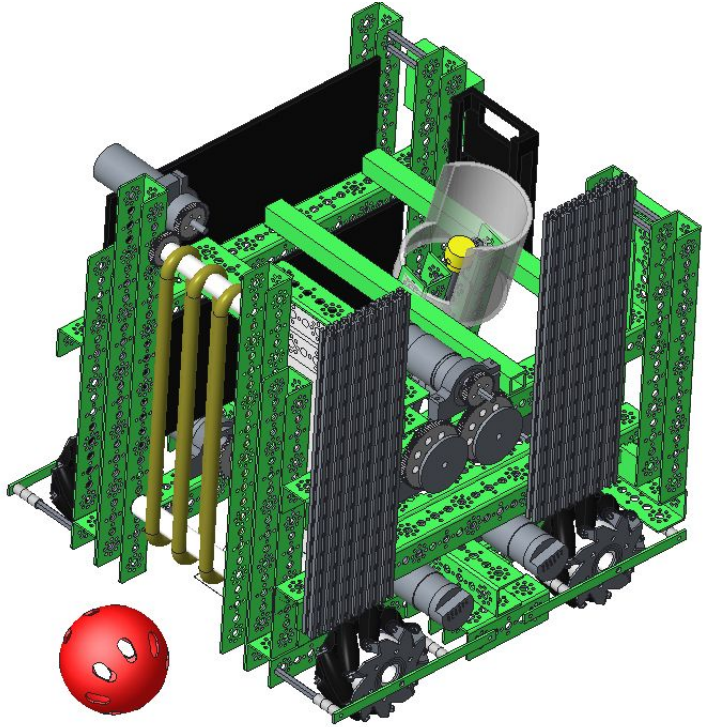
Robots Parts

Robots Parts

- Building Channel Ideas (Angle bar, flat bar, square channel, and flat plate)
- Plastics (PETG easy to cut, 3D Printers)
- Hardware Store (Locknuts, Longer set screws, Velcro zip ties, Threaded rod, Heavy pipe cut into shorter lengths)
- COTS - drawer slides, lazy susans, …
- Wiring - ask a electrician (zip ties, conduit, …)

FTC Game Manual Part 1 - Chapter 7

Robots - Bringing it all together



Surgical Tubing
1” pvc rollers
Cardboard ramp
Square channel (green bars)
4” pvc (aiming device)
3D Printing (phone Mount)

Game and Strategy

POWER PLAY
SM
PRESENTED BY
Raytheon
Technologies

Where to start?

Where to start?

- Decide on a strategy and design a robot that fits that strategy

Don't forget to read Game Manual Part 2!

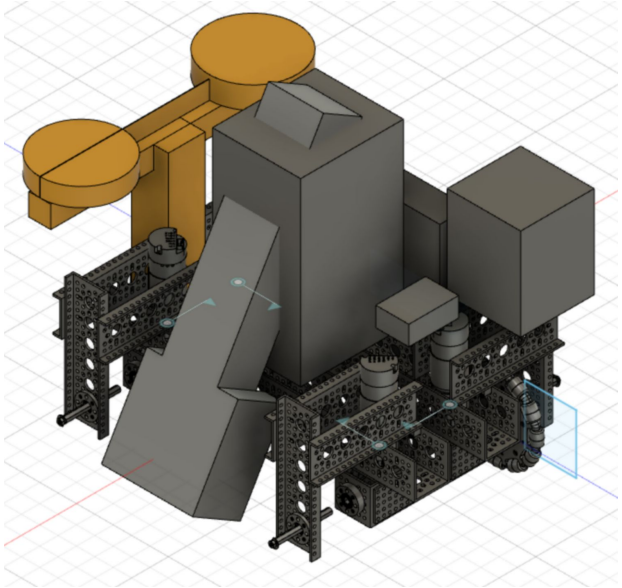
Traditional Events - https://www.firstinspires.org/sites/default/files/uploads/resource_library/ftc/game-manual-part-2-traditional.pdf

Remote Events - https://www.firstinspires.org/sites/default/files/uploads/resource_library/ftc/game-manual-part-2-remote.pdf

Where to start?

- Decide on a strategy and design a robot that fits that strategy
- Agree on the mechanisms needed to implement your strategy.

Think about space allocation.
Where will the mechanism go?
Where will the battery and hubs go?



