Team Update 01

General

The Q&A system is now open for questions. As a reminder, each team has one account that can be used to ask questions on the Q&A. Please reference the Team Q&A Registration Instructions document to access your team's account.

Competition Manual

Section 1.10 Question and Answer System

- Moderators will answer team questions beginning each Monday, and close on Thursday at 12:00pm ET.

Section 9.7 SCORING ELEMENTS

- There are two different physical elements used in INTO THE DEEP: the SAMPLE and the CLIP. Red or blue ALLIANCE SPECIFIC SAMPLES can be combined ~~by a HUMAN PLAYER~~ with a CLIP to create a SPECIMEN. The SAMPLE and the SPECIMEN can be used to score points.

Section 9.7.2 CLIP

- The CLIP is a black plastic SCORING ELEMENT which is designed to be connected to a SAMPLE by a HUMAN PLAYER or ROBOT to create a SPECIMEN. The CLIP is a 2.5 in. (~6.4 cm) high by ~3.2 in. (~8.1 cm) long by 1 in. (~2.5 cm) wide .

Section 10.3.1 SCORING ELEMENTS

- From the SCORING ELEMENTS provided in ~~E~~ D and ~~F~~ E each ROBOT may be pre-loaded with either 1 SAMPLE or one SPECIMEN such that it is in contact with the ROBOT. SAMPLES or CLIPS not pre-loaded will remain in setup locations ~~E~~ D and ~~F~~ E.

Section 10.5.3 ROBOT Scoring Criteria

Additionally, the following conditions must be met:

- ROBOTS can only ASCEND their own ALLIANCE SPECIFIC RUNGS.
- ROBOTS must start ASCENDING from outside the SUBMERSIBLE ZONE.
- ROBOTS may not initiate contact with the HIGH RUNG while:
  - still supported by the TILES directly or transitively through another object (e.g., SCORING ELEMENTS or another ROBOT), ~~and~~ or
  - supported by any other part of the SUBMERSIBLE structure except for the LOW RUNG
- ROBOTS that are eligible for multiple ASCENTS or ASCENT and PARKING points only earn points for the highest value achievement.

If any of the above conditions are not met, it is not a valid ASCENT. If a ROBOT does not meet ASCENT criteria, the ROBOT may disengage from the SUBMERSIBLE and attempt the ASCENT again.

Section 11.4.2 TELEOP

G406 ***ROBOTS are motionless at the end of TELEOP**. ROBOTS must no longer be actively controlled after the end of the TELEOP period. This can be done by a DRIVE TEAM member pressing the (■) stop button

on the DRIVER STATION app or by discontinuing any operation of the ROBOT by the end of the ~~buzzer sound~~ MATCH period.

Violation: MINOR FOUL, MAJOR FOUL if actions result in a scoring achievement by the offending ROBOT

DRIVE TEAMS should make their best effort to stop gameplay immediately ~~when the end of the period game sound begins~~ at the end of the MATCH period. The end of MATCH period buzzer audio cue is approximately 3 seconds long and is used as an unofficial indicator to teams and REFEREES that the MATCH has ended.

Section 11.4.3 SCORING ELEMENT

G410 **1 SAMPLE or SPECIMEN at a time.** A ROBOT may not CONTROL more than 1 SAMPLE or 1 SPECIMEN at a time, either directly or transitively through other objects. There is no limit to the number of CLIPS a ROBOT may possess.

A ROBOT is in CONTROL of a SAMPLE or SPECIMEN if:

- the SAMPLE or SPECIMEN is fully supported by the ROBOT or
- it intentionally pushes a SAMPLE or SPECIMEN to a desired location or in a preferred direction (i.e., herding, often with a concave surface)

Exceptions to this rule are as follows:

- ROBOTS may MOMENTARILY exceed CONTROL limits while collecting SAMPLES that are in the SUBMERSIBLE ZONE.
- scored SAMPLES or SPECIMENS for the corresponding ALLIANCE are exempt from the CONTROL limit.

Violation: MINOR FOUL per SCORING ELEMENT, plus YELLOW CARD if excessive.

