

VRC Spin Up **2022-23**

Spectator **Primer**

by Eric Schnurr

Sep 20th, 2022

Agenda

Part II – 2022-23 Season – “Spin Up”

- Introduction to Spin Up
- Spin Up Scoring & Rules
- Types of Robots this season
- Early Season Strategies

Objective

Give spectators an understanding of this season's VRC Spin Up, key rules, and early season strategy

My Background

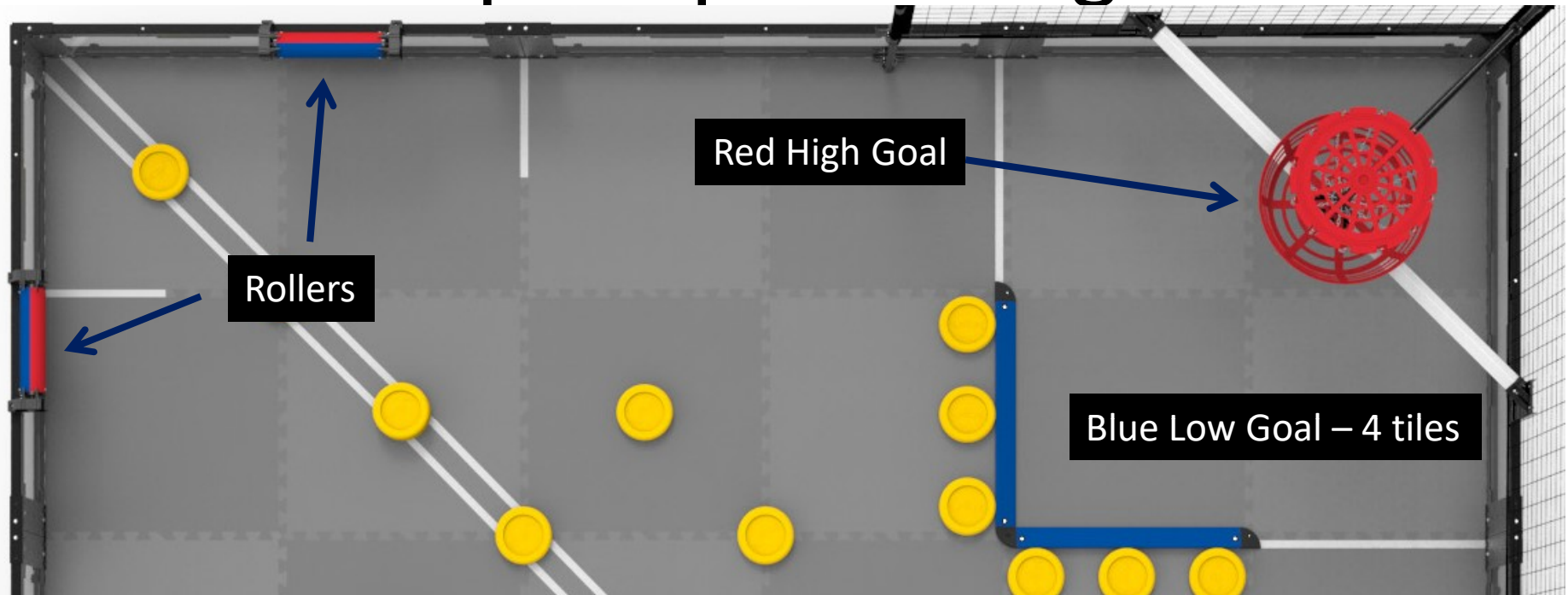
- Electrical Engineer working in Telecommunications
- Entering 3rd year as volunteer parent & head ref
- Refereed 14 tournaments during last season including Texas Region 2 MS & HS Championships

