

12 GLOSSARY

Term	Definition
ACTIVE DEVICE	any device capable of dynamically controlling and/or converting a source of electrical energy by the application of external electrical stimulus
ALLIANCE	a cooperative of up to 4 <i>FIRST</i> Robotics Competition teams
ALLIANCE CAPTAIN	The designated student representative from each ALLIANCE in a Playoff MATCH
ALLIANCE AREA	a 30 ft. (~914 cm) wide by 8 ft. 10 in. (~269 cm) deep infinitely tall volume formed by, and including the ALLIANCE WALL, the edge of the carpet, and ALLIANCE colored tape
ALLIANCE WALL	an ARENA element that consists of 3 DRIVER STATIONS and a HANGAR WALL
ARENA	a space which includes all elements of the game infrastructure that are required to play RAPID REACTSM: the FIELD, CARGO, and all equipment needed for FIELD and ROBOT management
ARENA FAULT	an error in ARENA operation
AUTO	The first phase of each MATCH in which ROBOTS operate without any DRIVE TEAM control or input
BACKUP TEAM	The team whose ROBOT and DRIVE TEAM replaces another ROBOT and DRIVE TEAM on an ALLIANCE during the Playoff MATCHES
BUMPER	a required assembly which attaches to the ROBOT frame. BUMPERS protect ROBOTS from damaging/being damaged by other ROBOTS and FIELD elements
BUMPER ZONE	the volume contained between the floor and a virtual horizontal plane 7½ in. (~19 cm) above the floor in reference to the ROBOT standing normally on a flat floor
BYPASSED	the state assigned to any ROBOT which is unable or ineligible to participate in that MATCH, as determined by the FTA, LRI, or Head REFEREE
CARGO	a red or blue oversized tennis ball, 9½ in. (~24 CM) in diameter, weighs 9½ oz. (~270 g), and has a fuzz surface
CARGO BONUS	a reward granted if 20 or more ALLIANCE colored CARGO scored in the HUB. If at least 5 ALLIANCE colored CARGO are scored in AUTO, called a QUINTET, this threshold drops to 18
CARGO LINE	a 3 ft. (~91 cm) black line that starts 1 ft. (~30 cm) from the intersection of the TERMINAL and the ALLIANCE WALL and runs parallel to and 1 ft. (~30 cm) from the ALLIANCE WALL
CENTER LINE	a white line that bisects the length of the FIELD at a ~66° angle to the guardrail
CHUTE	a plastic sheet with 1½ in. (~3 cm) tall aluminum angles spaced 6½ in. (~17 cm) from each other to form channels.

Term	Definition
COACH	a guide or advisor
COMPONENT	any part in its most basic configuration, which cannot be disassembled without damaging or destroying the part or altering its fundamental function
CONTINUOUS	describes rule violations that happen for more than approximately 10 seconds
CONTROL	the state of a CARGO if any of the following are true: A. the CARGO is fully supported by the ROBOT, B. the CARGO travels across the FIELD such that when the ROBOT changes direction, the CARGO travels with the ROBOT, C. the ROBOT is holding CARGO against a FIELD element in attempt to guard or shield it, or D. the ROBOT is preventing a CARGO from leaving a LOWER EXIT.
COTS	an adjective that describes a standard (i.e. not custom order) part commonly available from a VENDOR for all teams for purchase
CUSTOM CIRCUIT	Any active electrical item that is not an actuator (specified in R501) or core control system item (specified in R710)
DISABLED	the state in which a ROBOT is commanded to deactivate all outputs, rendering the ROBOT inoperable
DISQUALIFIED	the state of a team in which they receive 0 MATCH points and 0 Ranking Points in a Qualification MATCH or causes their ALLIANCE to receive 0 MATCH points in a Playoff MATCH
DRIVER	an operator and controller of the ROBOT
DRIVER STATION	1 of 3 assigned positions in an ALLIANCE WALL from where a DRIVE TEAM operates their ROBOT
DRIVE TEAM	a set of up to 5 people from the same <i>FIRST</i> Robotics Competition team responsible for team performance for a specific MATCH
FABRICATED ITEM	any COMPONENT or MECHANISM that has been altered, built, cast, constructed, concocted, created, cut, heat treated, machined, manufactured, modified, painted, produced, surface coated, or conjured partially or completely into the final form in which it will be used on the ROBOT
FIELD	a 27 ft. (~823 cm) by 54 ft. (~1646 cm) carpeted area bound by and including the inward- and upward-facing surfaces of the guardrails, inward-facing surfaces of the ALLIANCE WALLS, and the front vertical faces of the TERMINAL
FIELD STAFF	REFEREES, FTAs, or other staff working around the FIELD
FMS	Field Management System
FOUL	a credit of 4 points towards the opponent's MATCH score

