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2016-2017 *FIRST*® Tech Challenge Forum Answered Questions

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General Robot Rules - Answer Thread

Printable View

Administrator

09-12-2016, 10:58 AM

General Robot Rules - Answer Thread

The answers to your Robot Rules Questions pertaining to General Robot Rules are provided in this thread.

Professor Proton

09-22-2016, 12:13 PM

<GS2> Particle Scoring Eligibility & Game Manual Part 1 Section 5.3.1

Section 5.3.1 of the Game Manual Part 1 asks teams to reflect on their *Robot's design and the question: "If everybody did this, would the game play be impossible? If the answer to the question is yes, the design component is probably not allowed."*

VELOCITY VORTEX is played with *Particles* that are *Scored* in goals and recycled back to the *Playing Field* for continuous game play. The Game Design Committee's intent is for open recycling, where *Scored Particles* return to random locations on the *Playing Field Floor* so that both *Robots* on an *Alliance* have an equal opportunity to access, *Control*, or *Possess* their *Alliance's Scored Particles*. A closed recycling game strategy that denies a reasonable opportunity for an *Alliance Partner Robot* to access, *Control*, or *Possess* a *Scored Particle* is not in the spirit of the *FIRST Tech Challenge* and is not allowed. Game play with closed recycling of *Particles* would be impossible and unfair to *Alliance Partners*. Therefore, *Robot* designs and/or game strategies that deny their *Alliance Partner* equal access to *Scored Particles*, is considered to be a violation of rule <GS2>.

Sheldon

09-28-2016, 01:34 PM

RE12 - Lenses

Quote:

Originally Posted by **FTC8391** ➡

Are wide-angle lenses (to be used with the phone camera) legal?

A: Yes, lenses for use with the phone camera are legal.

Sheldon

09-28-2016, 01:52 PM

RM02 - TileRunner

Quote:

Originally Posted by **FTC2844** 

Alot of discussion is buzzing around the forums about the Andymark TileRunners Drivetrain.

<http://www.andymark.com/TileRunner-p/am-tilerunner.htm>

Question: Is is legal?

A: Yes, the TileRunner kit because it comes unassembled and is made of legal components is legal.

Sheldon

09-30-2016, 06:11 PM

RG03 - Flip Up Phone

Quote:

Originally Posted by **FTC4042** 

Hi,

My team has been very keen on using the camera on the phone for addressing the beacons. However, we have found that using the rear camera is a lot more reliable than the front facing one. So we were wondering if it would be possible to make a case that could flip open easily by releasing a quick clip, revealing the screen. Would this pass rule <RG03> because it is visible, easily accessible and protects the phone. Thanks.

Team 4042

A: The Android device screen needs to be accessible and visible at all times. If there is a cover over the screen, it needs to be transparent and easy to open. Phones that are buried in the bot or difficult to access could result in the inability of FTAs to resolve on-field issues without delaying the start of the match.

Tip from the Game Design Committee: Field Technical Advisors that are not familiar with your Robot may need quick access to the Robot Controller Android device touch screen display to perform Robot triage when there is a very limited amount of time for repairing Robots before the start of the Autonomous or Driver-Controlled Periods. Covers that open by quick and intuitive actions will save the Field Technical Advisor time that (s)he can devote to solving the problem before time runs out.

Sheldon

10-25-2016, 01:44 PM

RM01 - Vision Targets

Quote:

Originally Posted by **FTC0542** 

Our team is concerned about the possibility of other teams putting copies of the Vision Targets on their robot and confusing our program. Are other teams allowed to put Vision Targets on their robots?

A: No, teams are not allowed to place Vision Targets on their robots. It is against the spirit of the game for teams to interfere with the sensors of other robots.

Professor Proton

10-25-2016, 10:16 PM

<RG08> Launching Game Scoring Elements - Particle Elevation Constraint

Quote:

Originally Posted by **FTC0359** »

Question: *Is it legal for the mechanical capability of a particle launcher to exceed 6 ft in elevation if the robot is limited by software to use a reduced percentage of the full power of the launcher? This would mean that the robot particle launcher will be programmed to have an upper limit of 5 ft 11 inches.*

Answer: Yes.

Sheldon

11-16-2016, 04:35 PM

RG03 Robot Controller Location

Quote:

Originally Posted by **FTC10138** »

Hi. We're looking for some clarification of Rule RG03 for the Robot Controller phone location and position. In attempting to use Vuforia, it would be most ideal to use the significantly higher resolution REAR facing camera and have this mounted low and in the "middle-front" of the robot. Unfortunately (as we found at a tournament over the weekend), this seems to be in conflict with

In considering the desire to use Vuforia to its intended full potential, can you address the following (or adjust as needed to convey a proper reply)

- 1. Can the phone be considered accessible if there were a rubber band that let it flip around or tip outward easily by the ref?*
- 2. Can the phone be considered accessible if there were a lever that let the phone flip around or tip outward by the ref?*
- 3. Can there be a mirror mounted to reflect the screen for the ref, although touching the screen would still be hindered and the image would be reversed?*
- 4. Provide a suggested mounting method that would satisfy <RG03> and permit the use of the rear camera.*

Thanks! FTC 10138

A1: No

A2: No

A3: No

A4: Mounting locations are dependent on the robot design so it is impossible to suggest a mounting position.

Tip from the Game Design Committee: Field Technical Advisors that are not familiar with your Robot may need quick access to the Robot Controller Android device touch screen display to perform Robot triage when there is a very limited amount of time for repairing Robots before the start of the Autonomous or Driver-Controlled Periods. This is the reason why the Android device screen needs to be accessible and visible at all times.

Sheldon

12-04-2016, 06:10 PM

RM01 - Maximum Gear Ratio

Quote:

*Originally Posted by **FTC11123** »*

What is the maximum gear ratio that is allowed?

A: There are no rules limiting the gear ratios that can be used.

Sheldon

12-07-2016, 07:48 PM

RG01 - Wedgetop Tread

Quote:

*Originally Posted by **FTC5436** »*

My team had a question about the use of wedge top tread on our robot. <RG01> states that materials which could damage playing field components (such as high grip tread) are banned from use on the playing field, but my team does not intend to use wedge top tread to drive our robot. Instead, we want to use it to power our button pusher by having a wheel drive along a piece of wedge top tread. It works basically as a substitute for rack and pinion.

My question is this: since our wedge top tread is never at any point making direct contact with the field or any of its components, can we still use it on our robot even though it is technically outlawed in the game manual? Thank you!

A: High grip tread (including wedgetop) may not be used in contact where it can damage the field (tiles, ramp, base, etc). All other uses are allowed including as a pad to push the bacon button.

Sheldon

12-07-2016, 07:55 PM

RG01 - Tread

Quote:

*Originally Posted by **FTC6085** »*

Hopefully I'm posting in the right place! We would like to use the following tread and would like to know if it is acceptable:

Blue Nitrile Roughtop Tread, 1" Wide, Thickness 0.28, Coefficient of Friction on tight pile: 1.19, Tread material: Carbox Nitrile Rubber, Tread Pattern: Roughtop.

Thanks!

Steve Morales

FTC Team #6085

A: The GDC has not tested all possible tread and tire combinations and therefore cannot answer this specific question. During Mechanical Inspection team may be asked to demonstrate that their choice of tread will not damage the tile floor during a match when (if) the bot is pushing hard against a wall or another bot and spinning it's wheels. The test will be to place the robot against an immovable surface (wall) and run the wheels at full power for 15 seconds. If there is any physical damage to the

floor tile then the wheels/tread will not be allowed. Discoloration or black marks alone are not considered field damage. Remember, the test must be made with the robot at the weight the bot will be at during a match since this will affect the degree of damage.

Agent Angela Page

12-08-2016, 12:52 PM

Allowed Motors

Quote:

Originally Posted by **FTC2818** »

Hi

Since only the motors listed in rule <RE09> are allowed, it's important to me that we can show that our motors are "legal" at inspection time.

I'm having issues with the part numbers for the Modern Robotics (MATRIX) motors.

RE09 lists the following MATRIX motors as legal: MATRIX: 50-0012, 50-0013, 50-0014, 50-0073

However, on the Modern Robotics website, the individual "FTC Legal" 6mm shaft motor is listed as SKU: 50-0120, and the part number designation on the motor itself is 14-0020

Neither of these match the manual.

Will this cause a problem at inspection, and how should we show the inspectors that these are approved motors?

Thanks

The Game Manual Part 1 has been recently updated to remove all specific part numbers. The following motors are legal, regardless of the part number assigned to the product by the manufacturer:

- TETRIX 12V DC Motor
- AndyMark NeveRest series 12V DC Motors
- Modern Robotics/MATRIX 12V DC Motors
- REV Robotics HD Hex 12V DC Motor
- MATRIX 9.6V

Sheldon

12-12-2016, 04:49 PM

RM01 - Maximum Gear Ratio

Quote:

Originally Posted by **FTC11123** »

Is there a maximum number of gears or any other restriction on gear ratios for a motor? My team is asking if they can combine gears to achieve an 18:1 gear ratio based on the Tetrix motor generating 152 RPM and their need to reach 1650 RPM.

A: No, there are no restrictions on gear ratios.

Professor Proton

Is a mini-bot attached with an elevated scissor extension to a main-bot legal?

Quote:

Originally Posted by **FTC12357** 

Our team has a minibot that comes off of the main robot, the wires are run from the mainbot to the minbot on a rigid scissor extension that is raised 28 inches above the ground to eliminate the risk of entanglement. It is very similar to this robot design <https://youtu.be/ue3FCX6Itew> for the 2012-2013 Ring It Up! game except we raise our scissor extension up higher and we do not have slack wires ever (The wires are secured directly to the metal scissor extension bars). Our plan is to bring the minibot back to the mainbot and stop using it as soon as anyone raises to the height of our scissor extension, to prevent tipping both their robot and our robot from tipping over.

Question 1: *Right now, we are using the minibot just to help pickup particles and bring them to the mainbot to be launched, is this legal?*

Question 2: *We are also considering adding a beacon button pusher to it so it can help us claim the beacons during end game and autonomous, is this legal?*

Thanks!

Answer 1: The Game Design Committee enjoys seeing how *Teams* solve the annual game challenge and this *Robot* is a very creative approach to playing VELOCITY VORTEX.

The Game Design Committee is not able to give absolute approval to the *Robot* without an in-person inspection. A Robot Inspector at an event will confirm that the *Robot* complies with all the construction rules. All that the Game Design Committee can say is that in general, the mini-bot/main-*Robot* concept described in the post does not appear to violate any construction rules. Keep in mind that the entire *Robot* must comply with the *Robot* starting volume rule, <G3>.

While the construction of the *Robot* appears to be legal, compliance with game rules will be decided by referees during *Match* play. Complying with the following game rules could be more challenging for this *Robot* than it is for a more conventional *Robot* design.

<S1> Unsafe *Robot*
 <G15> Destruction, Damage, Tipping, etc.
 <G13> Robots Deliberately Detaching Parts
 <G16> *Pinning, Trapping, or Blocking Robots*
 <G20> Timely removal of *Robots* from the *Playing Field* at the end of a *Match*
 <GS9> *Particle* interference
 <GS10> *Blocking Access* to an opposing *Alliance's Scoring Elements*
 <GS11> *Cap Ball* interference

Blocking *Robots*, *Scoring Elements*, and launched *Particles* are of particular concern. A *Robot* this big could be a real barrier to allowing free access to *Particles*, *Cap Balls*, and *Vortex goals*.

Rule <G13> is also a major issue. *Robot* parts that are released but remain connected by a tether and interfere with an opposing *Alliance Robot* are considered detached for the purpose of this rule. If the mini-bot or connecting scissor extension interfere with an opposing *Alliance Robot*, a *Major Penalty* and a *Yellow Card* will be issued.

Finally, for your consideration, how will the mini-bot and rigid scissor extension hold up against a *Robot* playing defense directly against the mini-bot? *FIRST* Tech Challenge games are highly interactive; *Robot-to-Robot* contact and defensive game play should be expected. Is the mini-bot and scissor extension robust enough to survive a push or impact from another *Robot*?

Answer 2: Answer #1 also applies to Question #2.