I am very passionate about the real world experience that VRC gives students

Introducing 2022-23 Season Spin Up

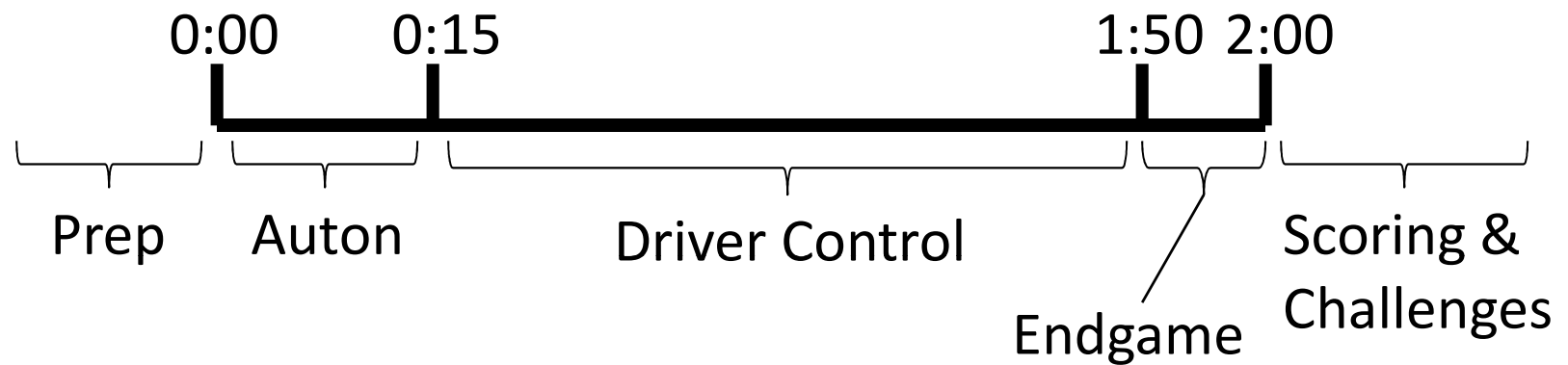
- <https://youtu.be/wlZgvVDZc2Y>

Spin Up - Scoring



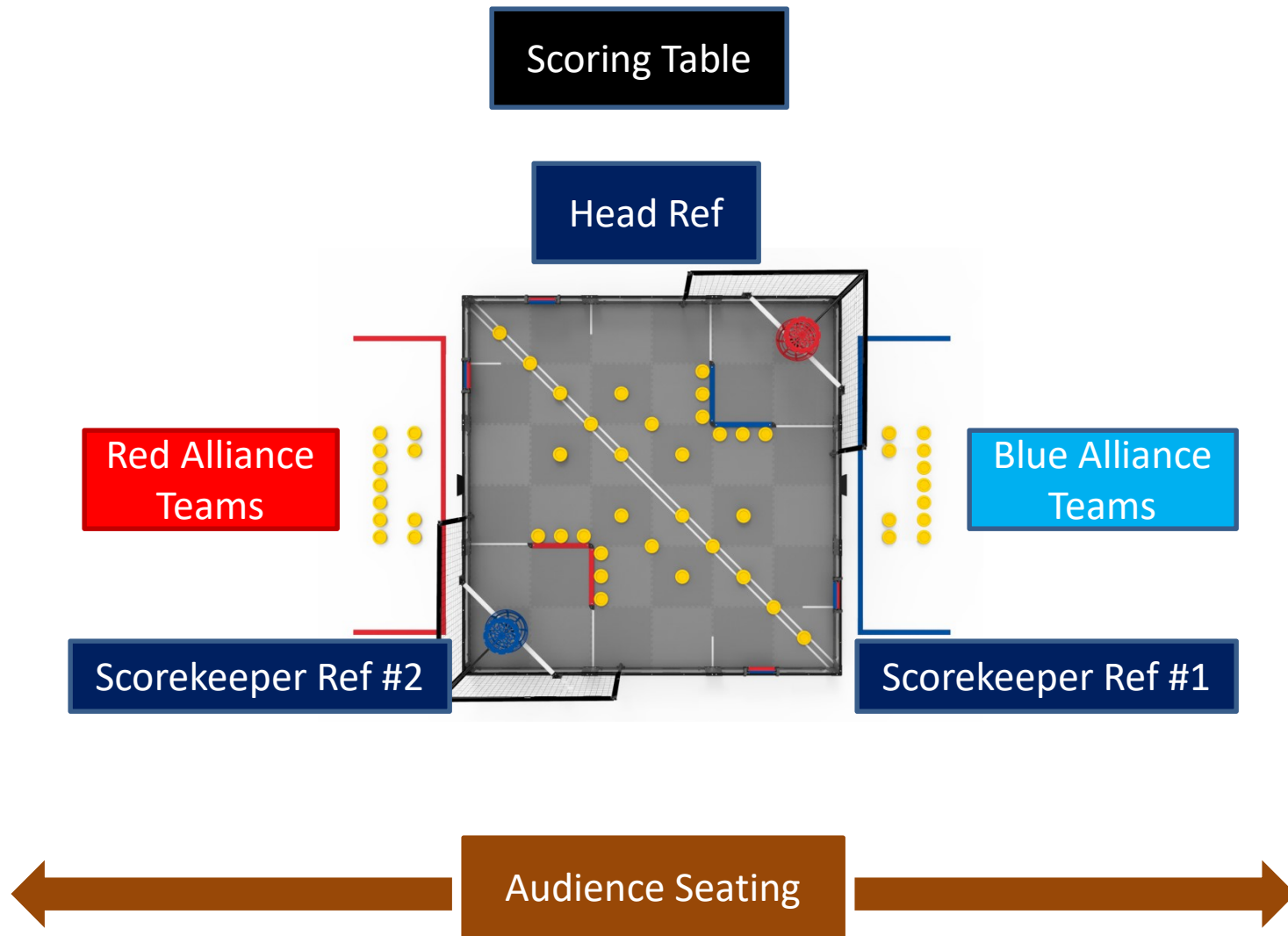
- 5 points: Disc in High Goal
- 1 point: Disc in Low Goal
- 10 points: Owned Roller
- 3 points: Each Covered non-low goal field tile
- 10 points: Winner of Autonomous Bonus

Spin Up – Match Overview



Endgame is only 10 seconds this season

Spin Up – Layout



Spin Up – Prep

- Last chance to double check key things like battery life, brain is on, correct program is selected, pneumatics tanks are at 100 psi
- Teams place robots on the field, some times meticulously lining it up for Auton
- Load up to 2 pre-load discs
- Driver teams have to wear safety glasses

***Drive Team: up to 3 members from each team
that are at the field
Typically Driver, Programmer, & Strategist***

Spin Up – Autonomous Period

- Each robot can start with up to 2 pre-load Discs
- Cannot touch the tiles on the other side of the double line
 - Can grab disc on the line as long as in doing so robots don't touch the tiles on the other side
- 10 pt Autonomous Bonus goes to the Alliance with the most disc & roller points at the end of the 15 seconds (no covering points for Auton).

Autonomous Win Point (AWP) – Own 2 rollers and score 2 discs in your high goal

Spin Up – Driver Control

- Race to score discs in your alliance high goal
- Robots cannot possess more than 3 discs at a time
- Flip rollers to your color
- Where the bulk of the scoring will happen
- Keep an eye on which alliance has more discs in their high goal

Watch for defensive play where robots are blocking angles to hit high goal

Spin Up - Endgame

- In the final 10 seconds of the match, robots can expand without limit beyond the starting 18"x18"x18" volume
- Trapping is also no longer applicable during endgame unless it was started before endgame
- This is to allow for "covering" as many tiles as possible
- Get ready to see lots of "silly string" or "spaghetti" on the field as robots launch various contraptions in all directions

Allowances are made during endgame for more vigorous robot interactions as well

Spin Up – Rule Violations

- Match Affecting – Determination whether a violation would have affected which alliance won the match
 - Often a violation's severity hinges on this determination at the end of the match
- Minor Violations – usually just a verbal warning for a rule violation that was non-match affecting
- Major Violations – Often match affecting and generally results in a DQ
- Disqualification (DQ) – Affected team receives 0 WP, 0 AWP, 0 APs, & 0 SPs for the match
- Disablement – Team must place down their controller and sit out the rest of the in-progress match

