

## 16 Glossary

The following definitions and terms are used for the *FIRST* Tech Challenge game DECODE. Defined terms are in ALL CAPITAL LETTERS throughout the manual (for example, ALLIANCE). Competition rules mean what they plainly say. If a word is not given a game definition, then you should use its common conversational meaning.

| Term                    | Definition                                                                                                                                                                                                                                         |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ALLIANCE</b>         | a cooperative of 2 <i>FIRST</i> Tech Challenge teams                                                                                                                                                                                               |
| <b>ALLIANCE AREA</b>    | a 96 in. (243.85 cm) wide by 54 in. (137.15 cm) deep by infinitely tall volume formed by placing ALLIANCE colored tape onto the flooring surface outside of the FIELD.                                                                             |
| <b>ALLIANCE CAPTAIN</b> | The designated STUDENT representative from each ALLIANCE lead is called the ALLIANCE CAPTAIN.                                                                                                                                                      |
| <b>ARENA</b>            | includes all elements of the game infrastructure that are required to play this season's FTC game including: the FIELD, SCORING ELEMENTS, queue area, team media area, and all equipment needed for FIELD control, ROBOT control, and scorekeeping |
| <b>ARENA FAULT</b>      | ARENA FAULT is an error in ARENA operation                                                                                                                                                                                                         |
| <b>ARTIFACT</b>         | An ARTIFACT is a 5 in. (12.70 cm) nominal Gopher ResisDent™ polypropylene ball ALLIANCE neutral SCORING ELEMENT.                                                                                                                                   |
| <b>AUTO</b>             | the first 30 seconds of the MATCH, during which DRIVERS may not provide input to their ROBOTS, so ROBOTS operate with only their pre-programmed instructions                                                                                       |
| <b>BASE</b>             | A scoring accomplishment in which ROBOT must be either fully returned or partially returned to their BASE ZONE.                                                                                                                                    |
| <b>BASE ZONE</b>        | an 18 in. +/- 0.125 in. (45.70 cm +/- 0.30 cm) wide by 18 in. +/- 0.125 in. (45.70 cm +/- 0.30 cm) deep infinitely tall volume bounded by ALLIANCE colored tape                                                                                    |
| <b>CHASSIS</b>          | ROBOT'S MAJOR MECHANISM that enables it to move around a FIELD                                                                                                                                                                                     |
| <b>CLASSIFIED</b>       | An ARTIFACT that passes through the SQUARE and transitions directly to the RAMP                                                                                                                                                                    |
| <b>CLASSIFIER</b>       | a structure attached to the GOAL which has 3 main components: the SQUARE, RAMP, and GATE                                                                                                                                                           |
| <b>COMPONENT</b>        | any part in its most basic configuration, which cannot be disassembled without damaging or destroying the part or altering its fundamental function                                                                                                |