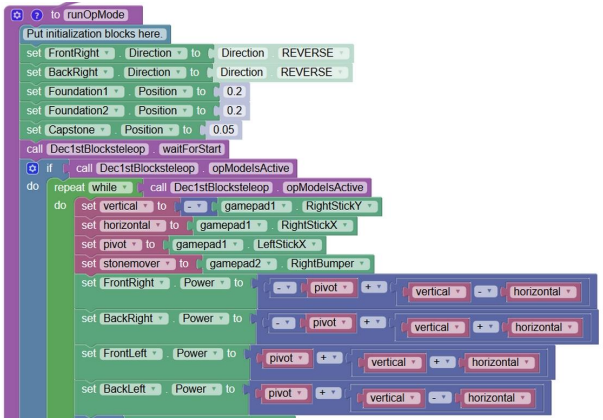
Where to start?

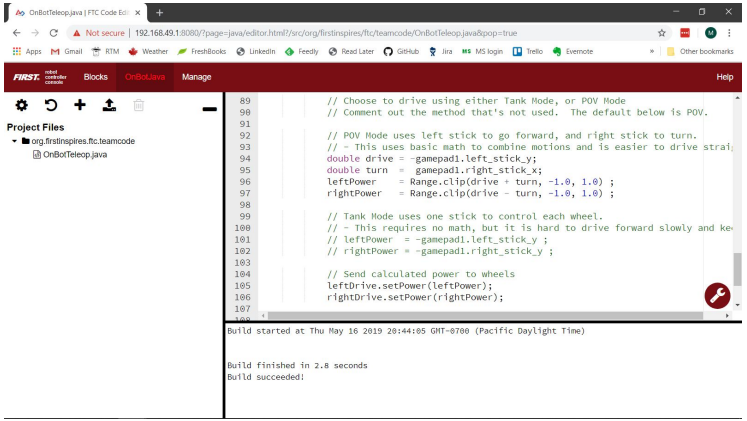
- Decide on a strategy and design a robot that fits that strategy
- Agree on the mechanisms needed to implement your strategy.
- Choose a drive base and start building

Programmers and drivers can get started even before mechanisms are on the robot.

Where to start?

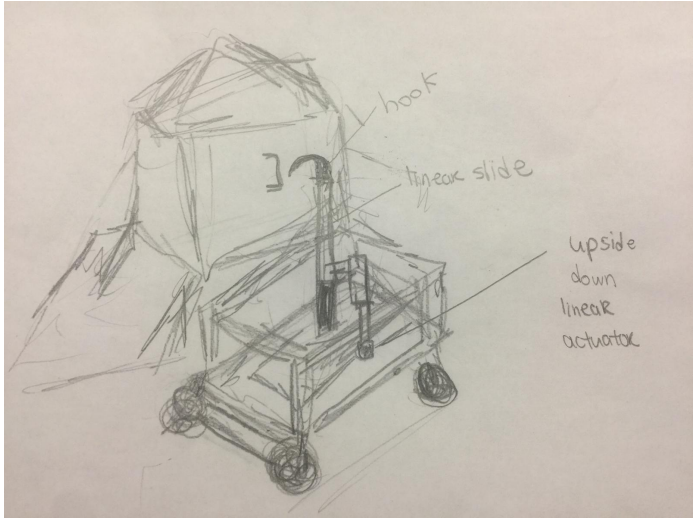
- Decide on a strategy and design a robot that fits that strategy
- Agree on the mechanisms needed to implement your strategy.
- Choose a drive base and start building
- Choose a programming language





Where to start?

- Decide on a strategy and design a robot that fits that strategy
- Agree on the mechanisms needed to implement your strategy.
- Choose a drive base and start building.
- Choose a programming language
- Start testing ideas for mechanisms



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Get a simple robot working, test it, learn what works and what doesn't, then plan your next robot.

