Major Robotics Competitions in the USA for K-12 students

	FIRST High School Robotics	**First Lego League (FLL)**	**FIRST Tech Challenge (FTC)**	**VEX**	**Robofest**
Organizer	FIRST, a non-profit organization founded by Dean Kaman	FIRST, a non-profit organization founded by Dean Kaman	FIRST, a non-profit organization founded by Dean Kaman	Innovations First, Inc. a robotics retailer in business-to-business markets; competitions, and toys	Lawrence Technological University (LTU) www.LTU.edu
Web site	www.usfirst.org	firstlegoleague.org	www.usfirst.org	www.vexrobotics.com/vex-competitions.shtml	www.robofest.net
Revenue Source	Some sponsors; mainly from team registration fee. Corporate sponsors donate materials to FISRT. Note that companies sponsor local High school teams, not FIRST	Use existing FIRST staff members when it is high school robotics season. Some sponsors and registration fees.	← Same	Classroom retail kits; various and numerous component options; some business alliances/sponsorships	LTU, Some sponsors and team registration fee
Business Model	Well established	Well established	Well established	Privately held corporate entity	Primary focus is education, not business
Target Audience	*Selected* 9-12th grade students due to the high expenses	*Limited* 5th-9th grade students	Only high school students for a *relatively* lower cost, mid-level competition for First	Middle/high school students; new college level challenge	***Toward almost all*** students due to its affordability and student oriented approach. It has two divisions. One for 5th-8th and the other for 9th-12th students. College division has started.
Season	***Spring***	***Fall***	***Spring***	***Spring***	***Spring***
Team registration fee	$5,000 to start -- just for Reg. Qualifier	$700 + $50 -- $150 (check-in fee) – just for Reg. Qualifier	$275 + $100 -- $500 (check-in fee)	$75 + $25 -- $200 (check-in fee)	$50 + $20 (check-in fee)
Total cost for a team (without computers)	~ $10,000	~ $1,000	$1275 - $1675	$575 - $750	$320 ~$400
Total cost for a site	Relatively High	Medium	Relatively High	$1540 (just for field)	Very Low
Running a team and winning prizes	Largely depends on sponsoring company and its engineers	Largely depends on the school support and the schoolteacher	Largely depends on school teacher, coaches, and *mentors*	Largely depends on school teacher, coaches, and *mentors*	Depend on students; Robofest is student-focused and student-oriented

Location of student work	Must be in school; Robots are big, heavy and dangerous	Must be in school due to the big and heavy playing field	Requires a large space for playing field	Requires a large space for playing field	Anywhere due to the portability and modularity of playing field
Current Number of teams in the USA, as of 2008	900	4,000	800	N/A	560
Robots	Can use only kits provided by FIRST	Only Lego products	PITSCO kits – can use Lego NXT controller	VEX kits and component packages	*Any robots (Lego, Handy-Boards, Basic Stamps, etc.)*
Robot Control	Mainly remote control; sport like human interactions are combined	100% autonomous, however, usually dead-reckoning control	Mix of dead-reckoning autonomous (30 seconds) and operator controlled	Mix of dead-reckoning autonomous (20 seconds) and operator controlled	100% autonomous, feed-back loop control is required. (more advanced and educational)
Direct Adult Help to the Solution	Officially Allowed	No such rule mentioned	No such rule mentioned	No such rule mentioned	**Not** allowed
Unknown missions	No	No	No	No	**Yes**
Robot Exhibitions	No	No	No	No	Yes
Continuation of the project?	No	No	No	No	Yes, Robofest exhibition teams will get mini cash grants to improve their robotics project even after the championship.
Encourage adaptable solutions?	No (not enough sensors; playing field is fixed)	No (not enough sensors; playing field is fixed)	No (not enough sensors; playing field is fixed)	No (not enough sensors; playing field is fixed)	Yes (any sensors can be used. Playing field environment is dynamic)
Personalized Certificate/trophy	No	No	No	No	Yes
Educational merit	Good for STEM, best in manufacturing and mechanical engineering fields	Good for STEM, but not enough	Goof for STEM	Good for STEM	Good for STEM, best in computer science and engineering
Formal Assessment	No	No	No	No	Yes from 2009

Last updated Feb 16, 2009