Spin Up – Post Match Activity

- Teams are allowed to challenge a rule *before* they have accepted the score of the match and leave the field
- The Head Referee may consult with the Scorekeeper Refs, or rarely the EP before making a ruling on the challenge
- Referee's may not use any form or video replay or pictures
- The Head Ref may head to the next field to start the next match before the score has been finalized and recorded

*VRC is very unique in that the **students** have to learn how to make challenges after a match instead of a coach*

Spin Up – Key Rules

- Trapping: Same as last season, you can only trap a robot for up to 5 seconds, then have to move 1 full tile away for a full 5 seconds
- Robots can push each other around, but may not intentionally damage each other
- Robots are limited to at most 3 discs at a time
- Expansion before Endgame could be a DQ if you interfere or score anything afterwards
- Endgame Expansion – Expect some crazy action in the last 10 seconds while robots try to maneuver to cover as many tiles as possible and block opponents covering moves

See VRC Hub for the full rules

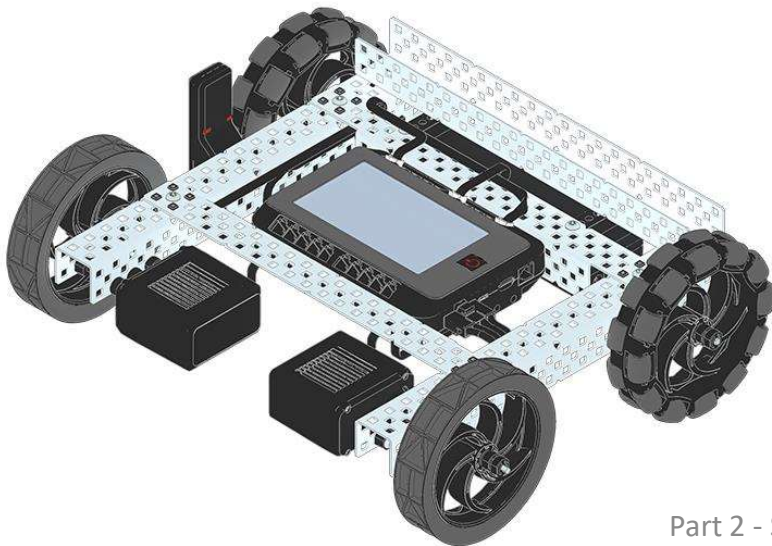
**Finals Match
Mall of America
Signature Event – Aug 13th**