Resources

FTC Docs - ftc-docs.firstinspires.org/index.html

FTC Game Manual 0 - https://gm0.org/en/latest/index.html

FIRST BC workshop videos (drive base options, mechanisms, …)
https://www.youtube.com/playlist?list=PLIBrpYHdy1Jgt1GeZRJWE40N1G1NkYJFg

Online resources created by vendors (Tetrix and REV have video series)
https://www.youtube.com/c/TETRIXbyPitsco

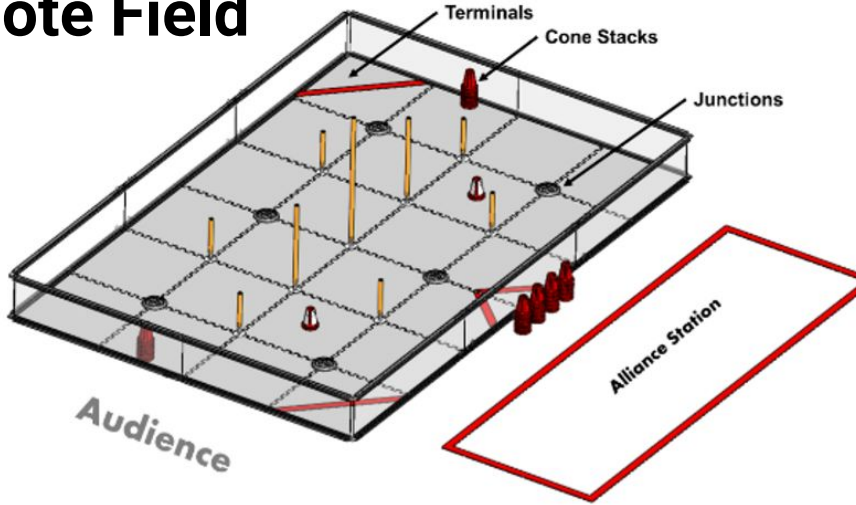
Online resources created by teams

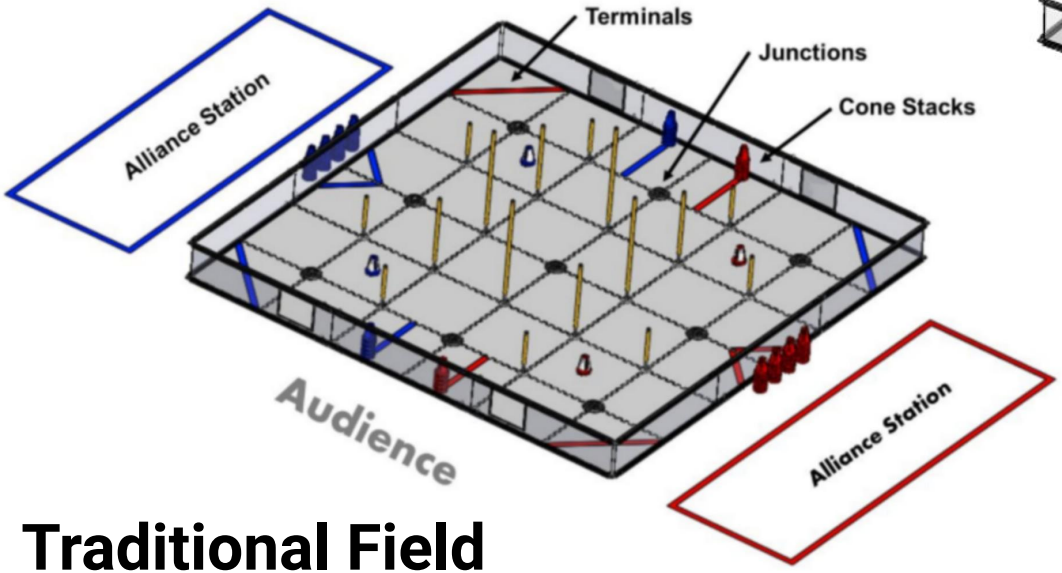
Competitions

Dec. 1-7	Remote Scrimmage
Jan. 19-25	Remote Qualifier Judging on Jan. 21 (virtual interviews)
Feb. 25/26	Provincial Championships in Vancouver for top teams from Qualifiers