<G15> Destruction, Damage, Tipping, etc. - Robot dragging a cable around the field

Quote:

Originally Posted by **FTC8390** 

Question: *Is it legal to build a robot that is comprised of 2 minibots connected together by a long tether that stretches across the field?*

Answer: A *Robot* that drags a cable around the *Playing Field Floor* is an entanglement risk and is not allowed by rule <G15>.

Additional concerns include:

- 1) *Particles* and *Cap Balls* drug by the tether would be considered *Controlled*.
- 2) Rule <G13> consequences of a *Major Penalty* and *Yellow Card* will be issued if a mini-bot or the tether affects game play by an opposing *Alliance Robot*.

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Commercial Off the Shelf Components - Answer Thread

Printable View

Administrator

09-12-2016, 10:56 AM

Commercial Off the Shelf Components - Answer Thread

The answers to your Robot Rules Questions pertaining to COTS are answered in this thread.

Sheldon

09-25-2016, 07:29 PM

RE12 - Mirrors

Quote:

*Originally Posted by **FTC9765** »*

*Can we get a determination on the use of mirrors to redirect the view of the camera in the RC phone to allow more convenient placement of the phone while using image recognition. Rule <RG03> requires **"The Robot Controller MUST be accessible and visible by competition personnel"** yet Rule <RE12> says in part that **"(for example: lasers and mirrors are not allowed)"**.*

Please provide a definite ruling. Thank you for your attention.

A: Rule <RE12> disallows the use of mirrors for directing robot based light sources. Mirrors used to direct an image to the camera in the Robot Controller are allowed.

Sheldon

09-30-2016, 02:48 PM

RM02 - Banebots Transmissions

Quote:

*Originally Posted by **FTC9849** »*

Is it legal to use the AndyMark AM-3104 motors with BaneBots transmissions to build the robot? Thanks, and thanks for all you do!

A: Yes, you may use AM-3104 (or any other legal motor per Rule <RE09>) with any legal transmission. Note that shifting transmissions are not legal since they have more than one degree of freedom.

Sheldon

09-30-2016, 03:00 PM

RG01

Quote:

Originally Posted by **FTC9576** »

<RG01> states "Pneumatics" are not allowed on an FTC robot. Can you clarify the definition of pneumatic? Are pneumatic systems defined by the use of compressed air or closed air systems? Our team is considering using a fan to push air and "particles" through an open pipe. The fan would be powered by the robot's batteries. The system would be open, consisting of open pipes and fans - no closed tubing. All changes in air pressure are due only to pressure changes caused by moving air - as opposed to compressed air tanks. The moving air would both create a vacuum to suck up "particles", as well as be able to propel "particles" into vortex goals. Would this violate rule <RG01>?

A: Using a fan and a legal motor to create an air current is allowed. However, they must be properly guarded so that there is no possibility of these high speed blades coming into contact with a person (team member, FTA, Ref, etc.) or the field. Robot Inspectors will be instructed to pay particular attention to fan based devices to insure they can be operated safely.

Sheldon

10-03-2016, 11:33 AM

RM02 - Vacuum Pump

Quote:

Originally Posted by **FTC9768** »

My team was interested in using a vacuum pump on their robot. The pump they found runs on 12V, but I do not think the motor attached to the pump is listed in the rules. If they want to use the pump, do they need to remove the motor that comes on the pump and rewire it with one of the motors listed in the rules?

A: Rule <RM02> prohibits the use of COTS parts with more than one degree of freedom and Rule <RM01> prohibits the use of pressurized fluids (pneumatics). It is impossible to make a ruling without knowing more about the pump in question and whether it violates either of these two rules.

Sheldon

10-04-2016, 09:27 PM

RE11 - Sensors RG01- Gas Spring

Quote:

Originally Posted by **FTC11143** »

I would like to know if is legal to use in the robot:

- EV3 color sensor?
- Gas spring?

Thank you

A1: Per Rule <RE01> any sensor is allowed providing it is connected to the Core Device Interface Module.

A2: Gas springs are considered a pneumatic device and per rule <RG01.j> they are not allowed.

Sheldon

10-04-2016, 09:46 PM

RG01, RE09 - Vacuum Pump with motor

Quote:

*Originally Posted by **FTC9768** »*

My team is interested in using an airpo D2028B vacuum pump on their robot. It has a motor on it that looks similar to the motors we are using on the robot and is 12Vdc, but I cannot find any other specific information about the motor. Are they allowed to use this pump on the robot? If not, would they be allowed to remove the motor and wire one of the allowed motors to the pump?

A1: The only allowable motors are listed in Rule <RE09>. Since the motor on the pump is not on the list it is illegal and may not be used.

A2: Without seeing the inside of the vacuum pump it is not possible to determine if it is legal. However if it compresses air in any form it is illegal per rule RG01j, and if there is more than One Degree of Freedom; i.e. pistons, valves, etc. then it is illegal per Rule <RM02>.

Sheldon

10-13-2016, 01:09 PM

RM02 - P60 Gearbox

Quote:

*Originally Posted by **FTC3785** »*

In post #3-you state "you may use AM-3104 (or any other legal motor per Rule <RE09>) with any legal transmission. Note that shifting transmissions are not legal since they have more than one degree of freedom"

*Can i assume that the Banebots P60 256:1 Gearbox w/ Moto (am-2878) is legal.
thanks*

A: Yes, the P60 gearbox (AM-2878) is a legal COTS.

Sheldon

10-13-2016, 01:12 PM

RM02 - Linear Actuators

Quote:

*Originally Posted by **FTC10421** »*

Are we allowed to use a linear actuator without a motor?

A: There are many types of linear actuators. Without more information it is not possible to determine the legality of the part. Please be more specific on make and model of actuator.

Sheldon

10-16-2016, 08:05 PM

RM02 - Shifting Transmissions

Quote:

Originally Posted by **FTC8391** »

Post #3 in the COTS answer thread states that "Note that shifting transmissions are not legal since they have more than one degree of freedom."

Post #4 in the General Robot Rules answer thread states "the TileRunner kit because it comes unassembled and is made of legal components is legal."

Q: Is a shifting transmission that comes unassembled and is made of legal components (all of which are available for individual purchase) legal?

A: Yes, teams may build their own shifting transmissions from legal materials.

Sheldon

10-16-2016, 08:12 PM

RG01.a - High Traction Wheels

Quote:

Originally Posted by **FTC4962** »

Rule RG01 states: wheels "that could potentially damage Playing Field components" are not allowed. However, during the ResQ season, these were ruled legal if they did not come in contact with the playing field surface so they could not damage the tiles.

Are high traction wheels such as AndyMark HiGrip wheels (<https://www.andymark.com/product-p/am-2256.htm>) allowed to be used as long as they do not come into contact with the playing field?

Thank you.

A: High Traction wheels are legal provided they do not come into contact with the playing field (tile floor, Corner Ramp surface, Center Goal Base, Center Goal, etc.). They may be used in contact with the Particles.

Sheldon

10-25-2016, 01:53 PM

RM02- COTS Tank Treads and 3D printed parts

Quote:

Originally Posted by **FTC11123** »

Greetings,

The team is considering the use of the following items as part of the internals of their robots.

1. COTS tank tracks from the local hobby store for a conveyor belt
2. 3D printing tank tracks, sprockets for a conveyor belt
3. 3D printing custom sized wheels for a counter-rotating firing mechanism.
4. Creating a variable geometry particle firing mechanism that pivots between two positions. Mechanism will be contained within the body of the robot.

None of the items should come into contact with the playing surface.

Thanks in advance!

A: In the future please ask only one question per post, it makes it easier for the readers to sort and find the answer.

A1: Yes, tank treads are a legal COTS

A2: 3D printed parts are legal per rule <RM01>

A3: Yes, 3D printed wheels are legal per rule <RM01>

A4: There is no rule preventing teams from building a mechanism that has multiple positions so long as all possible locations remain inside the starting envelope at the start of the match.

Sheldon

12-04-2016, 06:20 PM

RM02 - Banebot P60 Gearbox

Quote:

*Originally Posted by **FTC11123** »*

The Legal-Illegal parts list seems to indicate that they are, but I wanted to confirm that the use of 3rd party gearboxes is legal before we order them.

A: Yes, 3rd party gearboxes, including the Banebot P60 gearbox, are legal per rule <RM02>.

Sheldon

12-04-2016, 06:24 PM

RG01.j - Pneumatics - Door Closers

Quote:

*Originally Posted by **FTC5300** »*

I am curious as the legality of screen door closers and items like that. I guess that technically they are pneumatics since they utilize air, but it is a closed system. Ruling?

A: These devices used a pressurized fluid (air) to operate and are therefore not legal per rule <RG01.j>

Sheldon

12-07-2016, 07:43 PM

RM02 - Sprag Bearings

Quote:

*Originally Posted by **FTC3785** »*

Can one use----a One way Bearing Sprag Freewheel Backstop Clutch see <https://goo.gl/V0HukJ> on Amazon.com -Legal?

It resembles a roller bearing, but instead of cylindrical rollers, non-revolving asymmetric figure-eight shaped sprags are used. When the unit rotates in one direction the rollers slip or free-wheel, but when a torque is applied in the opposite direction, the rollers tilt slightly, producing a wedging action and binding because of friction. The sprags are spring-loaded so that they lock with very little backlash. https://en.wikipedia.org/wiki/Sprag_clutch

A: Yes, this bearing is a legal part per Rule < RM02>.

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Raw and Post Processed Materials - Answer Thread

Printable View

Administrator

09-12-2016, 10:57 AM

Raw and Post Processed Materials - Answer Thread

The answers to your Robot Rules Questions pertaining to General Robot Rules are answered in this thread.

Sheldon

10-02-2016, 05:48 PM

RM01 - Vex Shafts

Quote:

*Originally Posted by **FTC8770** »*

Are the Vex shafts allowed to be used with the VEX EDR 393 Motor?

A: Yes, Vex shafts are a legal material per Rule <RM01>

Sheldon

10-02-2016, 05:50 PM

RM02 - Suction Cups

Quote:

*Originally Posted by **FTC8461** »*

Can we use commercial suction cups?

A: Yes, suction cups are a legal COTS part per rule <RM02>.

Sheldon

10-09-2016, 06:07 PM

RM01 - Suction Cups with Vents

Quote:

*Originally Posted by **FTC11296** »*

Would a suction cup with a rubber release nipple on the back (that could be squeezed or released by a servo) be considered a pneumatic part? There's no air or

vacuum source other than that provided by the suction cup itself? Thanks from team 11296!

A: A suction cup, with or without a vent, is not considered a pneumatic device and is allowed.

Sheldon

10-26-2016, 03:11 PM

RM01 - Allowed Materials

Quote:

*Originally Posted by **FTC11033** »*

We are new to FTC and have just received our kit. We were wondering if we are required to only use metal parts like c-channels, and metal sheets from FTC or if you had parts(metal) from another robotics competition (VEX) could we use them?

A: Rule <RM01> allows for the use raw and post-processed materials from many sources. Teams are not required to use only Tetrix metal parts. Structural metal parts from the Vex building system are allowed.

Sheldon

11-01-2016, 01:04 PM

RM01 - Recycled Material from Res-Q

Quote:

*Originally Posted by **FTC6534** »*

With regards to RM01, would structural components of the RES-Q Mountain our team purchased last season qualify as raw materials or post-processed materials that could be drilled, cut or reshaped and used in the construction of a robot for Velocity Vortex?

Answer: Structural materials recycled from previous games are allowed materials per Rule <RM01>.

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Miscellaneous Robot Electrical Parts and Materials - Answer Thread

Printable View

Administrator

09-12-2016, 01:37 PM

Miscellaneous Robot Electrical Parts and Materials - Answer Thread

Answers to questions posted pertaining to Miscellaneous Robot Electrical Parts and Materials.

Wil Wheaton

09-25-2016, 09:44 PM

Legal Batteries

Quote:

*Originally Posted by **FTC2844** »»*

The battery in the following link is the exact same battery as the W39057 Tetrax Battery, according to Customer Service.. Is it acceptable to purchase this battery to save money?