| Term                   | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| <b>CONTINUOUS</b>      | describes durations that are more than approximately 10 seconds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>CONTROL</b>         | <p>an action by a ROBOT in which the SCORING ELEMENT is fully supported by or stuck in, on, or under the ROBOT or it intentionally pushes a SCORING ELEMENT to a desired location or in a preferred direction (i.e., herding). CONTROL requires contact with a ROBOT, either directly or transitively through other SCORING ELEMENTS. Typically, CONTROL requires one of the following to be true:</p> <ul style="list-style-type: none"> <li>A. The SCORING ELEMENT is fully supported by the ROBOT</li> <li>B. The ROBOT is moving the SCORING ELEMENT in a preferred direction with a flat or concave face of the ROBOT</li> </ul> |
| <b>COTS</b>            | a standard (i.e., not custom order) part commonly available from a VENDOR for all teams for purchase                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>CUSTOM CIRCUIT</b>  | Any active electrical item that is not an actuator (specified in <a href="#">R501</a> ) or power regulation device (specified in <a href="#">R505</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>DEPOT</b>           | the white tape approximately 30 in. (76.20 cm) long which spans the entire length of the GOAL front face and is located at the base of the GOAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>DISABLED</b>        | The REFEREE instructs the team to stop the ROBOT which will deactivate all outputs, rendering the ROBOT inoperable for the remainder of the MATCH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>DISQUALIFIED</b>    | 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                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>DRIVE COACH</b>     | a guide or advisor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>DRIVE TEAM</b>      | a set of up to 4 people from the same FIRST Tech Challenge team responsible for team performance for a specific MATCH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>DRIVER</b>          | an operator and controller of the ROBOT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>DRIVER STATION</b>  | Android device (smartphone or REV Driver Hub) that runs the DRIVER STATION App software to communicate with a ROBOT per <a href="#">R901</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>FABRICATED ITEM</b> | 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                                                                                                                                                                                                                                                                                                                                                 |
| <b>FIELD</b>           | an approximately 144 in. by 144 in. (365.75 cm by 365.75 cm) area bounded by the inside surface of the walls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Term                    | Definition                                                                                                                                                                                                                                                                                               |
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| <b>FIELD STAFF</b>      | volunteers present in and around the ARENA that are responsible for making sure the MATCHES are cycled through efficiently, fairly, safely, and with a spirit of cooperation, <i>Gracious Professionalism</i> ®, and generosity of spirit                                                                |
| <b>FTA</b>              | FIRST Technical Advisor                                                                                                                                                                                                                                                                                  |
| <b>GATE</b>             | an ALLIANCE specific FIELD element that prevents CLASSIFIED ARTIFACTS from exiting the RAMP                                                                                                                                                                                                              |
| <b>GATE ZONE</b>        | a 2.75 in. (7.00 cm) wide by 10 in. (25.40 cm) long infinitely tall volume bounded by 2 parallel 10 in. (25.40 cm) long ALLIANCE colored tape segments adjacent to each GATE                                                                                                                             |
| <b>GOAL</b>             | a 3-sided structure with a horizontal triangular shaped opening at the top                                                                                                                                                                                                                               |
| <b>HUMAN PLAYER</b>     | a SCORING ELEMENT manager                                                                                                                                                                                                                                                                                |
| <b>INSPECTOR</b>        | a person determined by FIRST to accurately and efficiently assess the legality of a given part or the whole of a ROBOT, an event volunteer role                                                                                                                                                          |
| <b>JUDGE</b>            | JUDGES meet with teams to learn about and celebrate the unique journey and accomplishments of each team and evaluate these against award requirements. JUDGES interact with STUDENTS during the interview process, and in the pits. As a group, JUDGES determine the teams that receive awards at events |
| <b>LAUNCH/LAUNCHING</b> | An action by a ROBOT in which the SCORING ELEMENT is shot into the air, propelled across the floor to a desired location or in a preferred direction, or thrown in a forceful way                                                                                                                        |
| <b>LAUNCH LINE</b>      | the white tape which bounds 2 triangular LAUNCH ZONES, as well as 2 segments of white tape located at the base of the GOAL                                                                                                                                                                               |
| <b>LAUNCH ZONE</b>      | infinitely tall triangular volumes bounded by LAUNCH LINES and the FIELD perimeter                                                                                                                                                                                                                       |
| <b>LEAVE</b>            | a scoring accomplishment in which a ROBOT must move such that it is no longer over any LAUNCH LINE at the end of AUTO                                                                                                                                                                                    |
| <b>LOADING ZONE</b>     | an approximately 23 in. (58.40 cm) wide by 23 in. (58.40 cm) deep infinitely tall volume bounded by white tape and the adjoining FIELD perimeters                                                                                                                                                        |
| <b>LRI</b>              | the Lead ROBOT INSPECTOR                                                                                                                                                                                                                                                                                 |
| <b>MAJOR FOUL</b>       | a credit of 15 points towards the opponent's MATCH point total                                                                                                                                                                                                                                           |
| <b>MAJOR MECHANISM</b>  | a group of COMPONENTS and/or MECHANISMS assembled together to address at least 1 game challenge: ROBOT movement, SCORING ELEMENT                                                                                                                                                                         |

| Term                       | Definition                                                                                                                                                                                 |
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|                            | manipulation, FIELD element manipulation, or performance of a scorable task without the assistance of another ROBOT.                                                                       |
| <b>MATCH</b>               | a 30-second AUTO period, an 8-second transition period between AUTO and TELEOP, and a 2-minute TELEOP period in which the ROBOT plays the current season game                              |
| <b>MECHANISM</b>           | an assembly of COMPONENTS that provide specific functionality on the ROBOT. A MECHANISM can be disassembled (and then reassembled) into individual COMPONENTS without damage to the parts. |
| <b>MINOR FOUL</b>          | a credit of 5 points towards the opponent's MATCH point total                                                                                                                              |
| <b>MOMENTARY</b>           | describes durations that are fewer than approximately 3 seconds                                                                                                                            |
| <b>MOTIF</b>               | a series of ARTIFACT colors, comprised of 2 purple (P) and 1 green (G), in a unique order                                                                                                  |
| <b>OBELISK</b>             | OBELISK is an equilateral triangular prism located just outside of the FIELD perimeter                                                                                                     |
| <b>OPERATOR CONSOLE</b>    | the set of COMPONENTS and MECHANISMS used by the DRIVE TEAM to relay commands to the ROBOT                                                                                                 |
| <b>OVERFLOW</b>            | An ARTIFACT that passes through the SQUARE but does not meet CLASSIFIED criteria                                                                                                           |
| <b>PATTERN</b>             | A scoring achievement in which points are scored based on the color of the ARTIFACT on the RAMP matching the individual index color defined by the MOTIF                                   |
| <b>PIN/PINNING</b>         | an action by a ROBOT that is preventing the movement of an opponent ROBOT by contact, either direct or transitive (such as against a FIELD element)                                        |
| <b>PORTFOLIO</b>           | A document used as part of the judging process with requirements outlined in <a href="#">A201</a>                                                                                          |
| <b>RAMP</b>                | A structure that can fit up to 9 CLASSIFIED ARTIFACTS                                                                                                                                      |
| <b>RANKING POINTS (RP)</b> | credited to a team based on their ALLIANCE'S performance in Qualification MATCHES                                                                                                          |
| <b>RANKING SCORE (RS)</b>  | A team's RANKING SCORE (RS) is the average number of RANKING POINTS earned by a team throughout their Qualification MATCHES                                                                |
| <b>RED CARD</b>            | a penalty issued by the Head REFEREE for egregious ROBOT or team member behavior or rule violations which results in a team being DISQUALIFIED for the MATCH.                              |