Game and Strategy

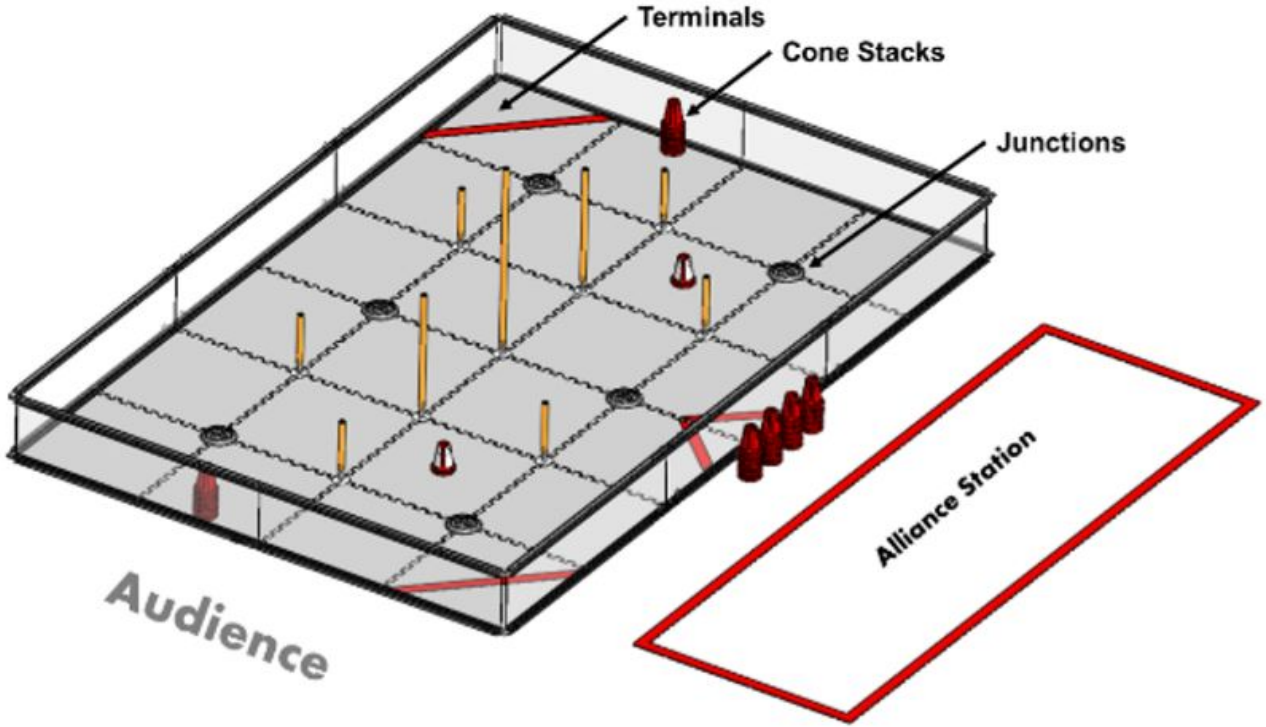
Remote Field





Traditional Field

Remote Field Layout



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Gracious Professionalism

Gracious Professionalism

It's a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community. With Gracious Professionalism, fierce competition and mutual gain are not separate notions.

Careers
IRST Place!

Gracious Professionalism

It's a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community. With Gracious Professionalism, fierce competition and mutual gain are not separate notions.

Judging

Judging

Interviews with Judges

- find out about what you've learned this season.

Read Award descriptions in Game Manual 1.

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Interviews with Judges

- find out about what you've learned this season.

Engineering Portfolio

- max. 15 pages about your team, your robot, your activities

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Interviews with Judges

- find out about what you've learned this season.