<https://www.servocity.com/12v-3000ma...ato-blade-fuse>

Answer: No. Only the batteries listed in <RE03> are legal for use in FTC Robots

Legal, approved batteries can be purchased through the following vendors:

Pitsco: The FIRST Tech Challenge Storefront (access via FIRST's Team Registration System) – click "How to Order Extra Parts" on the left menu of the Support section. You will receive your team's discount code to order additional parts.

Modern Robotics: <http://modernroboticsinc.com/12v-3000mah-nimh-battery>

REV Robotics: <http://www.revrobotics.com/rev-31-1302/>

Wil Wheaton

09-25-2016, 10:14 PM

Focused Light Sources

Quote:

*Originally Posted by **FTC3785** »»*

Are you allowed to use something like <http://www.andymark.com/Targeting-Li...-p/am-3428.htm> to help you aim? Obviously lasers would be inappropriate but ...

Answer: No. <RE12> disallows light sources that are focused or directed in any way

Wil Wheaton

10-10-2016, 11:16 AM

Legal Batteries

Quote:

*Originally Posted by **FTC6981** »*

I know the question was already asked, but here is a point to consider regarding the battery at :

<https://www.servocity.com/12v-3000ma...ato-blade-fuse>

Not only is there NO difference between this and the "official" tetrax battery, but the biggest issue is that there is NO way to tell them apart. Neither one, including the Tetrax battery, actually has a mfg. part number on it. I think the rules group may want to rethink this because frankly, MANY teams are already buying the Servocity battery because it is cheaper, and is actually identical to the Tetrax battery. We have one ourselves, and there is frankly no way to determine which one it is.

Just food for thought, and there is no reason to post an answer unless you want to. Thanks!

Answer: The only legal batteries are those listed in Part 1 of the Game Manual. The ServoCity battery, while similar to the TETRAX battery, is NOT in the approved list.

Wil Wheaton

10-17-2016, 04:03 PM

Use of Arduino for decorative lighting

Quote:

*Originally Posted by **FTC7468** »*

We were wondering if we would be allowed to use an Arduino board with its own power to create decorative lighting patterns on our robot. The lights would serve no operational purpose, and would be purely for decoration.

Rule <RE12> states "Light sources (including LEDs) are allowed; these may not be focused or directed in any way (for example: lasers and mirrors are not allowed). Approved light sources may include an internal (as supplied by the manufacturer) battery pack or battery holder." And <RE17> states "Electronic devices that are not specifically addressed in the preceding rules are not allowed. A partial list of electronics that are not allowed includes: Arduino boards, Raspberry Pi, relays, and custom circuits." However, we were wondering if <RE17> only applied to functional robot electronics, and not decorative lighting. Also, is it the intent of the GDC with <RE12> to allow only pre-manufactured light strings that provide their own power, and not for teams to be able to roll their own systems, except for using the main 12V battery?

Answer: No. All aspects of the robot (including purely decorative aspects) must abide by the robot construction rules. Arduino boards (and similar systems) fall into the "Other Electronics" class that is disallowed by <RE17>.

Sheldon

10-20-2016, 08:49 AM

RE17 - Solenoid Actuator

Quote:

*Originally Posted by **FTC5828** »**Are Solenoid Actuators legal parts?**<https://www.amazon.com/a14050600ux03...+actuator+25mm>*

A: Solenoids fall under "other electronics" <RE17> and are not allowed.

Wil Wheaton

10-24-2016, 03:33 PM

Limit Switch Inline w/ Motor

Quote:

*Originally Posted by **FTC9791** »**Our robot has a gear rack that is pulled back under spring tension by the motor. However, if the motor runs past its limit, then it will break the gear rack and potentially release the springs, creating an unsafe robot, as we can't ensure that other pieces will not fly off. In order to prevent this, we have installed a limit switch inline with the motor power line, automatically tripping the power if the gear rack extends too far. This works extremely well from our tests.**However, the current rules against "other electronics" render this illegal for a competition robot, as the limit switch is not a "sensor" because it does not connect to the DIM. We do not want to run the limit switch into the DIM and use the phone to control the motor based on this feedback because of the program's failure modes. We know that the phone's software is subject to various freezing and disconnect issues. We also know that during these failures modes, all motors will continue to run regardless. Since this could both break our robot and cause somewhat of a safety hazard, we are asking that an exception be made for such cases. We are still adhering to the requirements for minimum wire gauge, and the limit switch is rated for 10A at 120VAC, which is well over the 5A, 12V max draw of the motors. In addition, from our tests, the motor rarely draws more than a few amps, meaning that 5A is more of a peak condition.**Thank you,
9791*

Answer: The limit switch inline with a motor indeed falls under the "Other Electronics" category and is not allowed per <RE17>.

Wil Wheaton

10-25-2016, 03:47 PM

LEDs Illuminated during Robot Initialization

Quote:

Originally Posted by **FTC5559** »

Are LED's allowed to turn on after initialization to signal the drivers what Auton mode was selected?

LED's would be controlled by a motor controller port.

Answer: Yes.

Wil Wheaton

11-01-2016, 05:36 PM

Using Robot Frame as Electrical Connection

Quote:

Originally Posted by **FTC7203** »

My team would like to know if it is legal to "Chassis Ground" the robot. They want to wire the negative leads of the modern robotics controllers and of the motors to the metal of the robot. The positive leads would connect to the positive poles of their sources as usual.

There doesn't seem to be a rule allowing or forbidding this. Is it a legal way to wire the robot?

Thanks!

Answer: No, using the robot frame as an electrical connector is NOT allowed. In addition being unsafe (grossly increases risks of short circuits) and violation the wiring rules for appropriate wire gauge usage, the scheme as described would not work.

Hint - It is important to remember that the motor connections are NOT fixed polarity. The M+/M- connections on the motor controllers switch polarity based on the motor directions. Under your scheme, the first time you reversed your motors, you would likely trip the thermal breaker in the motor controller, if not the one of the fuses in either the Power Distribution module or the battery.

Wil Wheaton

11-01-2016, 05:45 PM

I2C PWM/Servo Driver to Control LEDs

Quote:

Originally Posted by **FTC11190** »

Can we use the adafruit PWM driver (<https://www.adafruit.com/products/815>) to control LEDs as long as all power comes from the Device Interface Module.

Answer: No. The module you referenced falls into the "Additional Electronics" category and is not allowed per <RE17>.

TIP - The module you referenced is very similar in function to a Motor Controller. Similar control of LEDs can be accomplished with a Motor Controller.

Wil Wheaton

11-09-2016, 02:59 PM

LED Questions

Quote:

*Originally Posted by **FTC8745** »*

<RE12> Light Sources states that light sources may be powered by an internal battery. Additionally, they may be powered by power ports on the CPDM and or a CMCM port.

Can a light source be powered by a port on the Core ServoController or by a USB hub port?

<RE11> Sensors states that sensors may be connected to the Core Device Interface Module. Can Light Sources be connected to the CDIM? For example to control RGB LEDs.

Do Lighting Sources have to be simple? Or is a unified module that can be controlled for signaling purposes acceptable? (<https://www.adafruit.com/products/2157>)

We are thinking of using something like this as a device for the robot to signal the drive team.

Answer 1: No. Light sources may not be powered via Servo Controller or USB hub

Answer 2: No. Light sources may not be driven by the CDIM

Answer 3: The LED backpack module you reference would fall under the category of "Additional Electronics" and is not allowed per <RE17>

Wil Wheaton

11-09-2016, 03:07 PM

Multiple motors per Core Motor Controller port

Quote:

*Originally Posted by **FTC2856** »*

Hello,

Is it permissible to attach two legal motors to a single Motor Controller port by soldering the two wires to make a "y" splitter? Please see the attached picture. Thank you.

Answer: There is nothing in the rules that would prohibit the connection of two motors to a single motor controller port via a splitter cable.

Note: Care should be taken to pay attention to the current driving limits of the Core Motor Controller. The CMC has internal thermal breaker that will open when excess load is drawn from the controller

resulting in the controller being inoperable until the breaker resets. Two motors under stall conditions would likely exceed the CMC current limit!

Wil Wheaton

11-21-2016, 03:28 PM

Custom LED Controller

Quote:

*Originally Posted by **FTC5957** »*

Our FRC team uses Adafruit DotStar & NeoPixel individually addressable RGB pixel strips for both decoration and status feedback. We would love to be able to use these on our FTC bots for the same reasons.

1 - Would a COTS LED controller that plugged into the CDIM via I2C and controlled Adafruit DotStar & NeoPixel individually addressable RGB pixel strips be legal without running afoul of <RE17>?

2 - If the answer to (1) is NO, is there a process upon which an appeal can be made to allow individually addressable RGB pixel strips via mechanism like a COTS LED controller that can plug into the CDIM via I2C?

Thanks

Answer 1: No.

Answer 2: There is no process for appeal.

Wil Wheaton

11-21-2016, 04:29 PM

Power Switch Requirements

Quote:

*Originally Posted by **FTC7172** »*

At the beginning of the 2015 (Res-Q) season the game manual (and a Q&A Forum post) stated that standalone main power switches "must be either TETRIX #W39129 or MATRIX #50-00300."

Since then the rule wording has been changed so that <RE01>.a now states: "FIRST strongly recommends that Teams purchase a separate Main Power Switch, either TETRIX (part #W39129) or MATRIX (part# 50-0030)."

Q: If using a separate Main Power Switch, are teams still constrained to the TETRIX and MATRIX switches listed or can other (appropriately sized/rated) switches be used as Main Power Switches?

(This question came up during robot inspections at an event yesterday.)

Thanks!

Answer: <RE01> allows teams to choose either of 2 configurations for main power control:

1. A separate switch (either of two specific TETRIX and MATRIX part numbers)
2. The switch on the Core Power Distribution Module

If a separate switch is used, it must be one of the specifically listed switches.

Tip: Teams are only required to abide by the rules in THIS YEAR's game manuals; last year's game manual has no bearing on this year's game. In general, rules change year-to-year. Constraints from prior years may be relaxed or tightened in the current year. Teams should ALWAYS take the time to read and understand the ENTIRE game manual.

Sheldon

12-04-2016, 06:15 PM

RE12 - LED Control Via Motor Controller Ports

Quote:

*Originally Posted by **FTC9925** »*

Is it legal to use a spare motor controller outputs to control a series of LEDs to visually indicate specific states or sensor values on the robot during the teleop period?

*Thanks!
Delta Robotics #9925
Cedar Rapids, Iowa*

A: Rule < RE12> specifically allows for the use of motor controller ports to control LEDs. Teams may use these LEDs to signal specific states or sensor values.

Wil Wheaton

12-06-2016, 09:13 PM

LED Legal

Quote:

*Originally Posted by **FTC7750** »*

*Hi, team 7750 Mechanical Maniacs
is wondering if these LED's would be legal?
<https://www.amazon.com/Magic-BEAM-Li...ic+beam+lights>*

There is an IR receiver to change the colors and we could maybe have that disconnect if needed, but we don't have them yet so don't know for sure.

Answer: the LED's by themselves are legal if they can be powered and controlled via legal methods. The IR receiver block is not legal (per <RE17>)

Wil Wheaton

12-13-2016, 09:18 PM

Modern Robotics Color Beacon

Quote:

*Originally Posted by **FTC11190** »*

Can you clarify if the new MR Color Beacon is a legal FTC part. It seems to be both I2C RGB LED (which can't be powered from DIM) and I2C Sensor (which must be powered from DIM)

<http://modernroboticsinc.com/color-beacon>

Thanks!

Answer: The device appears to be an I2C controlled LED module and does not meet the LED limits as listed in <RE12> and as such would fall under <RE17> and not be allowed.

Wil Wheaton

12-13-2016, 09:25 PM

Mechanical Switch

Quote:

*Originally Posted by **FTC9908** »*

One of the kid on our team is wondering if we could use a mechanical switch to turn something on or off without it passing through the Core device interface module. It would be like touch sensor to turn LED lights on or off. Would this be allowed?