| Term                          | Definition                                                                                                                                                                                                                                                               |
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| <b>REFEREE</b>                | an official who is certified by <i>FIRST</i> to enforce the rules of the current season's game, an event volunteer role                                                                                                                                                  |
| <b>REPEATED</b>               | describes actions that happen more than once within a MATCH                                                                                                                                                                                                              |
| <b>ROBOT</b>                  | an electromechanical assembly built by a <i>FIRST</i> Tech Challenge 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, and movement about the FIELD            |
| <b>ROBOT CONTROLLER</b>       | Android device (smartphone or REV Control Hub) that runs the ROBOT CONTROLLER app to control the ROBOT as defined in <a href="#">R701</a>                                                                                                                                |
| <b>ROBOT SIGN</b>             | A ROBOT SIGN simultaneously identifies a ROBOT'S team number as well as its ALLIANCE affiliation for FIELD STAFF.                                                                                                                                                        |
| <b>SCORING ELEMENT</b>        | There is 1 type of SCORING ELEMENT used in DECODE: the ARTIFACT.                                                                                                                                                                                                         |
| <b>SECRET TUNNEL ZONE</b>     | an approximately 46.5 in. (118.10 cm) long by approximately 6.125 in. (15.55 cm) wide infinitely tall volume bounded by ALLIANCE colored tape, the GOAL assembly, the LOADING ZONE, and the adjoining FIELD perimeter                                                    |
| <b>SIGNAL LEVEL</b>           | a term used to characterize circuits which draw $\leq 1A$ continuous and have a source incapable of delivering $>1A$ , including but not limited including but not limited to REV Control and Expansion Hub sensor input/output signals (DIO, analog, I2C, encoder, 485) |
| <b>SPIKE MARK</b>             | 1 of 6 white tape marks 10 in. (25.40 cm) long used to identify the placement of 3 ARTIFACTS before the MATCH                                                                                                                                                            |
| <b>SQUARE</b>                 | a location at the top of the RAMP at which ARTIFACT scoring is assessed                                                                                                                                                                                                  |
| <b>STARTING CONFIGURATION</b> | the physical configuration in which a ROBOT starts a MATCH                                                                                                                                                                                                               |
| <b>STUDENT</b>                | a person who has not completed high-school, secondary school, or the comparable level in their home region as of September 1 <sup>st</sup>                                                                                                                               |
| <b>SURROGATE</b>              | a team randomly assigned by event management software to play an extra Qualification MATCH                                                                                                                                                                               |
| <b>TELEOP</b>                 | second period of each MATCH is 2 minutes (2:00) long and called the teleoperated period (TELEOP). During TELEOP, DRIVERS remotely operate ROBOTS                                                                                                                         |
| <b>TILE</b>                   | flooring surface of the FIELD is made of 36 interlocking soft foam TILES                                                                                                                                                                                                 |
| <b>VENDOR</b>                 | a legitimate business source for COTS items that satisfies criteria defined in section <a href="#">12 ROBOT Construction Rules (R)</a>                                                                                                                                   |

| Term                  | Definition                                                                                          |
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| <b>VERBAL WARNING</b> | a warning issued by event staff or the Head REFEREE                                                 |
| <b>YELLOW CARD</b>    | a warning issued by the Head REFEREE for egregious ROBOT or team member behavior or rule violations |
| <b>WTA</b>            | wireless technical advisor an event volunteer role                                                  |