

Disclaimer: This article was written in 2022 with our best kNnowledge via online reading and experience. To get the most latest information, you need to visit the individual organizer website given in the 2nd row of the following table.

	Robocup	F.I.R.S.T	VEX Robotics	W.R.O.	RoboFest
General Overview					
History	1997 : Robocup 2000 : RobocupJunior	1992	2007	2004	2000
Organizer	Robocup Federation - www.robocup.org junior.robocup.org	FIRST For Inspiration and Recognition of Science and TechNology FRC/FTC: www.firstinspires.org FLL: www.firstinspires.org/robotic s/edu	Robotics Education and Competition Foundation - www.vexrobotics.com	World Robot Olympiad Committee - wro-association.org	Lawrence TechNological Univeristy - www.ltu.edu
Levels	National, and World competitions. From Age 10 to Research.	Local, regional, national, and world competitions. For Elementary school to High School	Regional, National, and world competitions. For Elementary school to High School	Regional, National, and world competitions. For Elementary school to High School	National, and World competitions. For Elementary school to High School
Popularity in USA	Low.	High	High	Low	Low
	But highly esteemed in Europe, South East Asia, Australia, and Baltic States.	also popular	also popular	limited	very limited
Cost	Low-cost and affordable competition. Field is 100% or mostly reusable year after year with affordable modification.	VERY HIGH. About 10K every year, but with 50K+ for the first year. High cost due to investment in new arena, and proprietary mechanical	similar to FIRST.	Higher, but less expensive than FIRST game.	Low-cost and affordable competition. Field is 100% or mostly reusable. Field is 100% or mostly reusable year after year with

	Robocup	F.I.R.S.T	VEX Robotics	W.R.O.	RoboFest
Grades/ Leagues	Junior Leagues: pre-college (age 10+) Major Leagues: College and Research Level .	JrFLL - Gr. K to 4 FLL - Gr. 4 to 8 FTC - Gr. 7-12 FRC - Gr. 9-12	VEX IQ - Gr. 4 to 8. VEX EDR - Gr. 7 to 12. VEX U - College level	Beginner - 6 to 10 Elementary - up to 12. Junior - 13 to 15 Senior - 16 to 19 FootBall - 10 to 19 Advanced	Junior - Gr. 5 to 8. Senior - Gr. 9 to 12 Collegiate - only for Vision Centric Challenge.
Subleagues	Soccer - Light and Heavy weight Rescue Leagues Robot On-Stage	None	VEX IQ - Gr. 4 to 8. VEX EDR - Gr. 7 to 12. VEX U - College level	None	many- see www.robofest.net/
Simulation	YES	NO	NO	NO	NO
World Event	Any country	within USA : - Houston, TX - Detroit, MI	Louisville Kentucky since April 2014	Any country.	Any country. Mostly in Asia.
Atmosphere	very Subdue. Mentors are Not allowed to communicate with team members during	Sport like. Mentors,and teams are closely working together during competition	Sport like. Mentors,and teams are closely working together during competition	unkNown.	unkNown.
Most challenging aspects	Excellent Software development skills. Computer Vision kNnowledge is a MUST in most HS	Excellent Mechanical Building Skillls.	Excellent Mechanical Building Skillls	a large variety	a large variety
Local	Locals: 1 day event World: 4 days with 5th day as Technical Symposium	locals: 1 day event world event: 3 days	unclear..	unkNown.	unkNown.
team size	all (pre-college) : 2 to 4. For College: Various	JrFLL - 2 to 6 FLL - 2 to 10 FTC - 2 to 15 FRC - 6 to 100	No limit.	Majority : 2 to 4	1 for the individual game category. But 2 to 7 for others.

	Robocup	F.I.R.S.T	VEX Robotics	W.R.O.	RoboFest
	Heavily focus on technical aspect, engineering practice.	Simulates how a corporation work - from marketing, engineering, to	like FIRST.	Heavily focus on technical aspect, engineering practice.	Heavily focus on technical aspect, engineering practice.
Season	National: Early Spring. World : Early Summer.	Regionals vary from October through April. World event: last week of April	Regionals : year-round World : Usually in April	Late Fall	Regional : Dec World : May
World size	over 400+ teams from about 50 nations. (including all College leagues)	approx. 600 teams from about 30 nations (including all leagues)	over 1000 teams from 30+ nations. (including all leagues)	Catching up like RoboCup	unclear..
Awards	about 6 -10 awards for each league	Many, depending on the division. They are trying to maximize the chance that almost every team get some awards.	like FIRST.	unclear.	unclear.
About the Game itself					
Controller?	Up to each team.	Must be a standard kit Must use a single proprietary	Must be from VEX	2 Categories - Must be LEGO 2 Categories - at team's choice	Up to each team.
Mechanical	Can use any hardware. Continuous improvement in the mechanical requirement from year to year.	much higher investment in building materials due to big yearly regulatory changes.	Must be from VEX	2 categories - must be LEGO but with various programming languages 2 categories - similar to RCJ	Continuous improvement in the mechanical requirement from year to year.
Electronic	Can be heavily in Electronic. Enhancement is required from one year to next.	Not so much.	No. Plug and Play Vex components only.	2 categories (LEGO) - None 2 categories - up to the team.	Not so much.