Answer: the described use of a mechanical switch would fall under <RE17> and not be allowed. A switch can be used as a sensor, via the Core Device Interface Module

Wil Wheaton

12-13-2016, 09:30 PM

New Label on Matrix Battery (now Modern Robotics)

Quote:

*Originally Posted by **FTC3387** »*

Game manual part 1 rule RE03 states battery Matrix part # 14-0014 is a legal battery. We have nine FTC teams and purchased new batteries from Modern Robotics. Below is the URL to the product. The part number is 14-0014 but the batteries we received have a label that says "Modern Robotics" not "Matrix". Exact same battery with a different label. In two separate competitions we were told the batteries are not legal because they are labeled "Modern Robotics". The judges said that Modern Robotics parts are not allowed. We showed the judges the website and manual. We were allowed to compete in that specific regional but were told we needed to verify with FIRST before moving on to future competitions. Please clarify for us. We assumed the part number was correct since it it listed in the manual.

<http://www.modernroboticsinc.com/12v...h-nimh-battery>

Answer: Yes. The battery is legal for competition use. Apparently Modern Robotics is re-branding the battery to be in line with the remainder of their products.

Wil Wheaton

12-13-2016, 09:37 PM

D-Sub Breakout Connector

Quote:

Originally Posted by **FTC6566** »

Would the following wire connector be legal, or would it fall under additional electronics?

<https://www.amazon.com/So-myshtech-C...ds=so-myshtech>

*Thanks,
Circuit Breakers - 6566*

Answer: The connector is legal as long as the use does not violate any other rules. In particular, care should be taken to make sure that all connections made via this type of connector fit within the current limits for the connector. (i.e. the per pin current limits could prohibit running motor connections through the connector). Appropriate wire gauges should also be used for all connections and the connections should be well insulated for safety.

Wil Wheaton

12-14-2016, 01:43 PM

Matrix Power Switch Concerns

Quote:

Originally Posted by **FTC12224** »

Hello,

As recommended by:

<RE01> Main Power Switch - The Robot Main Power Switch must control all power provided by the Robot main battery pack and it must be used in one (1) of the following configurations:

a. FIRST strongly recommends that Teams purchase a separate Main Power Switch, either TETRIX (part #W39129) or MATRIX (part# 50-0030). This is the safest method for Teams and Field personnel to shut down a Robot.

We purchased a MATRIX (part# 50-0030) switch. However, the MATRIX switch comes with 18 gauge wire (FTC rules say power wire should be at least 16 gauge) and is only rated for 6 amps (whereas the battery and core controller are both fused to 20 amps).

So, it appears that the MATRIX (part# 50-0030) that we are required to buy does not meet the FTC rules (for power wire gauge) and is substantially under-rated (6 amps vs. 20 amps) for the entire system.

Given this, can we use a 3rd party switch that is rated for 20amps?

If not, what are we suppose to do (we cannot use the core controller switch, as cannot make it accessible):

- Install the MATRIX (part # 50-0030) switch - It seems it will probably melt (has anyone used this switch? Does it melt?)*
- What are we suppose to do with the illegal wire that came on switch? (has anyone competed with this switch/wiring?)*

*Thanks,
FTC BlueSmoke Team*

Answer: The switch you have purchased is selected by Modern Robotics for use with the Matrix system and is safe to use. The current ratings you are reading from the switch are AC ratings (6A@125V) not DC ratings.

The only two legal external power switches are the two explicitly listed in <RE01>

The wire gauge rules in <RE14> are for use by teams in modifying, extending, custom making, etc., wiring within the robot (i.e. anything your team makes or modifies should follow the guidance in <RE14>).

All times are GMT -4. The time now is 02:03 PM.

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Motors and Servos - Answer Thread

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Administrator

09-12-2016, 01:35 PM

Motors and Servos - Answer Thread

Answers to questions posted pertaining to Motors and Servos.

Sheldon

09-28-2016, 01:30 PM

RE15 - Servo Modification

Quote:

*Originally Posted by **FTC8045** »*

Hi, we'd like to upgrade the karbonite gears in our sail winch quarter scale servos to metal gears. There is no direct replacement and slight modifications are necessary as described here. <http://ftcforum.usfirst.org/showthread.php?p=6881>...I-Gear-Upgrade. Is this modification/replacement allowed as described? Thank you

A: Yes, teams may replace the gears in their servos with metal gears.

Sheldon

10-07-2016, 08:29 PM

RE09- Changing motor gearboxes

Quote:

*Originally Posted by **FTC11639** »*

The rules state that legal motors include the am-3102 motor (20:1 gearbox), the am-3103 motor (60:1 gearbox), and the am-3104 motor which is a motor with no gearbox. So, removing the gearbox and changing gear ratio is similar to using an am-3104 with a custom gearbox (hence, not modifying the motor). Is this gearbox modification legal?

A: Yes, this is legal.

Sheldon

10-23-2016, 05:51 PM

RE15 - Removing Encoder

Quote:

Originally Posted by **FTC9819** »

Are we allowed to remove the encoder on the Andymark NeverRest Series? (AM-2964, AM-2964a, AM-3102, AM-3103, AM-3104)

We just need to shorten the overall length.

Thank you!

A: Yes, teams may remove the encoder from the NeverRest motors.

Sheldon

10-25-2016, 02:01 PM

RE09 - EV3 Motors and Sensors

Quote:

Originally Posted by **FTC12102** »

Are the EV3 motors and sensors legal?

A1: Only the motors listed in rule <RE09> are allowed. No other DC motors are allowed.

A2: EV3 sensors are allowed provided they meet the restrictions listed in Rule <RE11>.

Sheldon

10-26-2016, 03:34 PM

RE16 - Continuous Rotation Modification

Quote:

Originally Posted by **FTC8688** »

Are we able to modify a 90 or 180 degree servo to make it continuous rotation servo? Specifically the Hi-Tec Servo Model HS-485HB which list Specifications as 360 degree Modifiable. <http://www.andymark.com/product-p/am-2543.htm>

A: Because the modification involves changing or modifying the gears and does not involve the electronics or wiring this modification is allowed.

Sheldon

11-16-2016, 04:26 PM

RG02 b - Initialization Routine Warning Label

Quote:

Originally Posted by **FTC8424** »

Hi there! We just went through an inspection before our league meet and the inspector told us that we needed to have the servo movement stickers next to EACH servo that was on our robot, not just a single one to alert folks that the servos might move. In the past we only needed one and it's not exactly convenient for us to have a place to put those near every servo. Do we really need multiple stickers, or will one do for the entire robot?

A: Rule <RG03b> requires just one warning label located near the Main Power switch.

Wil Wheaton

11-21-2016, 03:36 PM

Linear Actuators

Quote:

*Originally Posted by **FTC5401** »»*

Are we able to use these actuators on the robot?

Zowaysoon 12V Electric Linear Actuator 100m/4inch Stroke 1500N DC Motor Linear Motion Controller with Limit Switch

Stroke length:100mm(4inch)

- *Voltage: 12VDC** Noise Value: >65dB*
- *Load/Thrust/Force Capacity:1500N =150kg(330Ib)*
- *Speed:5.7mm/s*
- *Duty Cycle: 25%** Protection class:IP54*

Answer: No. The above linear actuator is not an allowed DC motor nor an allowed servo and falls under the <RE17> Additional Electronics rule

Wil Wheaton

11-22-2016, 01:53 PM

Linear Servos

Quote:

*Originally Posted by **FTC11255** »»*

Are linear servos allowed? There is no notion that they are, or are not. It is just the rotational ones that are allowed. Assuming the connection to the servo controller is the same, can a linear servo be used?

Answer: <RE10> does not constrain the nature of the output of a servo. For a servo to be legal, it must:

- be marketed/sold as a servo
- be electrically compatible with allowed Servo Controllers (6v and within the current limit for the controller)
- be controlled/powered by an allowed Servo Controller

Team using "unusual" servos should be prepared to support the legality of their servos by bringing documentation for the servo (specifications, etc)

Raj

11-28-2016, 03:27 PM

Motors and Servos - Answer Thread

Quote:

Originally Posted by **FTC7190** 

My team and I were wondering whether it is legal per rule RG01J to remove air from a funnel using a vacuum pump. We are not compressing or storing air and there are no pistons or valves involved in the design. The vacuum pump is from Amazon: <https://www.amazon.com/Karlsson-Robo.../dp/B00DYA21PU>. We are not using the motor that comes with the pump. We are converting it to an AndyMark NeverRest motor. Inside the pump is a piece that spins. This piece turns at an offset and makes the rubber part on the outside pump out the air from the funnel. There is only one degree of freedom in this design. Thanks so much!

A: We found out that it is a diaphragm pump. Our ruling is that as long as the output port of the pump is not blocked or sent through a hose, the pump should not build up any pressure. If those constraints are followed, then this would be considered a legal part.

Wil Wheaton12-06-2016, 09:06 PM

12v Linear Servo

Quote:

Originally Posted by **FTC6433** 

Please clarify the legality of this Servo: <https://www.servocity.com/hdls-12-2-12v>

Assuming it is controllable from the MR Servo Controller Module and meets the specified power requirements, is it legal because of Rule RE 10 as it is labeled as a servo, or is it illegal because it violates the COTS 1 DOF rule RM 02?

Answer: This servo is not allowed. This servo is not compatible with the allowed servo controllers. It requires a 12v power connection in addition to the standard servo control signals.

Sheldon12-07-2016, 07:40 PM

RE09 - Gearbox Removal

Quote:

Originally Posted by **FTC8699** 

May we remove the gearbox on Tetrix or Neverrest motors and just use the motor?

A: Yes, the motors may be used without the gearboxes.

All times are GMT -4. The time now is 02:04 PM.

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Control System - Answer Thread

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Administrator

09-12-2016, 01:36 PM

Control System - Answer Thread

Answers to questions posted pertaining to the Control System.

Wil Wheaton

09-25-2016, 10:05 PM

USB Hubs on Robot

Quote:

*Originally Posted by **FTC3491** »*

*Hello, I'm from team 3491 FIXIT,
We are wondering if it would be legal to plug a non-powered USB into the Core Power Module. The power module only has room for 7 USB devices and it is quite likely we will need eight modules this year.*

*Last year we had 1 Core Device interface
3 Motor Controllers
3 Servo Controllers - We understand that there are 6 servo ports for 12 servos, but if you use any servo that is more powerful than the HS-422 there is too much power used and the servo controller shuts off. We had to split into three controllers to avoid this issue.*

This year we are considering using a mecanum drive so we will need a fourth motor controller. The only way to achieve this would be to add a splitter to the power module.

Thanks Team 3491

Answer: <RE14>.d explicitly allows stand-alone USB hubs to be used on robots (both powered and unpowered). Powered USB hubs need to be compatible with the 12v power that is available on the robot.

Wil Wheaton

10-10-2016, 11:22 AM

Cracked Phone Screens

Quote:

Originally Posted by **FTC11096** 

Can you give some guidance regarding the use of phones with cracked screens in competition?

Answer: As long as the cracked screen does not:

- present a safety hazard
- render the screen unreadable by field personnel

The phone can be used with a cracked screen

Wil Wheaton

10-25-2016, 04:04 PM

Acceptable Alternative Robot Initialization Sequence

Quote:

Originally Posted by **FTC0965** 

Section 1.5.1: After placing their Robot on the Playing Field, the Drive Team selects their Autonomous Period Operational Mode (Op Mode) on their Driver Station Android device and initializes their Robot by triggering the Team's initialization event software.

Is this order strictly enforced? May a team initialize the robot prior during the process of placing it? For example, we are considering having a touch sensor configured to indicate to the software what color the robot is. So we would place the robot, initialize the software, and then touch the sensor if the robot was blue. Is this allowed?

Thanks.

Answer: The method you have described is compatible with the description in Section 1.5.1. You should take care to make sure that your setup and initialization is done in a timely manner. Field personnel (Referees and/or FTAs) will likely NOT allow you back onto the field to take care of pressing your sensor if you forget before leaving the field.

Wil Wheaton

11-01-2016, 02:16 PM

Modifying FTC Driver Station App

Quote:

Originally Posted by **FTC0542** 

Is it legal to make changes to the FTC Driver Station App?

Answer: NO. No modifications to the FTC Driver Station app are allowed.