- https://youtu.be/Xmw_uYpVyOc

Spin Up: Types of Robots

Basic VRC Bots

“Push” Bot

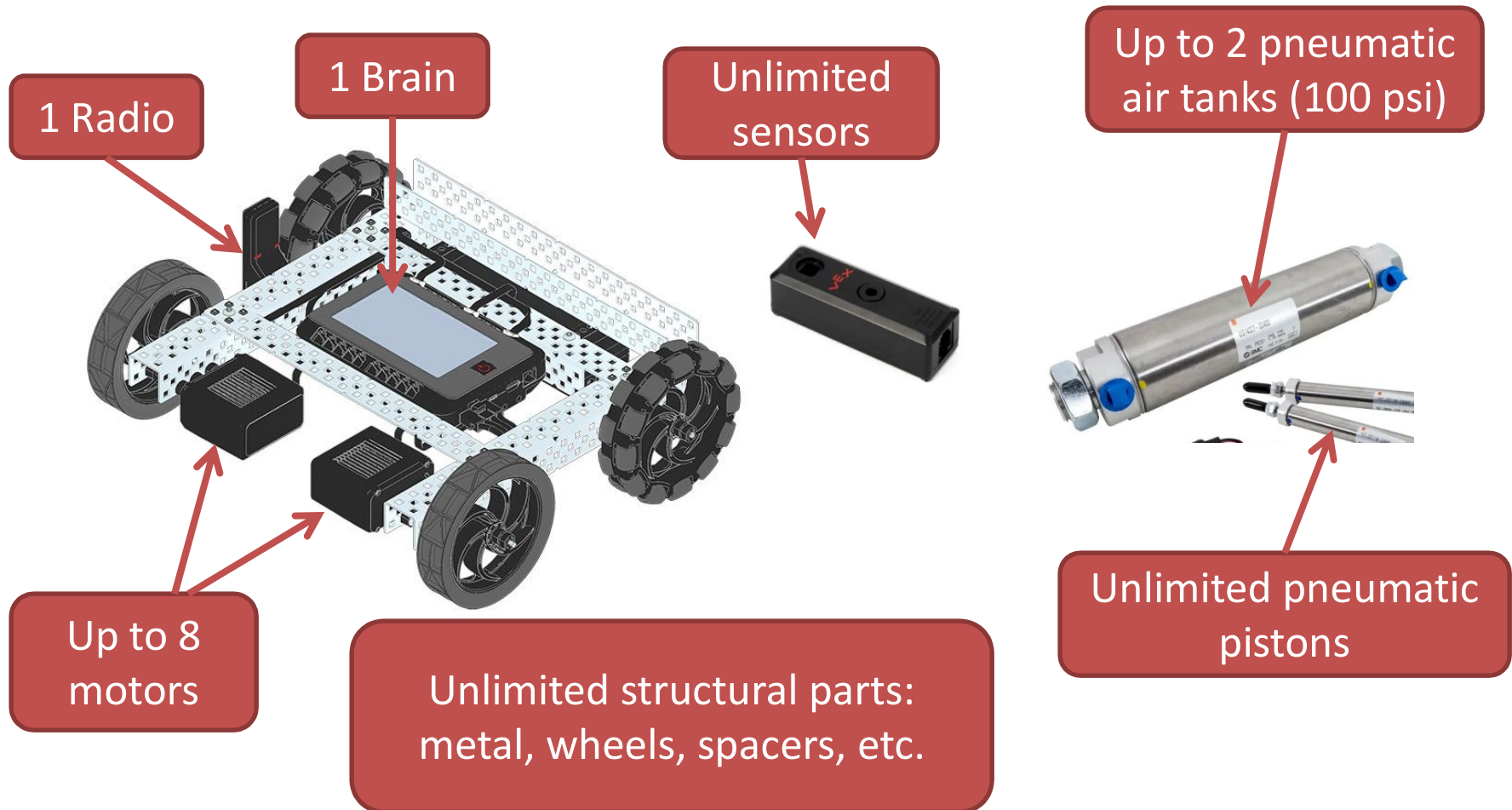


NOT COMPETITIVE
Can't score high
goal or rollers



“Claw” Bot

Spin Up: Parts Allowed Same as last season



Spin Up: Types of Robots

Disco - VEX Hero Bot

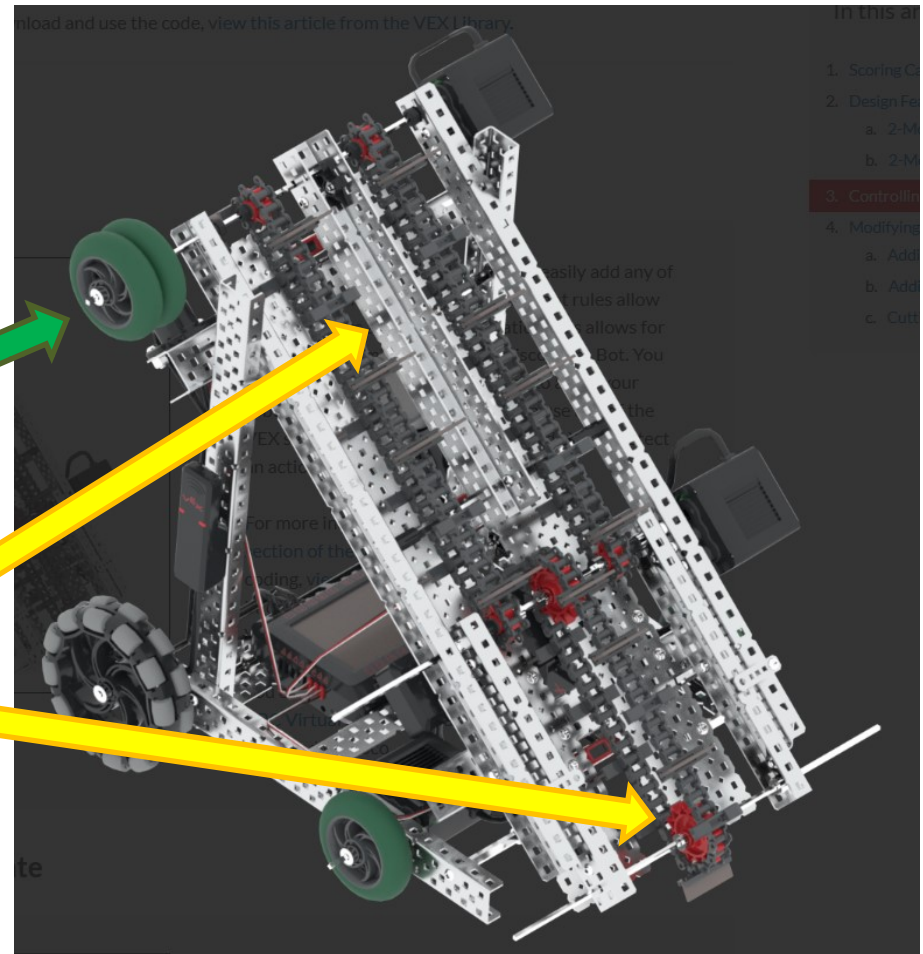
Every year VEX publishes a “Hero” bot that can be built from the standard robot kit and compete in the season but it won’t be competitive