Engineering Portfolio

- max. 15 pages about your team, your robot, your activities

Control Award

- Info about programs and example video

Resources

FTC Docs

- https://ftc-docs.firstinspires.org/

Questions and Answers

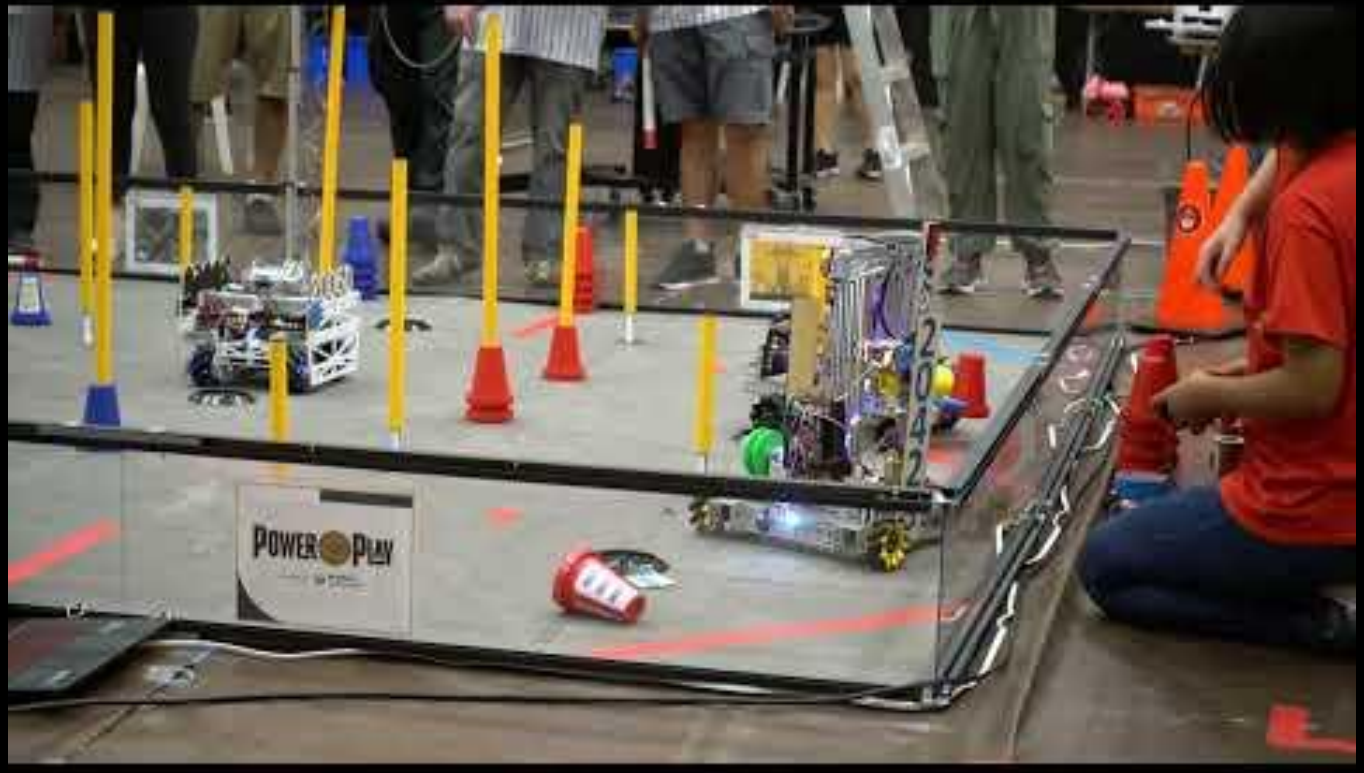
- https://ftc-qa.firstinspires.org/

Other teams

- FTC British Columbia Discord https://discord.gg/AC6dtEev
- Youtube videos
- Team websites