Term	Definition
FRAME PERIMETER	fixed, non-articulated structural elements of the ROBOT contained within the BUMPER ZONE
FTA	a <i>FIRST</i> Technical Advisor
GUARD	framing formed by all TERMINAL structure above the CHUTE
HANGAR	an ARENA assembly which consists of truss structure, bases, 4 RUNGS, RUNG mounting brackets, floor protection, and 2 LAUNCH PADS
HANGAR BONUS	a reward granted if an ALLIANCE is credited with at least 16 HANGAR points
HANGAR WALL	a 2 ft. 9 $\frac{5}{8}$ in. (~85 cm) wide by 6 ft. 5 $\frac{3}{4}$ in. (~197 cm) tall structure located between DRIVER STATION 1 and the guardrail
HANGAR ZONE	a 9 ft. 8 in. (~295 cm) wide, 10 ft. 8 $\frac{3}{4}$ in. (327 cm) deep, and infinitely tall volume defined by the ALLIANCE WALL, guardrail, and ALLIANCE colored tape. The HANGAR ZONE includes the tape.
HIGH RUNG	a RUNG installed on the HANGAR and positioned such that its top is 6 ft. 3 $\frac{5}{8}$ in. (~192 cm) above floor protection carpet
HUB	a structure centered on the FIELD and shared between ALLIANCES. It consists of 2 funnel-shaped goals (an UPPER HUB and a LOWER HUB), UPPER and LOWER EXITS, and 4 fenders
HUMAN PLAYER	a CARGO manager
INSPECTOR	a volunteer employed to accurately and efficiently assess the legality of a given part or ROBOT
KOP	Kit of Parts, the collection of items listed on the current season's Kickoff Kit Checklists, distributed to the team via <i>FIRST</i> Choice in the current season, or paid for completely (except shipping) with a Product Donation Voucher (PDV) from the current season
LAUNCH PAD	a piece of $\frac{1}{4}$ in. (~6 mm) thick, 1 ft. 5 $\frac{1}{4}$ in. (~44 cm) tall, and 10 in. (~25 cm) wide HDPE of the corresponding ALLIANCE color
LINEUP	the list of 3 teams participating in the MATCH and their selected DRIVER STATIONS
LOWER EXIT	one of the 4 tunnels from which CARGO leaves the LOWER HUB
LOWER HUB	the lower of 2 funnel-shaped goals
LOW RUNG	a RUNG installed on the HANGAR and positioned such that its top is 4 ft. $\frac{3}{4}$ in. (~124 cm) above FIELD carpet
LRI	a Lead ROBOT INSPECTOR

Term	Definition
MAJOR MECHANISM	a group of COMPONENTS and/or MECHANISMS assembled together to address at least 1 game challenge: ROBOT movement, CARGO manipulation, FIELD element manipulation, or performance of a scorable task without the assistance of another ROBOT
MATCH	a two minute and 30 second period of time in which ALLIANCES play RAPID REACT
MECHANISM	an assembly of COMPONENTS that provide specific functionality on the ROBOT
MID RUNG	a RUNG installed on the HANGAR and positioned such that its top is 5 ft. ¼ in. (~153 cm) above floor protection carpet, and its center is 3 ft. 6 in. (~107 cm) from the center of the Low RUNG
MOMENTARY	describes rule violations that happen for fewer than approximately 3 seconds
MXP	myRIO Expansion port, the expansion port on the roboRIO
OPERATOR CONSOLE	the set of COMPONENTS and MECHANISMS used by the DRIVERS and/or HUMAN PLAYERS to relay commands to the ROBOT
PASSIVE CONDUCTOR	any device or circuit whose capability is limited to the conduction and/or static regulation of the electrical energy applied to it (e.g. wire, splices, connectors, printed wiring board, etc.)
PH	a Pneumatic Hub
PCM	a Pneumatic Control Module
PDH	a Power Distribution Hub
PDP	a Power Distribution Panel
PIN	the act in which a ROBOT is preventing the movement of an opponent ROBOT by contact, either direct or transitive (such as against a FIELD element)
PURPLE PLANE	a virtual boundary which extends the width of the TERMINAL and is defined by the FIELD side edge of the GUARD and the purple tape which runs parallel to the interior ramp
QUINTET	a scenario in which at least 5 ALLIANCE colored CARGO are scored in AUTO
RED CARD	a penalty assessed for egregious ROBOT or team member behavior or rule violations which results in a team being DISQUALIFIED for the MATCH
REFEREE	an official who is certified by <i>FIRST</i> to enforce the rules of RAPID REACT
REPEATED	describes rule violations that happen more than once within a MATCH
ROBOT	an electromechanical assembly built by the <i>FIRST</i> Robotics Competition team to play the current season's game and includes all the basic systems required to be an active participant in the game –power, communications, control, BUMPERS, and movement about the FIELD