Green wheels can turn rollers

Intake to pick up and store up to 3 discs on the ramp

Missing disc shooter

Missing Endgame expansion

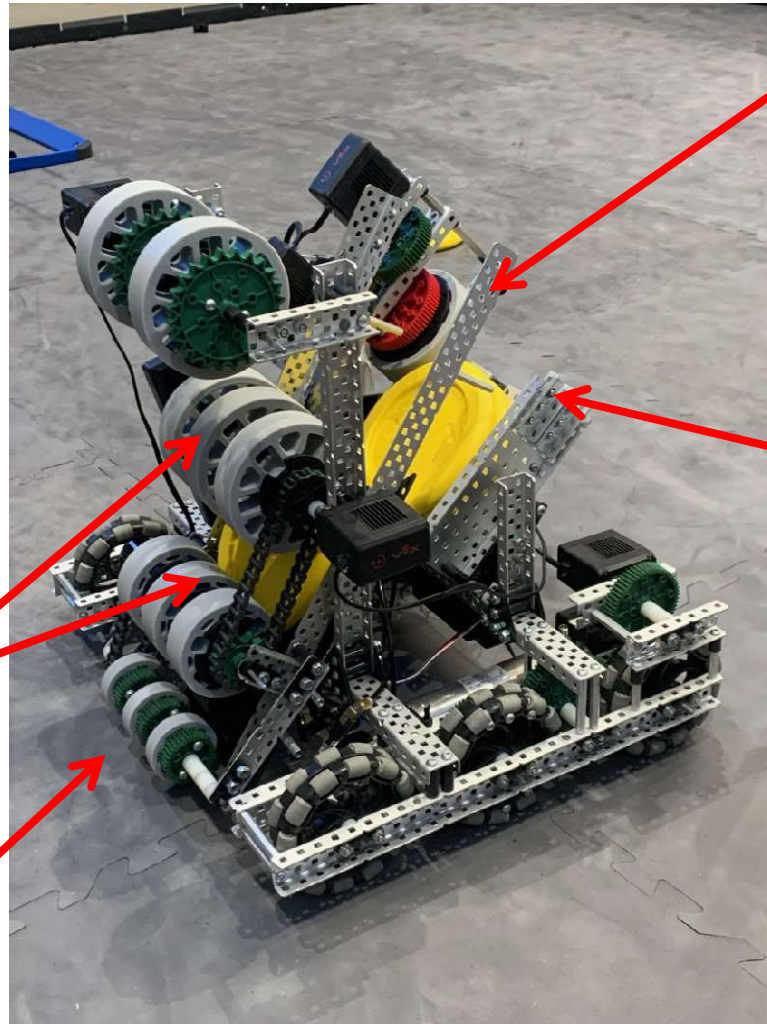


Spin Up: Types of Robots Shooters

“Fly Wheel” is the main shooter mechanism being used
– basically a baseball pitching machine with 1 wheel instead of 2

Wheels move discs up and into place for the shooter

Small wheels start disc in-take process



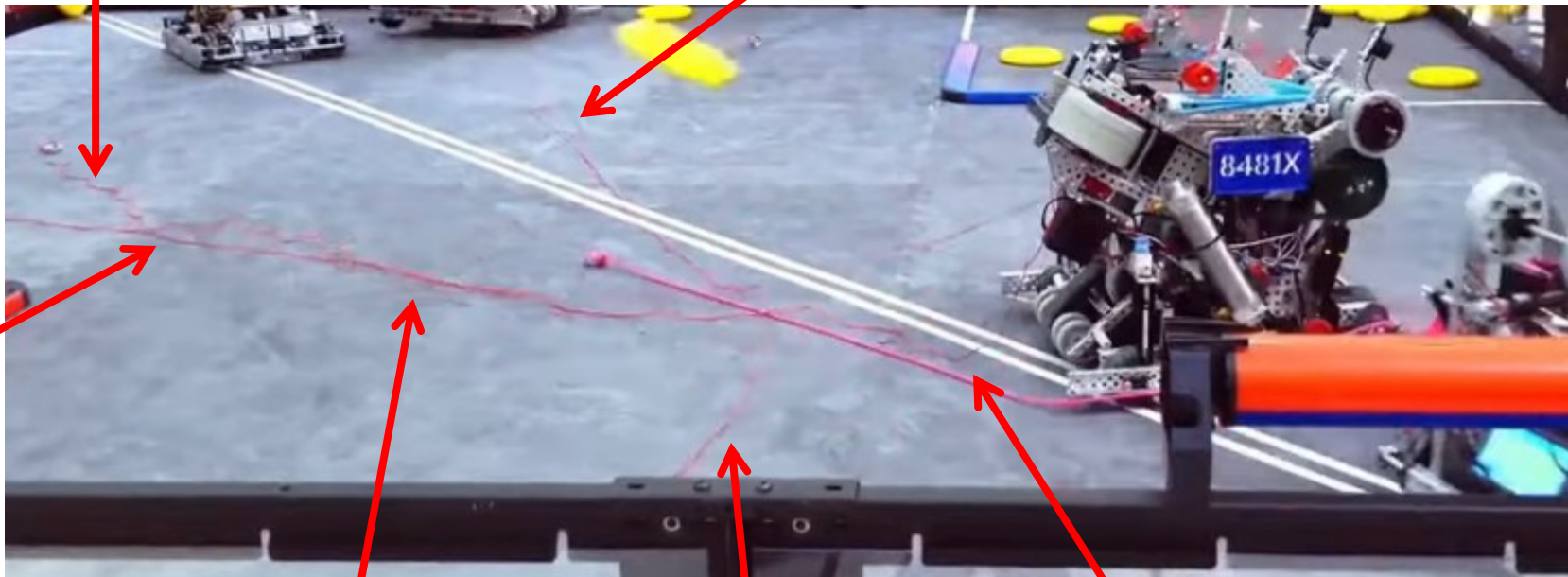
Fly Wheel
3000rpm

Stack of discs
– bottom
one is
pushed
forward to
shoot

Spin Up: Types of Robots

Endgame Expansion

Endgame from a recent tournament
Note the neon pink string going everywhere
It's being called "String Explosion" or "Spaghetti"



Spin Up – Early Season Strategies

- Heavy focus on AWP during Auton
- Fill your high goal as quickly as possible
- If matches start seeing high goals filled with time left you may start seeing more defensive play with robots trying to push other bots and keep them from lining up shots IE prevent opponent from scoring their high goal
- Position prior to endgame to control 2 rollers and setup for expansion

Strategies will evolve as the season progresses – ask your kids to stay current

Web Site – Results

www.lovejoyrobotics.com

For the Love of Bots (Halloween Edition) - Lovejoy's Mixed (MS/HS) Event

2021-10-

30

Tourney

Lovejoy High School

Lucas

Texas

➤ Keep an eye on the website

➤ We are working to have tournament results posted here all season

➤ Also adding a per team summary of results

Team	Qualifications	Awards	Bracket Placement	Quals Ranking	Win-Loss-Tie	Skills Rank	Skills Score
10820A	State	MS Excellence Award		54	1-4-0	31	60
1082C	State	Tourney Champs	Champs	10	3-2-0	8	180
1082X	State	Design Award	Quarters	16	3-2-0	4	187
1082Y			Quarters	8	4-1-0	18	100
1082U			Quarters	12	4-1-0	25	80
1082E			Quarters	15	4-1-0	0	0
1082Z			R-16	20	3-2-0	18	100
10820D			R-16	24	3-2-0	35	40
1082K			R-16	32	2-3-0	6	180
10820C				30	2-2-1	0	0
10820B				34	2-3-0	32	60
10820J				38	2-3-0	32	60
10820G				43	1-4-0	20	90
1082R				44	1-4-0	25	80
1082D				47	1-3-1	0	0
10820F				48	1-4-0	32	60
10820E				50	1-4-0	25	80
1082F				51	1-4-0	0	0
1082V				57	0-5-0	0	0