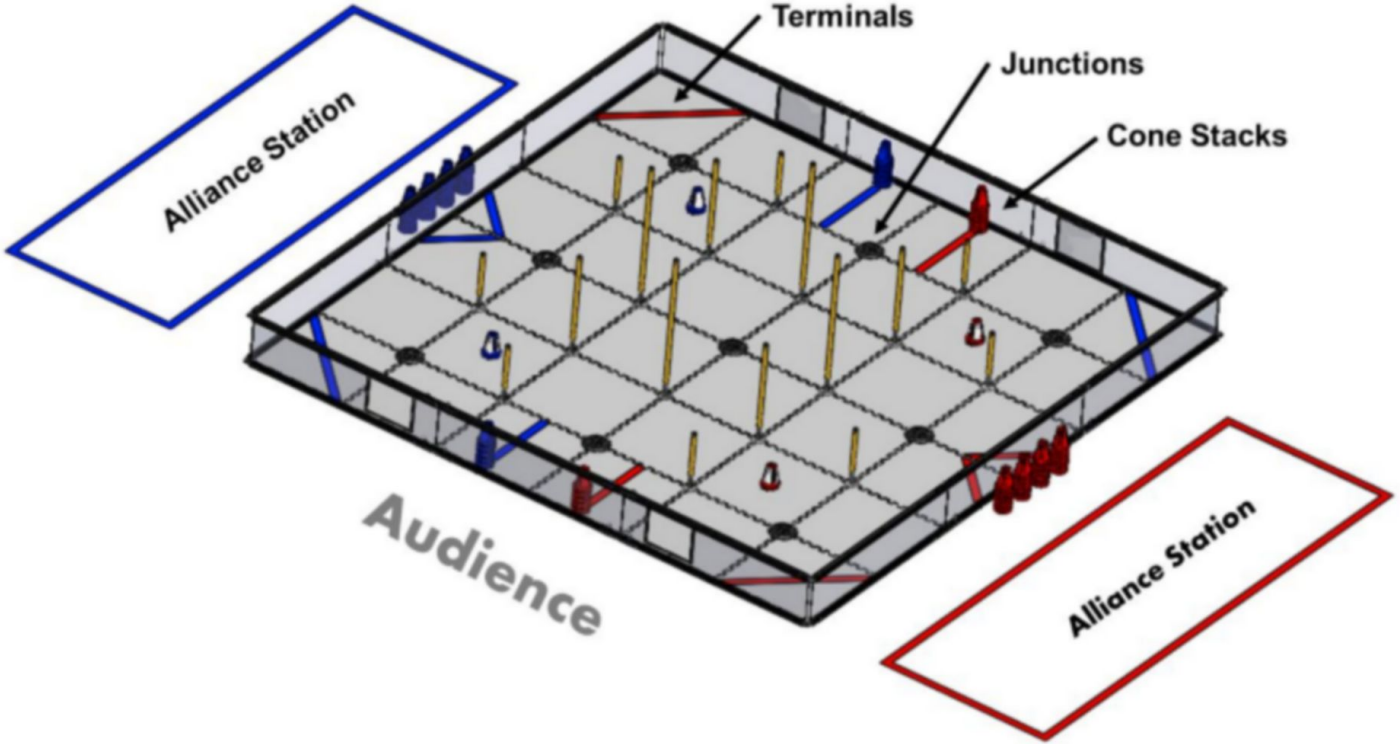
Questions

Robots!!!!!!!!


POWER PLAY
2042

Questions

POWERPLAY Field



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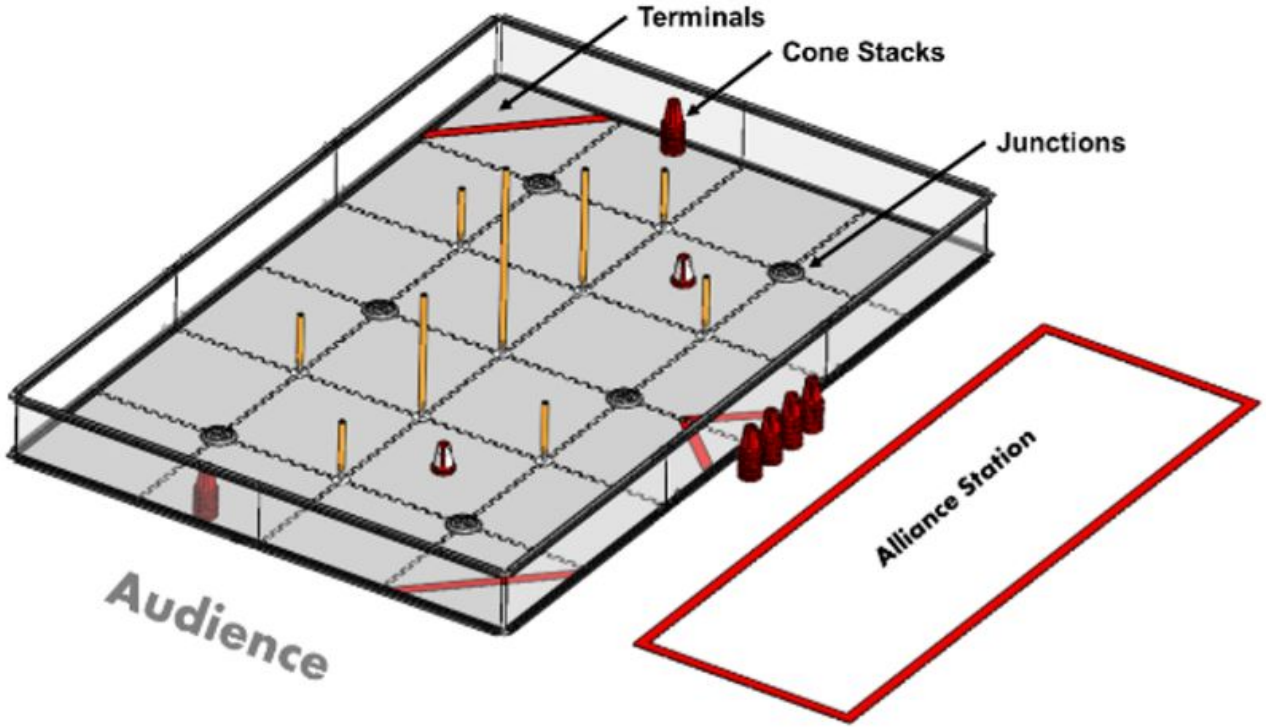