Wil Wheaton

11-09-2016, 02:48 PM

Fully Custom Hub

Quote:

*Originally Posted by **FTC6165** »**Greetings, rules people:**<RE14> (d) says "Stand-alone USB hubs are allowed."**<RE17> Says "Electronic devices that are not specifically addressed in preceding rules are not allowed : partial list includes... . and custom circuits."**So, how about a custom stand-alone USB hub?**Our teams are frustrated with the mechanical design of the motor controllers (as I'm sure many of us are). Having large wires exit from each controller along 3 of the controller's planes is really annoying in an 18" robot. USB cables and connectors are huge, connectors fail easily.**To make wiring simpler, it occurred to us that we could mount the motor controllers on top of one another in a tight stack, like the plug-in cards of the old FRC cRIO. The stack arrangement was popular in the old NXT/Hitechnic system.**- Would it be within the rules to fabricate a custom stand-alone USB hub that would form a "backplane" that the motor controllers fit into? This creates a mechanically stable connection to the motor controller and requires no modifications to any Modern Robotics parts. The custom hub would be plugged into the PDC.**- If a custom-built hub is not permitted, could a small COTS hub be modified (removed from its enclosure, connectors removed and short wires soldered on) for this purpose?**Modifying a COTS hub may violate <RE15> though, especially if connectors are removed. Moving a COTS hub from its supplied enclosure to a new one appears to be within the scope of <RE15>**A custom hub will not provide any robot performance advantage over a COTS one, the purpose of constructing it is purely for mechanical compactness and electrical stability.*

Answer: A fully custom hub would not be allowed as it would fall under the definitions of "Additional Electronics" and <RE17>. Applying <RE15> as it is written would allow for modification of a hub that did not have connectors mounted to the circuit boards, but had an "octopus" type of wired fan-out. (i.e. Replacing or adding connectors on wires ...)

Wil Wheaton

11-21-2016, 04:52 PM

Limits on Core Legacy Modules vs. Legacy TETRIX Motor/Servo Controllers

Quote:

*Originally Posted by **FTC5202** »**Question 1: Do Robot Rules RE07 and RE08 limit the quantity of Legacy Tetrix motor/servo controllers?*

<RE07> Control Module Quantities - Robot control module quantities are constrained as follows:

- 1. Exactly one (1) Core Power Distribution Module is required.*
- 2. No more than two (2) Core Device Interface Modules are allowed.*
- 3. No more than two (2) Core Legacy Modules are allowed.*
- 4. Any quantity of Core Motor and Core Servo Controllers are allowed.*
- 5. No more than two (2) Legacy MATRIX DC Motor/Servo Controllers (unified module) are allowed.*

<RE08> Motor and Servo Controllers - Motor and Servo Controllers are allowed in only one of the following two configurations (cannot mix configurations).

- 1. Core Motor Controllers, Core Servo Controllers, Legacy TETRIX DC Motor Controllers, and Legacy TETRIX Servo Controllers in any combination.*
- 2. Legacy MATRIX DC Motor/Servo Controllers (unified module).*

Question 2: If this was the intent of rule RE07.5, why hasn't the wording been changed in Game Manual Part 1 or on the Robot Inspection Checklist?

Question 3: How are teams supposed to know that this is the intent?

*Please clarify.
Thank you!*

Answer 1: <RE07> does not expressly limit the number of Legacy TETRIX Motor or Legacy TETRIX Servo Controllers. <RE08> does not limit quantities, it constrains the types of controller configurations allowed.

The Robot Inspection Checklist does not state a limit for Motor controllers or Servo controllers (either Modern Robotics Core or TETRIX)

Answer 2: <RE07> has a limit on the Legacy MATRIX Motor/Servo Controller (unified module) and makes no mention of Legacy TETRIX controllers

Answer 3: Teams should read/understand the game manuals

Wil Wheaton

12-06-2016, 09:24 PM

Other Gamepad Controllers?

Quote:

*Originally Posted by **FTC5559** *

*Are we restricted to only Xbox controller #52A-00004, or can we use any Xbox 360 controller. For example:
<https://www.amazon.com/gp/aw/d/B00EZ...xbox+360+wired>*

Answer: the only allowed controllers are the two listed in <RE16> Driver Station Constraints

- Logitech F310 (Part# 940-00010)
- Xbox 360 Controller for Windows (Part# 52A-00004)



Sensors - Answer Thread

Printable View

Administrator

09-12-2016, 01:35 PM

Sensors - Answer Thread

Answers to questions posted pertaining to Sensors.

Wil Wheaton

09-25-2016, 09:57 PM

Intelligent Sensors

Quote:

*Originally Posted by **FTC5975** »*

Is the pixy still a permitted sensor like last year?

Assuming the Following:

a) it is the sole device on a Device Interface Module (DIM);

b) it draws less than the 150ma DIM maximum current;

c) it is in this context only an I2C device

Would the Pixy still be a permitted sensor?

See also <http://www.cmucam.org/projects/cmucam5>

Answer: As long as an intelligent sensor (one that includes an embedded processor) does not provide a programming capacity to the user, it is legal. The Pixy referenced does not provide a programming API for the end user and is an example of a legal intelligent sensor.

Wil Wheaton

09-25-2016, 10:09 PM

USB Sensors

Quote:

*Originally Posted by **FTC3491** »*

Hello from team 3491 FIXIT,

We are wondering if it would be legal to use sensors that plug directly into the phone through a USB port on the power module. We have tested this and it is fully functional with the FTC_app. There is no asynchronous serial communication on the sensor module so using USB would allow teams to use a multitude of useful sensors. We are especially interested in using a USB webcam and or an HID Mouse.

Thanks team 3941

Answer: No. <RE11> only allows sensors that connect to and are powered by the Core Device Interface Module. <RE17> disallows all electronics not explicitly allowed via other rules.

Wil Wheaton

09-28-2016, 08:01 PM

Simple Interface Circuit Board

Quote:

*Originally Posted by **FTC10723** »*

Would it be legal to have a custom printed / routed circuit board that consists entirely of copper traces, connector pins, and a legal I2C multiplexer? Reading the manual, this seems to be a bit of a grey area between RE14-J and RE17.

RE11-E allows simple I2C multiplexers, so that is not in question

RE14-J allows that "sensor wires and their connectors may be extended, modified, custom made"

RE17 disallows "custom circuits"

The circuit board would simply provide a more convenient arrangement of plugs to interface with the multiplexer.

Answer: a simple circuit board that serves only to interconnect other legal electronics is allowed per <RE14>.j.

Care should be taken to ensure that the circuit board is adequately insulated. In this particular case, the only power for the I2C multiplexer MUST come from the I2C connections available on the Core Device Interface Module.

It would be prudent to bring a circuit schematic for the interface to all competitions and be prepared to explain the interface to the inspectors.

Wil Wheaton

10-07-2016, 02:28 PM

Passive Electronics with Sensors

Quote:

*Originally Posted by **FTC9890** »*

Is it permissible to connect a passive resistor to a sensor (e.g. a switch) to allow it to be connected to the Device Interface Module? We'd like to use generic limit switches wired as in <http://playground.arduino.cc/CommonT...UpDownResistor>.

Answer: Yes. <RE11>.b explicitly allows the use of passive electronics at the interface to sensors.

Wil Wheaton

10-17-2016, 04:07 PM

Use of LED paired with sensor

Quote:

Originally Posted by **FTC9881** »

Is positioning a white LED next to a light sensor (such as <https://www.adafruit.com/products/2748>) to improve line following sensitivity allowed per RE12?

Answer: <RE12> does not limit the usage of LEDs. It provides guidance and limitations on how LEDs within a legal robot may be powered. As long as your proposed usage powers the LED in accordance with <RE12> it would be allowed.

Wil Wheaton

10-25-2016, 04:10 PM

Modifying PCB Circuitry

Quote:

Originally Posted by **FTC11190** »

We have a purchased sensor that is a collection of discreet sensors combined with an I2C digital I/O interface on a single PCB.

There is already a feature on the PCB that allows disabling the sensor array via I2C, but we would like to reverse this feature so it powers up disabled and we turn on via I2C. Conveniently this can be done by simply adding a SMT resistor to pullup an unbiased mosfet ... also conveniently there is a 5V input filter cap exactly 0603 away from the gate.

We wanted to verify that adding a resistor to improve sensor usability is allowed as long as we can justify by schematic that it doesn't violate any safety function of the design.

Answer: No. The modification describe is not allowed based on <RE15>. The modification is a change to the internal circuitry of the PCB. <RE11>.b allows for passive electronics to be added to sensors, but only at the interfaces to the sensors.

Wil Wheaton

11-01-2016, 02:11 PM

Sensor PCB

Quote:

Originally Posted by **FTC11190** »

Thank you for the clarification about adding a resistor to a purchased PCB sensor array. Glad we asked.

Just to be 100% clear we are allowed to design a pcb that combines an array of individual sensors, passive components and connectors and use i2c voltage sensor to read the sensors. We understand it can only be powered from device interface module, we need a schematic to explain its composition to inspectors and it cannot have any component that is programmable ... also it should be well insulated :)

Answer: Yes. Also, make sure to pay attention to current capacity for any signals routed through the circuit board. The circuit board traces should be designed to ensure sufficient current capacity.

Wil Wheaton11-22-2016, 01:41 PM

Custom Sensor PCB

Quote:

*Originally Posted by **FTC6081** »*

Is it legal for a team to use a sensor if it is a manufactured sensor mounted on a custom printed circuit board containing only passive components as recommended by the sensor manufacturer?

Answer: Yes. Be prepared to show a schematic of the circuit to the inspectors and discuss/describe the design as part of the robot inspection process.

Wil Wheaton12-06-2016, 09:00 PM

Sensor w/ Embedded Laser

Quote:

*Originally Posted by **FTC4137** »*

Is Adafruit's time-of-flight distance sensor: <https://www.adafruit.com/products/3317> legal?

The rules say that "compatible sensors from any manufacturer are allowed"; on the other hand, it contains "a very tiny invisible laser source".

Answer: No. Lasers of any form are not allowed per <RE12>

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Driver Station - Answer Thread

Printable View

Administrator

09-12-2016, 01:34 PM

Driver Station - Answer Thread

Answers to questions posted pertaining to the Drivers Station.

Sheldon

10-25-2016, 01:47 PM

RE16 - Driver Station Cables

Quote:

Originally Posted by **FTC4644** »

<RE16> requires "One (1) OTG Cable" and "No more than one (1) non-powered USB Hub", can these be combined in a single cable, example:
<https://www.amazon.com/gp/product/B0...?ie=UTF8&psc=1>

A: Yes, this cable is allowed.

Agent Angela Page

11-07-2016, 12:35 PM

Moto G 3rd Gen Phone with non-powered hub on Driver Station

Quote:

Originally Posted by **FTC11296** »

Hello,

When the Moto G 3rd gen phone was added to the approved android device list on Aug 1, our group purchased eight of these phones (with FIRST STEM equity grant money) to use with 4 grant funded FTC teams. These phones simply do not function reliably with non-powered USB hubs and 2 Logitech game pads. The procedure posted by Tom Eng on the FTC forum in early September only occasionally works. Most of the time, we find ourselves just plugging, unplugging, rebooting, etc until it just happens to work - sometimes taking 5-10 minutes. As a Coach and Qualifier Tournament Director, I know that simply isn't going to work at competition. The only thing I can find that works is to use a hub that can have a USB battery attached to power the external devices. I'm currently using this one:

<https://www.amazon.com/gp/product/B0...?ie=UTF8&psc=1>

The problem is, that basically becomes a powered hub that seems to be unallowed

by the rules. Can you please advise how we are supposed to use these approved Moto G 3rd gen phones and still be in compliance with the rules? Replacing them is not a financially viable option.

Our 5th team has ZTE phones from last year - those seem completely fine with all of the same hubs and game pads, as does my unapproved Galaxy Note4. The problem is clearly the phones.

Thanks, Jim Jackson

Coach: teams 10780, 11296, 11296, 11298, 11300

This configuration would be legal per rule <RE06>d. If a user connects a USB portable battery to their non-powered USB hub, we found that the Moto G 3rd gen phones work reliably with the existing non-powered USB hub and the Logitech F310 gamepads.

Teams would need to purchase a USB portable battery and a Type A to Type A (male to male) adapter or cable.

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Software Rules - Answer Thread

Printable View

Administrator

09-12-2016, 01:39 PM

Software Rules - Answer Thread

Answers to questions posted pertaining to Software Rules.