Example of results from our home tournament last season

'VEX via' App

Day of schedule and results

- IOS & Android App versions available
- "Favorite" your students team so you can easily find the tournament they are in
- Match schedule is viewed here so you can see what Qual Match # your student is next in and what time it is scheduled for
- Match results, Qual Rankings, Skills, Awards are all available as well

***Your student can help you
with VEX via if needed***

Key Dates

- **World's Championship**
 - Dallas - Kay Bailey Convention Center
 - Apr 25-27th – HS (820 Teams last season)
 - Apr 27-29th – MS (480 Teams last season)
- **Regional Championship – Texas Region 2**
 - Location TBA
 - March 3-4th – HS (~70 HS Teams)
 - March 4-5th – MS (~ 44 MS Teams)
- **5A Pilot UIL State Competition**
 - Houston? Details TBA
 - Feb 11th?

References & Links

- Websites
 - VEX V5: <https://www.vexrobotics.com/v5>
 - REC Foundation: <https://www.roboticseducation.org/>
 - Robot Events: <https://www.robotevents.com/>
 - Lovejoy Robotics: <https://www.lovejoyrobotics.com/>
- Apps
 - VEX via (real time tournament information)
 - Mark your students team as a favorite so you can see any tournament they are in.
 - Use “Schedule” to see when team matches are coming up
 - Use “Rankings” to see where your team sits in the standings during Quals
 - VRC Hub
 - Rules – can download and view rules if you want to read more details
 - Scoring app – can score matches or just play around with the scoring yourself

Definitions & Terms

Alliance: A pair (2) teams that either on the red or blue side for a match.

Alliance Home Zone: Red or Blue 'third' of the field marked by the white lines.

Alliance Selection: Process by which alliance pairs are selected for the elimination bracket matches in order of ranking.

Alliance Station: Red & Blue boxes on the ground on the left and right side of each field where the drive team members stand.

Autonomous Bonus: 6 points awarded to team scoring the most points at the end of the Autonomous Period. If it's a tie each team gets 3 points.

Autonomous Period: First 15 sec on a match where robots perform pre-programmed instructions.

Autonomous Win Point (AWP): 1 WP earned by each team that moves the mobile goal off of the AWL & scores a ring in both alliance goals at the end of the Autonomous Period.

Covered: When a red and/or blue robot is touching a non low goal foam tile at match end for scoring points

Disablement: Declared by Head Ref during a match, team must set their controller down and sit idle the remainder of the match.

Disc: Yellow foam discs which are one of the main ways to score points

Disqualification (DQ): Declared by Head Ref after match if certain rules are violated. The DQ'd team receives 0 WP.

Drive Team Members: Up to 3 members of a team that are at the field during a match.

Driver Controlled Period: 1 min 45 sec of the match, following the Autonomous Period.

Eliminate Bracket: Single elimination bracket that determines the Tournament Champion (see Awards).

Endgame: final 10 seconds of a match when expansion is unlimited for Robots

Entanglement: When an opposing robot grabs, hooks, or attaches to a robot.

Field Elements: Foam tiles, walls, white tape, goals, loaders, rollers, and nets

Goal, High: Red or Blue elevated basket, which teams are trying to score points by landing discs in them

Goal, Low: 4 tiles designated by the red or blue piece on the field tiles where discs can be scored by that color team

Head Referee: Adult who oversees the match, calls any warnings or assigns any penalties. Drive team members must raise up any protest about a match to the Head Referee prior to accepting the score.

Loader: Field element used for introducing discs during play

Match: A 2 min contest between two pairs of teams (Red & Blue). The winner is determined by the highest score and earns 2 WPs for both teams if its a Qual match or advances in an elimination match.

Match Affecting: A determination the head ref makes regarding the severity of a rule violation. Match affecting means the violation changed the outcome in the match, and usually results in causing a DQ.

Match Load Discs: 7 Discs per alliance that start outside of the field which the teams can introduce during the match via the disc loaders

Preload: Each robot may start a match with up to 2 discs already loaded

Qualifications: Matches played to earn WPs and establish seeding for alliance selection.

Robotics Education & Competition Foundation (RECF): Organization that defines the rules and provides the framework for running tournaments.

Roller: 4 of them are mounted on the field walls. They are considered scored when one color, either red or blue is facing upwards.

Scorekeeper Referee: Two volunteers who help the head referee score the match.