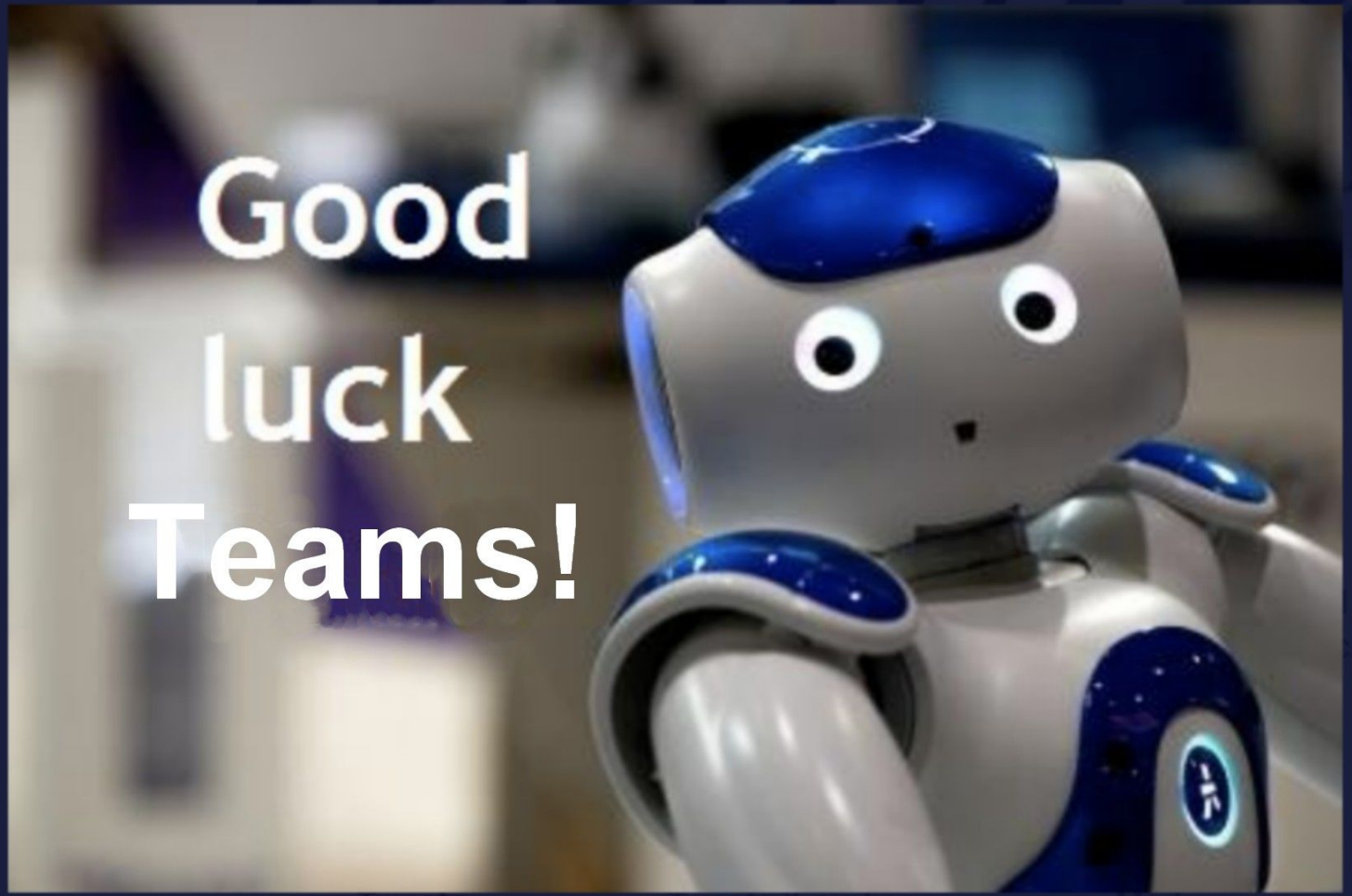
Good
luck
Teams!