Agent Angela Page

11-30-2016, 06:01 PM

Is Alicorn Legal?

Quote:

*Originally Posted by **FTC8390** »*

Recently, Alicorn has been proposed for use programming by FTC teams. Alicorn allows teams to program in Java Script without Android Studio or App Inventor.

See the following links for more information:

<http://alicorn.io/docs/ftc-getting-started.html>

https://www.reddit.com/r/FTC/comment...va_script_info

Can you clarify whether the use of Alicorn is legal or not? In particular, <RS02> seems to require programming to be done using Android Studio or App Inventor with optional incorporation of libraries using JNI and NDK, so we are unclear about whether programming in Java Script using a text editor is compatible with <RS02>.

Thanks!

The use of Alicorn has been approved as an exploratory pilot in the states of Missouri and Kansas only. This pilot will help FIRST Tech Challenge assess potential programming alternatives; specifically, how programs are compiled and interpreted in the Android environment. This programming in no way provides a competitive advantage or disadvantage to any team. Further assessments will be made at the close of the season to determine if this program will be available to the entire FIRST Tech Challenge community in future seasons.

Agent Angela Page

12-08-2016, 01:48 PM

Samsung Galaxy S5 Wi-Fi direct Name

Quote:

*Originally Posted by **FTC10092** »*

We have obtained several Samsung Galaxy S5 phones, and all of them are on Android version 6.0.1, and all of them exhibit the same issue with their wifi direct name.

The issue is when we name them in the wifi direct menu as "xyz", the name shows as "xyz" in the wifi direct menu. However, in the FTC apps, and on other phones, the name shows up as "[Phone] xyz". As the rules are currently written, this is illegal, but we can not figure out how to fix this issue.

Can this be made a legal configuration so that for Samsung Galaxy S5 phones the names are "[Phone] #####-DS" and "[Phone] #####-RC".

For the Samsung Galaxy S5, the Self Inspection feature in the Driver Station and Robot Controller apps automatically creates the "[Phone]" prefix before listing the actual Wi-Fi Direct name. This is not a rule violation. Field Inspectors will use the Android operating system Wi-Fi Direct settings menu to verify that the phone is named properly.

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Miscellaneous Game Questions - Answer Thread

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Administrator

09-22-2016, 11:04 AM

Miscellaneous Game Questions - Answer Thread

Answers to questions posted pertaining to miscellaneous Game Questions.

Professor Proton

09-22-2016, 12:18 PM

<GS2> Particle Scoring Eligibility & Game Manual Part 1 Section 5.3.1

Section 5.3.1 of the Game Manual Part 1 asks teams to reflect on their *Robot's design and the question: "If everybody did this, would the game play be impossible? If the answer to the question is yes, the design component is probably not allowed."*

VELOCITY VORTEX is played with *Particles* that are *Scored* in goals and recycled back to the *Playing Field* for continuous game play. The Game Design Committee's intent is for open recycling, where *Scored Particles* return to random locations on the *Playing Field Floor* so that both *Robots* on an *Alliance* have an equal opportunity to access, *Control*, or *Possess* their *Alliance's Scored Particles*. A closed recycling game strategy that denies a reasonable opportunity for an *Alliance Partner Robot* to access, *Control*, or *Possess* a *Scored Particle* is not in the spirit of the *FIRST Tech Challenge* and is not allowed. Game play with closed recycling of *Particles* would be impossible and unfair to *Alliance Partners*. Therefore, *Robot* designs and/or game strategies that deny their *Alliance Partner* equal access to *Scored Particles*, is considered to be a violation of rule <GS2>.

Professor Proton

09-24-2016, 03:55 PM

Controlling the rotation of the Center Vortex.

Quote:

*Originally Posted by **FTC10092** [▶▶](#)*

Question: *Is it legal to purposefully control the rotation of the Center Vortex?*

Answer: Yes, *Robots* may purposefully *Control* the rotation of the *Center Vortex*, provided that no other rules are violated. For example, rules <S1>, <G14>, <G15>, and <GS8> constrain how a *Robot* can legally rotate the *Center Vortex*.

Tip from the Game Design Committee: Rule <G14> prevents a *Robot* from grasping a *Game Element*. In the context of *Controlling* the rotation of the *Center Vortex*, *Robot* contact with the *Center Vortex* PVC vertical pole from two or more different directions in the horizontal plane is not

allowed. For example, a spinning wheel touching the *Center Vortex* vertical support is allowed, if it does not damage the PVC vertical pole. Using two or more spinning wheels that interact with the PVC vertical pole from different directions in the horizontal plane violates rule <G14>.

Professor Proton

09-24-2016, 05:23 PM

Definitions of Open and Closed Recycling Systems

Quote:

Originally Posted by **FTC10092** »

Question 1: What is the definition of an open recycling system?

Question 2: What is the definition of a closed recycling system?

Answer 1: *Open Recycling System* - All *Robots* participating in a *Match* have a reasonable opportunity to interact with *Scored Particles* that have randomly returned from a *Vortex* to the *Playing Field Floor*.

Answer 2: *Closed Recycling System* - One or more cycles of (1) *Scoring*, (2) capturing, and (3) re-*Scoring* a *Particle* in a manner that denies the other *Robots* in a *Match* an equal opportunity to capture a just *Scored Particle*. The following videos of prototype *Robots* are examples of *Closed Recycling Systems* for the *Corner Vortex*.

i) <https://youtu.be/FqhtXV1eZM?t=5m45s> - 5 minutes and 45 seconds into the video.

ii) <https://youtu.be/5FPnng5BVdg>

Robots or game play strategies that have any of the following characteristics are considered to be using a *Closed Recycling System*:

i) A *Robot* created confined area that corrals *Scored Particles* as they exit a *Vortex*. This is considered a barrier that restricts access to other *Robots*.

ii) A mechanism that reduces the randomness of where *Scored Particles* return to the *Playing Field Floor*.

iii) *Controlling* a *Scored Particle* before it contacts the *Playing Field Floor* or *Center Vortex Base*.

Closed Recycling Systems for Scoring any quantity of Particles in the Corner Vortex and/or Center Vortex are not allowed.

Alliance Partners giving their permission to use a Closed Recycling System does not make a Closed Recycling System legal.

Tip from the Game Design Committee: Do not parse the game rules and the Game Design Committee's posts in the Game Q&A Forum in an attempt to find a legal ambiguity that justifies a *Closed Recycling System* for *Scoring Particles*. The Game Design Committee's intent is simple, all *Scored Particles* should return without restriction to random locations [subject to the design of the *Vortex Particle* return mechanisms] on the *Playing Field Floor* and both *Robots* on an *Alliance* should have an equal opportunity to access, *Control*, or *Possess* their *Alliance's* just *Scored Particles*.

Professor Proton

09-25-2016, 01:23 PM

<G14> Robots Grasping Game Elements - U Shaped Alignment Tool for the Beacon

Quote:

Originally Posted by **FTC3785** »

Rule <G14> states that Robots cannot grasp, grab or attach to a Game Element.

Question: Is a "U shaped" alignment tool that fits on either side of the Beacon [it might touch the sides of the Beacon] allowed?

Answer: Yes, provided that the alignment tool does not damage the *Beacon* and no other rule is violated. For example, *Robot* contact with anything outside the *Playing Field Perimeter* violates rule <S2>.

Tip from the Game Design Committee: The alignment tool should not extend far enough past the *Beacon* so that it could contact a volunteer standing near the *Playing Field Perimeter*.

Professor Proton

09-25-2016, 11:58 PM

<G14>-Robot Grasping Game Elements: Belt Contact With The Center Vortex Vertical Pole

Quote:

Originally Posted by **FTC9765** »

Can the GDC clarify their Tip in post #3 in "Miscellaneous Game Questions - Answer Thread"

Question: *My builders want to touch the Center Vortex PVC vertical pole with a timing belt stretched between 2 pulleys. Their thought is that if the timing belt wraps the pole less than 180 degrees, that this would not violate <G14>, since it would not grab, grasp or attach itself to the pole.*

Answer: The action described violates rule <G14>. The timing belt's multiple points of contact around the PVC vertical pole is considered to be grasping the *Game Element*.

Professor Proton

09-26-2016, 10:17 AM

<GS2> Particle Scoring Eligibility - Center Vortex Base

Quote:

Originally Posted by **FTC8390** »

The Playing Field Floor is defined as "The surface of the tiles that make up the base of the Playing Field." From this definition, the black base of the Center Vortex is not part of the Playing Field Floor.

<GS2> says in part "After Scoring, Particles must make contact with the Playing Field Floor before they are eligible to be Scored again."

Question: *May robots pick up Particles from the black base of the Center Vortex and score them without violating <GS2> or must the Particles touch a floor tile first? In other words, should the black base be considered part of the Playing Field Floor for purposes of <GS2> or not?*

Answer: Great question! *Robots* may collect *Particles* from the *Center Vortex Base* and legally *Score* them without violating rule <GS2>.

Professor Proton

09-26-2016, 09:36 PM

<GS2> Particle Scoring Eligibility - Center Vortex

Quote:

Originally Posted by **FTC8391** »

Post 4 in the Miscellaneous Game Questions Answer Thread states that

"Robots or game play strategies that have any of the following characteristics are considered to be using a Closed Recycling System: ... ii) A mechanism that reduces the randomness of where Scored Particles return to the Playing Field Floor" and "all Scored Particles should return without restriction to random locations [subject to the design of the Vortex Particle return mechanisms] on the Playing Field Floor."

Question: We were wondering if the following two strategies are legal. Note that we have a very consistent launcher -- all particles launched from a certain position on the field will follow the same trajectory. Consider a cycle to be the release / scoring of multiple particles that were stored in our robot.

"Pseudo pseudo closed recycling" (Strategy A): Line up semi-randomly on the field such that particles launched will land somewhere in the center vortex. Given the extreme consistency of our launcher, the particles launched (in a given cycle) will land in the same section of the center vortex and thus land in the same area of the field. However, due to semi-random lineup, the area of the field in which the particles land -- out of seven possible areas -- was not predetermined and will likely differ for each separate cycle.

"Pseudo closed recycling" (Strategy B): Line up on the field such that particles launched will land in a predetermined section of the center vortex (every cycle will launch to this section) and thus land in the same area of the field, every cycle.

Thanks for your time.

Answer: Both strategies are allowed.

Tip from the Game Design Committee: The Game Design Committee's intent is for *Robots* to launch, push, place, etc. *Particles* into a *Vortex* (*Center or Corner Vortex* as appropriate) and then collect the just *Scored Particles* by driving as needed to the location where the *Particles* naturally return to the *Playing Field Floor*.

Professor Proton

09-26-2016, 10:24 PM

<GS10> Controlling or Blocking an Opposing Alliance's Scoring Elements - Particles

Quote:

Originally Posted by **FTC7785** »

In the Game Manual Part 2 it states the following as it relates to scoring particles:

Particle Scoring – Particles Scored into an Alliance-specific Center Vortex earn five (5) points each for the corresponding Alliance (regardless of Particle color. Particles Scored into the Alliance-specific Corner Vortex earn one (1) point each for the corresponding Alliance (regardless of Particle color).

The language is similar for both autonomous and driver controlled periods.

Question: *Is this to be read as teams can purposely score any color particle in their corner vortex and/or center vortex (ie, red gathering blue particles to score) or is this meant to address inadvertent scoring only (ie, red throws a red particle into a blue vortex). We ask for clarification and more specific verbiage indicating that alliances*

are only allowed to control particles of their alliance color or that alliances can control particles of any color for scoring.

Thank you.

Answer: Rule <GS10> states that *Robots* may not *Control* or *Block Access* to the opposing *Alliance's Cap Ball* or *Particles*. Therefore, *Robots* cannot legally attempt to *Score* the opposing *Alliance's Scoring Elements*.

The *Particle Scoring* text from the Game Manual that is referenced in the team's question, allows *Robots* to intentionally or inadvertently *Score* their *Alliance's Particles* in the opposing *Alliance's Vortex* goals. When counting *Scored Particles*, the *Alliance* goal is what matters, not which *Alliance's Particle* entered the goal.