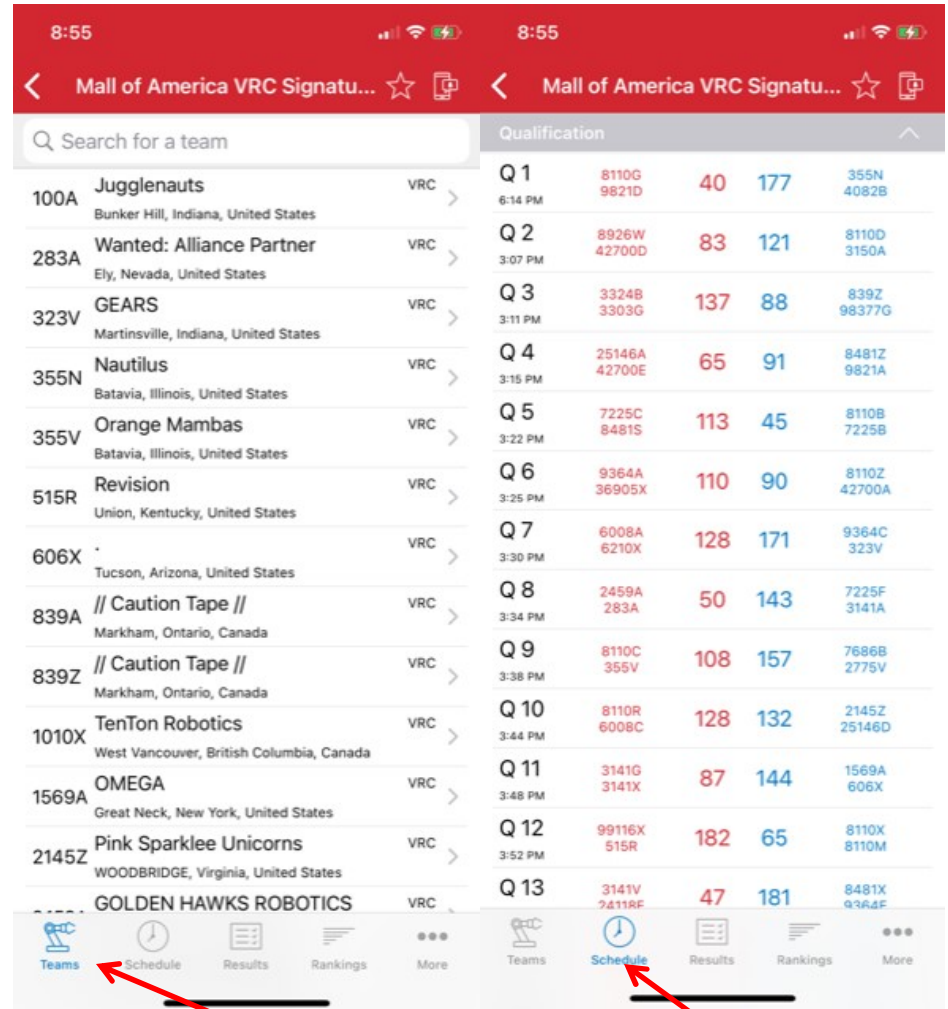
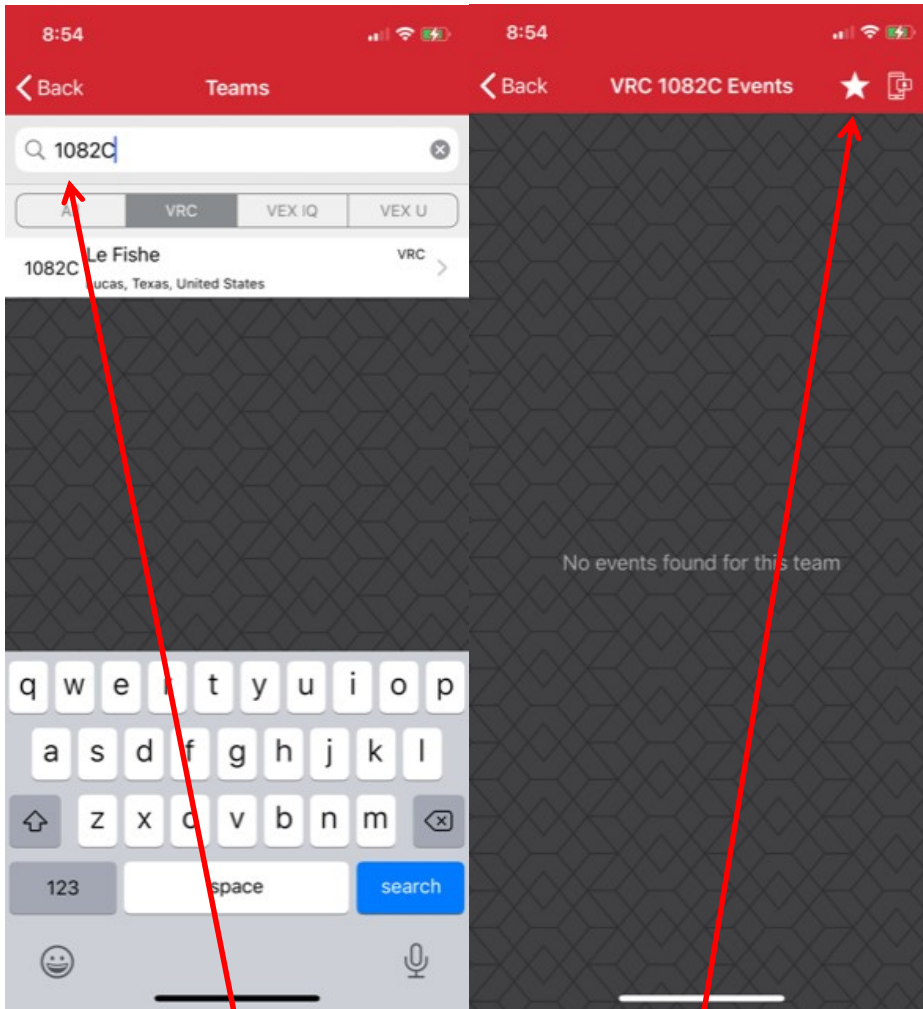
Trapping: When a robot restricts another robot from moving. This is allowed for up to 5 sec, then the robot must move away for a full 5 sec before another trapping can be started. Sometimes called Pinning.

Verbal Warning: Given by the head ref, usually when there has been a minor rule violation.

VEX Robotic Competition (VRC): Name of the Middle & High School robotics competition our students participate in. This season is called "Tipping Point".

Win Point (WP): Up to 3 can be earned per Qualifying match and they are used to seed teams for Alliance Selection. Teams earn 2 WP for winning a match and 1 WP for completing the Autonomous Win Point requirement during the Autonomous Period.