	Robocup	F.I.R.S.T	VEX Robotics	W.R.O.	RoboFest
Robot Size	RCJ: smaller than 1'x 1'x 1' College Leagues: Any size up to Humanoid	FRC: About 4' x 4' x 4'+H Others: smaller than 1'x 1'x 1'	similar to FIRST.	2 categories (LEGO) - small 2 categories - up to the teams	usually small about 1'x 1'x 1'.
Automation	100% autonomy. Emphasize on algorithms improvement in AI development. Requires excellent programming skill.	Mainly Tele-op (remote control). Provide clear sample to follow in order to encourage students to run the robot in the few seconds of Auto mode.	Similar to FRC. While VEX allows to run either tele-op or auto mode, large majority runs in tele-op.	2 categories (LEGO) - full autonomy 2 categories - up to the teams	Heavily in automation.
Attainable	Very challenging. Less attainable by Novice.	Can be very challenging, but more attainable by Novice in simpler level.	similar to FIRST.	Can be very challenging, but much more attainable by Novice in simpler level.	Can be very challenging, but much more attainable by Novice in simpler level.
Time limit	varies from 2 to 15 minutes. Completely Auto mode.	Total 2.5 minutes. - 15 seconds for Auto mode. - 2 min + 15 sec for Teleop mode (i.e. Human control)	Total 2 minutes. - 45 seconds for Auto mode. (only for EDR and VEX U) - 1 min + 15 sec for Teleop mode (i.e. Human control)	unclear.	Large varieties
Tech. Symposium	World event: 5th day is for Technical Symposium where researchers from the globe presentation and talk.	No	No	No	No
Secret challenge	Yes in world event	No	No	No	Yes in both regional and world event
Independent Project	Yes under OnStage League	No	No	Yes	No

	Robocup	F.I.R.S.T	VEX Robotics	W.R.O.	RoboFest
Field appearance	Not colorful	Appealing..	Appealing..	depends on the game. But mostly colorful.	similar to RCJ
	Dynamic Field Completely based on robot's self- awareness.	Static Field. For the lower level - Mostly based on dead-reckoning method.	similar to FIRST.	2 categories (LEGO) - static field with a few variation for upper grades 2 categories - up to the	similar to RCJ
Game Theme	Small Regulatory changes every year.	Large Regulatory changes every year	similar to FIRST.	LEGO categories - Similar year to year but with field items randomly placed (somewhat similar to RCJ in that aspect)	Field Competition - Junior & Senior Exhibition - Junior & Senior
Unique feature	All: 100% autonomy is required. "Heavily" in software algorithms toward AI development. Electronic design can be very demanding especially in Soccer	JrFLL and FLL: Require research. FTC and FRC: "Heavily" in mechanical design. Minimal automNomy.	similar to FIRST.	2 Categories - Field Competition (with LEGO and full autonomy) 2 Categories - Engineering projects (majority with full autonomy)	All: Mostly autonomy. Consists of wide range of competition fields/style.
Strength	Allow teams to delve deeper into AI development.	Since large regulatory changes, a lot of effort must be spent on rebuilding the robot; especially in FRC. Great for those interested in	similar to FIRST.	A large variety to choose. More attainable for Novice. Also allow teams to delve deeper into strong programming skill.	A large variety to choose. Even free Theme in Mathematics and Science subjects.
Software Skills	HIGHLY demanding	FLL: Once kNowing how to perform deadreckoning with encoder, the growth is limited in programming area	Limited to LEGO platform, but allowing various programming software - this allows more room to enhance programming skills	Some leagues require higher programming skill, such as the Advanced Vision Centric game.	similar to FIRST. However, it does offer an autonomy option (although most choose tele-op mode).

Storming Robots chooses Robocup Junior

Why?

Storming Robots focuses in computational thinking and learning in computing algorithms required in artificial intelligence realm. In order to maximize the learning in algorithmic software development, and automation in robotics, as well as exploration of various platform, the RobocupJunior (RCJ) stands out as one of the best choices.

While RCJ does Not win the popularity among grade schools in USA, it stands out to be apart from most other games in the states. Robot Challenge itself involves dynamic changes in variables under their running environment. Besides, there is No restriction on a hardware or software manufacturer. RCJ sits at the pre-college level of the RoboCup global initiative. RoboCup is a International reNowned A.I intensive game. It stresses the learning in automation gearing towards artificial intelligence. RCJ delves deeply into computer science and algorithmic programming.

At the International Tournament, besides competing against top teams from across the globe, they will have the opportunity to interface with hundreds of research scientists and engineers from around the Int'l, and watch their amazing robotics apparatus in action.

[Also see our Criteria table](#)