Professor Proton

09-26-2016, 10:57 PM

<GS1> Controlling/Possessing Particles - Scoring Multiple Particles Together

Quote:

*Originally Posted by **FTC11111** »*

Question: *Are robots allowed to score multiple particles together at the same time? For example, can you build an arm to attach to the robot to grab 2 or 3 particles and then score them together.*

Answer: Yes, *Robots* are allowed to *Score* multiple *Particles* together at the same time. Rule <GS1> allows *Robots* to *Control* or *Possess* any quantity of their *Alliance's Particles* once the *Match* begins.

Tip from the Game Design Committee: The question references building an arm to collect *Particles* and then *Score* them. If the intent is to use the arm to *Score Particles* in the *Center Vortex*, rule <GS8> prevents *Robots* from extending higher than 29 inches (73.6 cm), except during the *End Game*.

Professor Proton

09-28-2016, 07:50 PM

<GS2> Particle Scoring Eligibility - Interacting With Particles Before Floor Contact

Quote:

*Originally Posted by **FTC8539** »*

According to <GS2> After Scoring, Particles must make contact with the Playing Field Floor before they are eligible to be Scored again. Any Particles Scored in violation of this rule will have a Score value of zero

Question 1: *May the particles touch the robot (or any part thereof) prior to making contact the Playing Field floor?*

Question 2: *Can robots be designed to help direct particles returning from the Center or Corner Vortices toward itself, as long as the particle makes contact with the playing field floor before being possessed and scored?*

Answer 1: Yes, inadvertent contact with a *Robot* is allowed. *Robots* may not *Possess* or *Control* a just *Scored Particle* before the *Particle* contacts the *Playing Field Floor* or the *Center Vortex Base*.

Answer 2: No, this is considered to be *Controlling a Particle* and it is not allowed until after the *Particle* makes contact with the *Playing Field Floor* or the *Center Vortex Base*. See post #4 in the "Miscellaneous Game Questions - Answer Thread" for the complete details.

Professor Proton

09-28-2016, 09:48 PM

Manipulating the Direction of Particles Scored in the Corner Vortex

Quote:

*Originally Posted by **FTC7171** »*

Our team was thinking of using a barrier to manipulate the direction of the particles scored in the corner vortex. This would ensure that all the particles end up on the same side, which would save us a lot of time.

Question: *Is this strategy legal?*

Our idea would basically consist of some sort of barrier attached to our robot. The barrier would not be in contact with the floor.

Thank you.

Answer: This strategy was declared to be illegal in the "Miscellaneous Game Questions - Answer Thread," post #4.

Professor Proton

09-29-2016, 05:53 PM

<S1> Unsafe Robot and Playing Field Damage - Deciding Which Robot Caused The Damage

Quote:

*Originally Posted by **FTC7468** »*

Suppose a robot on alliance A is spinning the center vortex, and a robot on alliance B comes over and either applies something to spin it the other direction, or applies friction to bring it to a stop.

Question: *If in this struggle for controlling the rotation of the center vortex, it ends up breaking, which alliance is assessed a penalty?*

Answer: The *Penalized Robot* is not based on when it started to interact with the *Center Vortex*. Referees observing the *Match* will make the determination.

Professor Proton

09-29-2016, 06:17 PM

<G15> Destruction, Damage, Tipping, etc. - Robot Tipped Over By The Center Vortex

Quote:

*Originally Posted by **FTC7468** »*

Suppose robot A is attempting to score the cap ball on the center vortex. A robot on the other alliance spins the center vortex around and knocks it into robot A, causing it

to tip over.

Question: *Is the robot that spun the center vortex assessed a penalty for tipping over robot A?*

Answer: Strategies aimed solely at tipping over an opposing *Alliance Robot* are not allowed per rule <G15>. Intentional interference with a *Robot* that *Possesses* a lifted *Cap Ball* is a violation of rule <GS11>. The action described in the question is a possible violation of rules <G15> and <GS11>. Referees watching the *Match* will make the determination if a rule has been violated.

Professor Proton

09-29-2016, 06:48 PM

<G14> Robots Grasping Game Elements - Two Robots Interacting With the Center Vortex

Quote:

*Originally Posted by **FTC7468** »*

Two teams on the same alliance are both legally touching the center vortex pole for the purposes of rotating it.

Question: *Is the combination of the two robots interacting with the center vortex pole considered grasping it?*

Answer: No.

Professor Proton

09-29-2016, 07:04 PM

<GS10> Controlling or Blocking an Opposing Alliance's Scoring Elements - Particle

Quote:

*Originally Posted by **FTC5414** »*

Question 1: *If an particle belonging to the opposing alliance drops from the center vortex and lands on top of an opposing alliance, becoming lodged in or on the robot, will this be considered a penalty for controlling a particle of the opposing alliance?*

Question 2: *If it is a penalty, will the team controlling the particle be continually called for penalties until they remove the particle from their robot?*

Question 3: *If the answer to both of these questions is yes, then can the offending team disable their robot to avoid receiving additional penalties.*

Thanks.

Answer 1: Yes, this violates rule <GS10>. An *Alliance* has access to between three and five *Particles*. Keeping an opposing *Alliance's Particle* out of play creates a significant competitive advantage.

Answer 2: Yes, *Penalties* will be assessed as described in rule <GS10>.

Answer 3: No, rule <G23> does not protect a *Robot* from earning *Penalties* when it is *Disabled* for strategic reasons.

Tip from the Game Design Committee: *Robots* should be designed to prevent unintentional *Possession* of the opposing *Alliance's Particles*.

Professor Proton

09-29-2016, 07:35 PM

Can the GDC describe a "legal" way to recover particles from the corner vortex?

Quote:

*Originally Posted by **FTC9765** »*

Question: *As there are a limited number of possible return paths for a particle that has been scored in the corner vortex, can you define a legal distance that the particle must travel on the floor, or a set time that the particle must be avoided, or a minimum distance that our robot must stay back from the particle return, so that retrieving this particle would be considered "open recycling?"*

Answer: No, adding the suggested parameters introduces rule loopholes that could allow *Robots* to defeat the Game Design Committee's intent for how to legally recycle *Particles* during game play.

Professor Proton

10-02-2016, 04:26 PM

<RG08> Launching Game Scoring Elements - Trajectory Constraints For Particles

Quote:

*Originally Posted by **FTC9779** »*

Game Manual Part 1 rule <RG08> states:

Robots are allowed to launch game Scoring Elements through the air. It is expected that Teams will launch the elements with just enough velocity to score. If the referees feel that a Robot is launching Scoring Elements with excessive velocity that would cause a safety issue if they were to leave the field the Robot will be required to be inspected. Robots must then demonstrate that a launched Game Element cannot travel in the air more than a distance of 4.88 m (16 ft.) or more than 1.83 m (6 ft.) in elevation.

Question:

The wording of this rule seems to indicate that it is perfectly legal to launch particles in excess of the maximum 16 feet distance and 6 feet elevation, as long as the referees feel that the launching of the particles is responsible and does not pose any safety issues. Our team currently launch particles nearly straight up from under the center vortex. At the top of the slow arch, the ball reaches a height of 6 feet 6 inches. We just want to clarify the intent of the game design committee in regards to this rule.

Thank you.

Answer: The Game Design Committee's intent is for a launched *Particle* to travel in the air no more than a distance of 4.88 m (16 ft.) and/or no more than 1.83 m (6 ft.) in elevation. *Robots* may not legally launch *Particles* further or higher than these limits.

Professor Proton

10-04-2016, 11:20 PM

Center Vortex max rotation rate and does rotating the Center Vortex break the game?

Teams have shared in the Game Q&A forum their strong belief that allowing *Robots* to rotate the *Center Vortex* breaks the game and the Game Design Committee should proclaim that purposeful rotation of the *Center Vortex* is not allowed. The Game Design Committee believes this is a valid concern and we would like to share our perspective with the *FIRST* Tech Challenge community.

During the game design process, we considered the difficulty level of rotating the *Center Vortex*, the strategic benefit of the action, and how easily an opposing *Alliance Robot* could disrupt the strategy.

It is a difficult task: We believe that the constraints placed on how *Robots* may legally interact with the *Center Vortex* prevent *Robots* from rotating the *Center Vortex* at an angular rate that will break the game. Referees will pay close attention to how *Robots* interact with the *Center Vortex* to assure that there is no damage and *Robot* mechanisms do not employ multiple points of contact that grab, grasp, pinch, etc. the *Center Vortex* PVC Vertical Pole.

Limited strategic value: Rotating the *Center Vortex* affects both *Alliances*, reducing the strategic value of this strategy. A *Robot* that is rotating the *Center Vortex* is probably not able to concurrently add to the *Alliance's* Score. Finally, rotating the *Center Vortex* during the *End Game* while an opposing *Alliance Robot* is attempting to Score a *Cap Ball* in the *Center Vortex* violates the *Cap Ball* interference rule, <GS11>.

Easy to disrupt the strategy: It should be easy for an opposing *Alliance Robot* to disrupt the strategy by pushing the *Robot* away from the *Center Vortex*.

At this point in the season, the Game Design Committee believes that allowing the purposeful rotation of the *Center Vortex* is a valid game activity that is difficult to perform, has limited strategic value, and is easily defended against. However, *FIRST* Tech Challenge teams are extremely creative and they have surprised the Game Design Committee with their ingenious *Robot* designs and strategies in the past. For example, in the game *Bowled Over*, the Game Design Committee was pleasantly surprised that *Robots* lifted the *Scoring Crates* so high that referees needed a ladder to measure their height!

The Game Design Committee will continue to allow the purposeful rotation of the *Center Vortex* until there is evidence that the strategy really does break the game. If a *Robot* demonstrates that the strategy does break the game, the Game Design Committee will probably fix the game with a ruling in the Game Q&A Forum.

The questions and comments made by *Teams* in the Q&A Game Form have made the Game Design Committee concerned that vigorous rotation of the *Center Vortex* is likely and it may cause damage. In many cases, the damage will be visible and an obvious violation of the *Playing Field* damage rule, <S1>. Less obvious internal damage or accelerated wear and tear from fast rotation rates and the high forces needed to rotate the *Center Vortex* make it difficult for referees at different events to make the same judgment call. To help assure consistency between tournaments, the Game Design Committee is providing the following guidance to determine when the *Center Vortex* rotation rate violates rule <S1>:

- i) A *Robot* that purposefully causes the *Center Vortex* to rotate at a rate of one revolution in less than five seconds violates rule <S1>.
- ii) A complete revolution of the *Center Vortex* at a high angular rate is not required to violate rule <S1>.
- iii) Similar to the other rules that have a time component, the perceived rotation rate will be a judgment call by referees. Timing aids such as a stopwatch will not be used to precisely determine the rotation rate.

Teams that plan on intentionally rotating the *Center Vortex* should carefully review rule <S1> and pay close attention to the "intent" statement that is part of the rule. When a referee warns a *Drive Team* that their *Robot* is damaging the *Center Vortex*, the *Robot* should immediately stop interacting with the *Center Vortex* and move away.

That's all for now,

The Game Design Committee

Professor Proton

10-06-2016, 12:31 AM

Pushing an opposing Alliance Robot while it is launching Particles.

Quote:

*Originally Posted by **FTC9915** »****Question:** Is it legal to push an opposing alliance robot while it's launching particles into the center vortex?*

Answer: Yes, provided that no other rule is violated. For example, *Drive Teams* using aggressive actions against an opposing *Alliance Robot* should have a clear understanding of the *Unsafe Robot* and *Playing Field Damage* rule, <S1>. If the opposing *Alliance Robot* is launching *Particles* towards a *Vortex*, the *Particle* interference rule <GS9> could come into play. *Drive Teams* should also be careful not to violate the *Pinning*, *Trapping*, or *Blocking Robots* rule, <G16>.

Professor Proton

10-25-2016, 08:07 PM

<RG08> Launching Game Scoring Elements - Elevation Constraint

Quote:

*Originally Posted by **FTC0965** »****Question:** Rule RG08 limits the motion of the particles to 6 feet "in elevation." Our robot actually releases the particles (into the air) about 22 inches above the floor. Are we then allowed to send the particles 94 inches above the floor?*

Answer: The 6 ft (1.83 m) elevation constraint in rule <RG08> is measured from the *Playing Field Floor*.