Examples of interaction with a SAMPLE or SPECIMEN that are not “CONTROL” include, but are not limited to:

A. PLOWING or “bulldozing” (inadvertent contact with a SAMPLE or SPECIMEN, typically via a flat or convex surface, while in the path of the ROBOT moving about the FIELD).

B. “deflecting” (being hit by a SAMPLE or SPECIMEN that bounces off a ROBOT).

Excessive violations of CONTROL limits include, but are not limited to, simultaneous CONTROL of 3 or more ~~SCORING ELEMENTS~~ SAMPLES and/or SPECIMENS, or frequent, greater-than MOMENTARY CONTROL (i.e., more than twice in a MATCH) of 2 or more SCORING ELEMENTS. REPEATED excessive violations of this rule do not result in additional YELLOW CARDS unless the violation reaches the level of egregious to trigger a G201 violation.

G411 **ROBOTS may not CONTROL the opposing ALLIANCE'S SPECIFIC SAMPLES or SPECIMENS.** ROBOTS may only have MOMENTARY CONTROL of opposing ALLIANCE SPECIFIC SAMPLES or SPECIMENS.

Violation: MINOR FOUL per SCORING ELEMENT, plus an additional MINOR FOUL per opposing SCORING ELEMENT for each 5-second interval that the situation continues. A MAJOR PENALTY is applied for each SCORING ELEMENT that is scored while in CONTROL.

Section 12.3 Fabrication

R307 ***COTS must be single DoF.** COTS COMPONENTS and MECHANISMS must not exceed a single degree of mechanical freedom (DoF). Examples of allowed COTS single degree of freedom MECHANISMS and COMPONENTS are as follows:

A. linear slide kit,
B. linear actuator kit,
C. single speed (non-shifting) gearboxes,
D. pulley,
E. turntable,
F. lead screw, and
G. single DoF gripper.

Allowed exceptions to this rule are:

H. ratcheting devices (wrenches, bearings, etc.),
I. holonomic wheels (omni or mecanum), and
J. dead-wheel odometry kits.

The general test for a single degree of freedom MECHANISM is whether the orientation and position of each COMPONENT in the MECHANISM can be generally predicted based on the orientation and position of a single COMPONENT (such as the input) of the system.

Example 1: A mecanum drivetrain is made up of four independent drive modules, each with a single DoF (ignoring the DoF of the mecanum wheels as allowed by this rule), attached to a common structure (e.g., chassis). The overall MECHANISM is still a single DoF.

Example 2: Dead wheel odometry modules, allowed by this rule, are typically composed of a 1 DoF wheel (ignoring the effect of the holonomic wheel) providing forward/backwards motion and a spring force providing an additional unique rotational or vertical motion, creating a two DoF system.

Example 3: Simple gripper claws, comprised of a single actuator moving two gripper jaws simultaneously or double actuators each controlling an independent gripper jaw, are by and large a single DoF. However, grippers that incorporate additional actuators providing additional twisting and/or bending actions (like a wrist) add degrees of freedom that are prohibited in COTS MECHANISMS.

Section 12.4 ROBOT SIGNS

R402 ***ROBOT SIGNS indicate your ALLIANCE.** Each ROBOT SIGN must contain a 6.5 in. by 2.5 in. (16.5 cm by 6.4 cm) rectangle with a solid red or blue opaque background to indicate their ALLIANCE color (Figure 12-4), as assigned in the MATCH schedule at the event. Visible markings on ROBOT SIGNS when installed on the ROBOT, other than the following, are prohibited:

E. those required per R403,
A. solid white *FIRST* logos no larger than 1.5 in. (3.8 cm) in height (Figure 12-5)
B. small amounts of hook-and-loop tape, hard fasteners, or functional equivalents,
C. narrow areas of differing colors exposed at corners, folds, or cutouts,
D. dark narrow markings on background solely for template purposes,
E. cannot be powered or rely on power from any sources to illuminate/reveal ALLIANCE color

Section 13.6.4 4-ALLIANCE Bracket and Typical Timing

Correction to Match 5 lower bracket, loser of M4 plays winner of M3.