Term	Definition
RP	a Ranking Point
RPM	a Radio Power Module
RS	the Ranking Score
RSL	a ROBOT Signal Light
RUNG	1 of 4 1¼ in. Schedule 40 steel pipes, with a 1.66 in. (~4 cm) outer diameter, and are powder coated to reflect the ALLIANCE color
SIGNAL LEVEL	circuits which draw ≤1A continuous and have a source incapable of delivering >1A, including but not limited to roboRIO non-PWM outputs, CAN signals, PCM/PH Solenoid outputs, VRM 500mA outputs, RPM outputs, and Arduino outputs)
SHADOW LINE	a black line that lies directly below the MID RUNG
STARTING CONFIGURATION	the physical configuration in which a ROBOT starts a MATCH
STARTING LINE	a white line spanning the width of the carpet and located 2 ft. 4 in. (~71 cm) from the back of the DRIVER STATION diamond plate panel to the near edge of the tape.
STUDENT	a person who has not completed high-school, secondary school, or the comparable level as of September 1 prior to Kickoff
SURROGATE	a team randomly assigned by the FIELD Management System to play an extra Qualification MATCH
TARMAC	1 of 4 (2 per ALLIANCE) 12 ft. 9 in. (~389 cm) wide by 7 ft. ¾ in. (~215 cm) deep infinitely tall volumes bounded by and including the ALLIANCE colored tape
TAXI	the state of a ROBOT whose BUMPERS have completely left the TARMAC from which it started at any point during AUTO
TECH FOUL	a credit of 8 points toward the opponent's MATCH score
TECHNICIAN	a resource for ROBOT troubleshooting, setup, and removal from the FIELD
TELEOP	The second phase of each MATCH
TERMINAL AREA	1 of 2 7 ft. 8½ in. (~235 cm) wide by 6 ft. 9 in. (~206 cm) deep and infinitely tall volumes bounded by and including purple tape
TERMINAL STARTING LINE	a white line spanning the width of the TERMINAL AREA and located 2 ft. (~61 cm) from the back of the TERMINAL AREA
TERMINAL	a FIELD element which consists of 1 ramp, 1 GUARD, 1 PURPLE PLANE, 1 CHUTE, and other structure elements shown in Figure 5-20
TRAVERSAL RUNG	a RUNG installed on the HANGAR and positioned such that its top is 7 ft. 7 in. (~231 cm) above floor protection carpet

Term	Definition
TIMEOUT	a period of up to 6 minutes between MATCHES which is used to pause Playoff MATCH progression
UPPER EXIT	1 of the 4 extensions on which CARGO leaves the UPPER HUB
UPPER HUB	The higher of 2 funnel-shaped goals
VENDOR	a legitimate business source for COTS items that satisfies all criteria listed in Section 9 ROBOT Construction Rules
VRM	a Voltage Regulator Module
YELLOW CARD	a warning issued by the Head REFEREE for egregious ROBOT or team member behavior or rule violations. A subsequent YELLOW CARD within the same tournament phase results in a RED CARD



FIRST®, the FIRST® logo, FIRST® Robotics Competition, FIRST® Tech Challenge, RAPID REACT™, FIRST FORWARD™, Gracious Professionalism®, and Coopertition® are trademarks of For Inspiration and Recognition of Science and Technology (FIRST). LEGO® is a trademark of the LEGO Group. FIRST® LEGO® League is a jointly held trademark of FIRST and the LEGO Group. All other trademarks are the property of their respective owners. ©2022 FIRST. All rights reserved.