'VEX via' App – Screenshots (IOS)



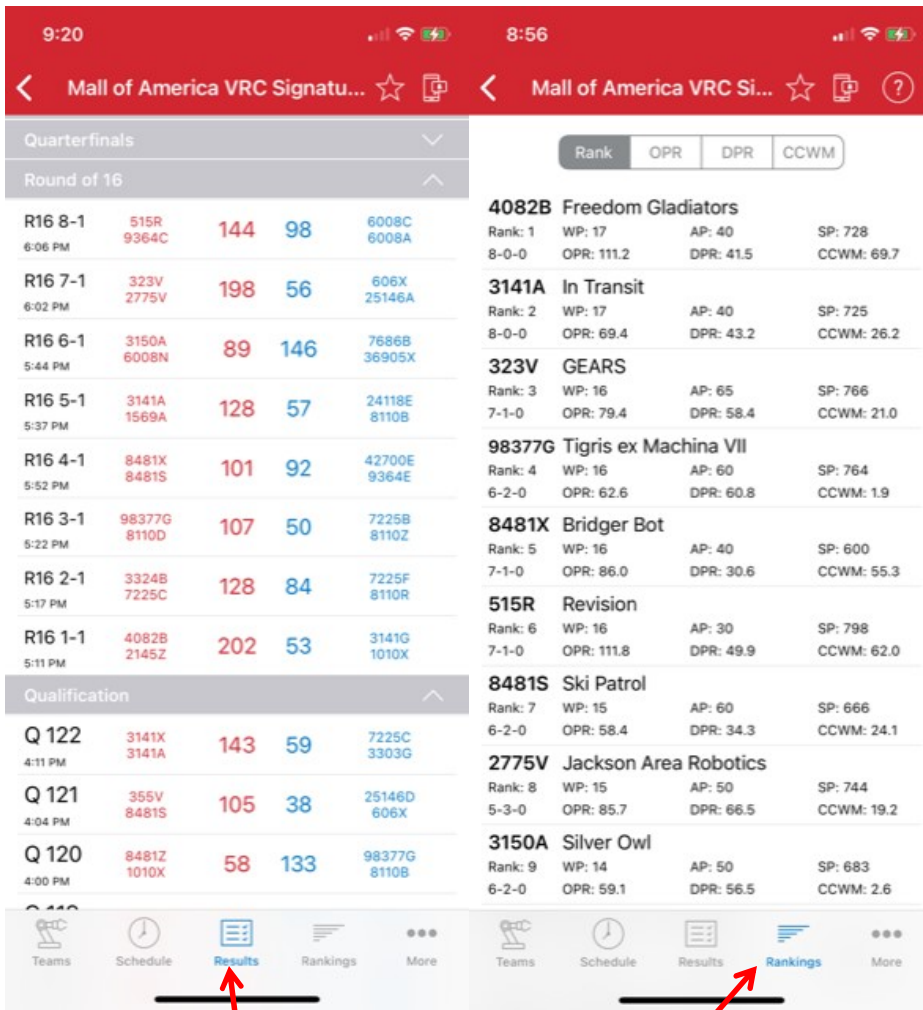
Search on your students team

Select the "Star" to favorite them

Tournament:
Team list

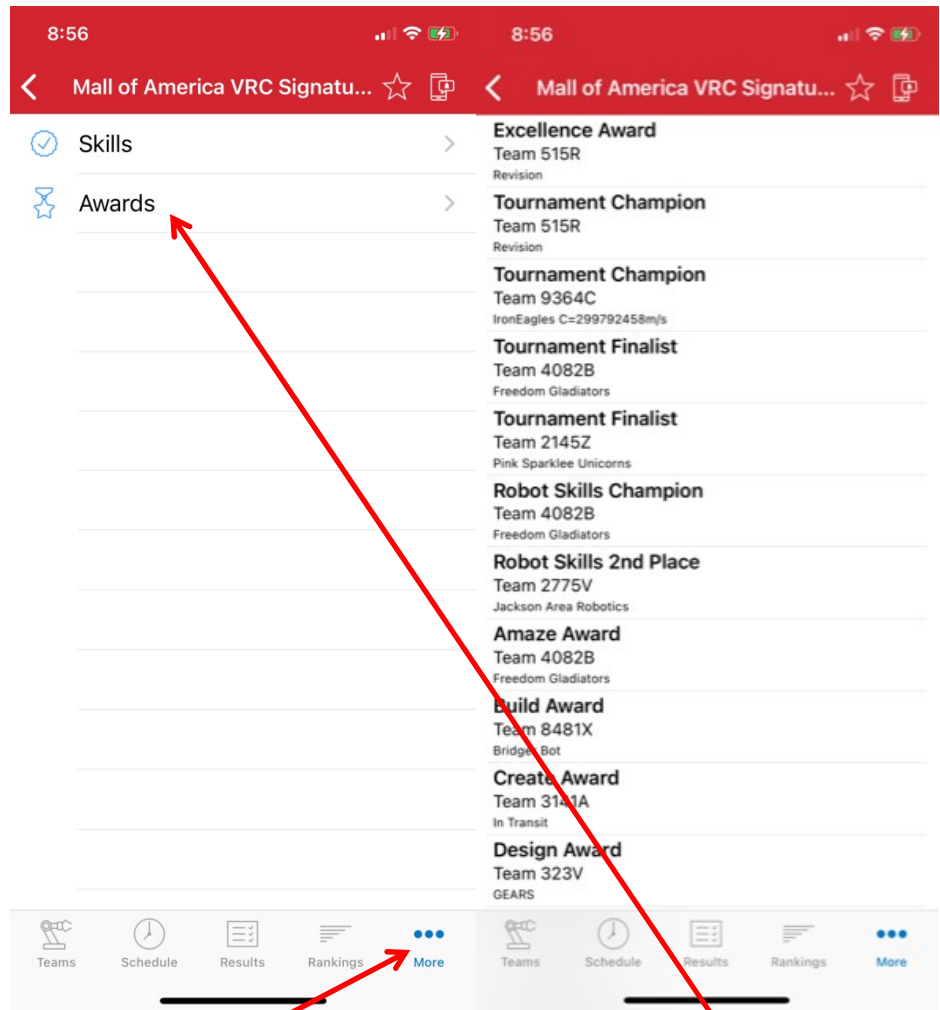
Tournament:
Match Schedule

'VEX via' App – Screenshots (IOS)



Tournament:
Match Results

Tournament:
Qual Rankings



Tournament:
Skills & Awards

Tournament:
Awards