Professor Proton

10-25-2016, 08:29 PM

Particle Stuck in the Center Vortex.

Quote:

*Originally Posted by **FTC5559** »****Question 1:** If a particle is lodged between the pvc pipes of the center vortex, is it counted as scored?****Question 2:** Based on previous seasons, a stuck scoring element is still up to the teams to dislodge?*

Answer 1: No, the definition of *Scored* in section 1.4 of the Game Manual Part 2 requires that a *Particle* "roll through the [Center] Vortex" to be *Scored*. *Particles* are counted as *Scored* after they exit through the bottom spokes of the *Center Vortex*.

Answer 2: Correct.

Professor Proton

10-25-2016, 10:10 PM

<GS10> Controlling an Opposing Alliance's Scoring Element - Particle

Quote:

Originally Posted by **FTC6981** »

Question: *If a robot launches a particle into an opposing alliance robot, does this violate GS10? Thank you!*

Answer: Rule <G17> protects a *Robot* from receiving <GS10> *Penalties* if the intent of the opposing *Alliance* is to place, launch, etc. a *Particle* into the *Robot*.

<GS10> *Penalties* will come into play if a *Particle* that is launched with the expectation that it will *Score* into a *Vortex* becomes embedded in an opposing *Alliance's Robot*. For example, if a Red *Alliance Robot* launches a red *Particle* towards the *Center Vortex* on a trajectory that has a reasonable chance of *Scoring* and the *Particle* falls into a Blue *Alliance Robot*, the Blue *Alliance Robot* is subject to <GS10> *Penalties*.

Professor Proton

10-25-2016, 10:16 PM

<RG08> Launching Game Scoring Elements - Particle Elevation Constraint

Quote:

Originally Posted by **FTC0359** »

Question: *Is it legal for the mechanical capability of a particle launcher to exceed 6 ft in elevation if the robot is limited by software to use a reduced percentage of the full power of the launcher? This would mean that the robot particle launcher will be programmed to have an upper limit of 5 ft 11 inches.*

Answer: Yes.

Professor Proton

10-31-2016, 10:22 PM

<GS10> Controlling an Opposing Alliance's Scoring Elements - Particles

Quote:

Originally Posted by **FTC7203** »

We were wondering if GS10 could be clarified through examples.

Our robot is designed to detect the color of a particle we unintentionally collect.

Scenario 1) The robot is designed to automatically eject particles of the wrong color out the side of the robot without reversing collection. This would be the fastest way to return an accidentally collected particle to play.

Scenario 2) The robot is designed to automatically reverse the collection mechanism (eject the particle out the front) if the wrong color particle is collected. This would also return the particle to play very quickly.

Scenario 3) Same as scenario 1, but the driver controls this, rather than the robot being designed to handle it automatically. This would slow down the returning of the particle to play.

Scenario 4) Same as scenario 2, but the driver controls this, rather than the robot being designed to handle it automatically. This would slow down the returning of the

particle to play.

Note that for all scenarios, the robot operators are actively trying to avoid collecting the wrong colored particle, the functions are just a backup to try to prevent penalty. The intent of the design is to immediately lose possession of the other alliance's particle.

In these scenarios, would there be penalties, and if so how would the penalties be assessed?

Thanks!

Answer: All four scenarios are examples of *Controlling* an opposing *Alliance's Scoring Element*. As stated in rule <GS10>, the first instance will result in a warning with any following violations resulting in a *Major Penalty* and an additional *Minor Penalty* assessed for every five seconds that the rule violation persists. The ability to quickly discard an opposing *Alliance's Particles* may reduce the magnitude of <GS10> *Penalties*, however, it does not give a *Robot* immunity from rule <GS10> consequences.

Professor Proton

11-06-2016, 09:09 PM

<G12> Recording the Score After Objects Come to Rest - Elevated Cap Ball

Quote:

*Originally Posted by **FTC5386** »*

A robot has successfully lifted a cap ball above 30 inches as time expires, but the robot slowly lowers the cap ball below 30 inches over the next several seconds following the end of the match.

Question: *Does the 20 points still score? If scoring is not determined instantaneously, please expand on timing of how scoring determinations are made.*

Answer: As stated in rule <G12>, referees will determine the *Score* value of the *Cap Ball* after it has come to rest. In the example scenario, the *Robot* has not accomplished the *End Game* high height achievement because the *Cap Ball* is below 30 inches in height after it has come to rest.

Professor Proton

11-15-2016, 06:48 PM

<G18> Removing Game Elements from the Playing Field- Returning Particles to the Field

Quote:

*Originally Posted by **FTC8564** »*

Question: *If particles bounce out of the Playing Field, how are they returned to the field? Are they just rolled down on a random side of the Corner Vortex?*

Answer: Field personnel at the earliest safe and convenient opportunity will return *Particles* and *Cap Balls* to the *Playing Field* at the approximate location where the *Scoring Element* left the *Playing Field*.

Professor Proton

11-15-2016, 08:44 PM

<GS10> Controlling or Blocking an Opposing Alliance's Scoring Elements

Quote:

Originally Posted by **FTC7655** »

<GS10> states in part: "The intent of this rule is to allow Teams access to and from their Scoring Elements. Blocking and Trapping means denying ALL access, so general Robot movement with respect to other Robots should not be considered in violation unless there is no other way to traverse the Playing Field or get the Scoring Element. Also note that this rule requires attempted action on the part of the opposing Alliance. See also Rule <G16>."

In forum post Misc #25, situations that constitute controlling game elements are outlined. However, at our first tournament, the refs interpreted the forum ruling as defining the intent of rule <GS10> to include ANY control of game elements, not just when an opposing robot is attempting access.

Question: Is the intent of the GDC to penalize any intentional or inadvertent control of game elements, regardless of any attempt of the opposing alliance to actually use said game elements?

Answer: Yes, rule <GS10> consequences come into play any time that a *Robot Controls* an opposing *Alliance Particle* or Cap Ball. The portion of the rule that states, "violating the rule requires attempted action on the part of the opposing *Alliance*" refers only to the *Blocking* aspect of the rule.

Professor Proton

11-15-2016, 09:24 PM

<G25> Match Replay - Cap Ball Interfering with the Driver's Station

Quote:

Originally Posted by **FTC5532** »

We were at a tournament, when something unusual occurred. A team was lifting the cap ball during the end game, when it rolled off their lift above the center vortex, bounced across the field and out over the field perimeter walls. The ball bounced into the alliance station, where it knocked over the stand for the phones/controllers. This caused the team's phones to disconnect and they couldn't finish the end game. No penalties were applied and the referees considered it an accidental/incidental event and it didn't change the outcome of the match.

Question: Should have the referees handled the situation differently?

Answer: Rule <G25> states that *Matches* are replayed at the discretion of the Head Referee only for a failure of a *Game Element* or verified Wi-Fi interference that was likely to have impacted which *Alliance* won the *Match*. The scenario described in the question did not satisfy the requirements for a *Match* replay. Based on the description of the event, the Head Referee followed the correct procedure for determining *Penalties*, and if a *Match* replay is allowed and necessary.

Warning from the Game Design Committee: Intentionally using a *Cap Ball* or *Particle* to disrupt the opposing *Alliance's Drive Team* may subject the offending *Alliance* to <G26> and <G18> consequences.

Professor Proton

11-16-2016, 12:36 PM

<GS9> Particle Interference - Stationary Robot With a Raised Part

Quote:

*Originally Posted by **FTC7244** »*

Question: *If robot #1 has a raised part (such as from a lifting mechanism) but is sitting stationary between an opposing alliance robot and their center vortex, and is then struck by a particle launched by the opposing robot #2, are they still violating <GS9> or would this be being forced into the penalty since the opposing robot could have just moved around them?*

Answer: <GS9> consequences will come into play if the referee believes that *Robot #1* is intentionally using a defensive strategy. If the intent of *Robot #1* is to play offense, <GS9> does not apply.

Professor Proton

11-16-2016, 01:26 PM

<G8> Stopping Game Play Late - Triggering a Beacon After the Period Ends

Quote:

*Originally Posted by **FTC7244** »*

Question: *If a beacon is triggered and changed due to a late stop, is it scored based on the color it was when the match ended or the color it is after the late push?*

Answer: Rule <G8> addresses stopping game play late. The rule explicitly states that the late action does not count towards the offending *Alliance's Score*. A minor penalty should be assessed and the *Beacon* counted as not *Scored*.

Professor Proton

11-16-2016, 01:34 PM

<G18> Removing Game Elements from the Playing Field - Cap Ball

Quote:

*Originally Posted by **FTC7244** »*

Question: *If a blue robot is moving their blue cap ball out of the way to get to a blue particle and in the process accidentally knocks the cap ball out of the field would this be a penalty?*

Answer: No *Penalty* should be assessed and field personnel at the earliest safe and convenient opportunity will return the *Cap Ball* to the *Playing Field* at the approximate location where it left the *Playing Field*.

Wil Wheaton

11-17-2016, 12:35 PM

Note from the GDC: Aggressive Beacon Contact and <G15> Field Damage

A Note from the Game Design Committee:

We are hearing reports of teams driving their robots aggressively and repeatedly making very hard contact on the Beacons and the walls adjacent to the Beacons.

Aggressive contact that causes significant flexing of the walls or moves/dislodges a Beacon will be considered field damage and penalized according to <G15>. Teams should expect to receive warnings and may receive Major Penalties and a Yellow Card for excessive or chronic aggressive Beacon contacts.

Professor Proton

11-21-2016, 10:18 PM

Rotating the Center Vortex Using a Cap Ball

Quote:

Originally Posted by **FTC9915** »

At a recent league event, the center vortex was rotated faster than 12 RPM by a robot acting against a Cap Ball resting on the center vortex base. By squeezing the Cap Ball against the center vortex vertical pole and turning, the robot easily rotated the center vortex. The action is recorded in the video:

<https://youtu.be/dA21DRZmIHw>

Question 1: *Is this action legal?*

Question 2: *Does it make a difference if the action is inadvertent?*

Answer 1: The *Robot* action described in the scenario and demonstrated in the video is not allowed if the *Center Vortex* rotates at a rate that is greater than one revolution in less than five seconds. This is only one example of a *Robot* rotating the *Center Vortex*. Other similar methods that cause a high rotation rate will also be deemed illegal.

Answer 2: Inadvertent rotation of the *Center Vortex* above the allowed rotation rate should not be *Penalized*. Referees will determine if the *Robot's* actions are an intentional strategy or an *Inadvertent* action.

Professor Proton

11-21-2016, 11:04 PM

<GS14> Blocking Access to an Opposing Alliance's Corner Vortex- Parking On the Vortex

Quote:

Originally Posted by **FTC5532** »

Question: *Is it legal/fair game play for an opposing alliance's robot to park on our corner vortex during the driver-controlled period? The opposing robot prevented the scoring of particles in the corner vortex.*

Answer: The action described in the scenario violates rule <GS14>. Rule <GS14> states that during the *Driver-Controlled Period*, a *Robot* may not obstruct all access, prevent a *Robot* from escaping, or interfere with the opposing *Alliance's Corner Vortex* when an opposing *Alliance Robot* is actively attempting to access or escape from it.

A *Robot* may *Park On* the opposing *Alliance's Corner Vortex* without *Penalty* if an opposing *Alliance Robot* is not attempting to access or exit the *Corner Vortex*.

Professor Proton

11-22-2016, 09:24 PM

<G23> - Disabled Robot Eligibility - Penalties while Disabled

Quote:

Originally Posted by **FTC11625** »

At our last competition, a robot lost connection during the driver controlled period in front of a beacon. It was clear they could not connect or move.

Question 1: Which rule prevails? GS10 - Controlling or Blocking an Opposing Alliance's Scoring Elements, or G23 - Disabled Robot Eligibility?

Question 2: Would this team have been required to ask a ref to declare their robot disabled to use rule G23 or how is "Disabled Robot" defined?

Answer 1: Rule <G23> prevails. A *Disabled Robot* (whether referee induced or *Robot* failure) will not earn *Penalties* after becoming *Disabled*. The *Robot* described in the scenario should not receive *Penalties* after the failure occurs.

Answer 2: The *Drive Team* should immediately notify a referee and the Field Technical Advisor when they are not able to control their *Robot*. After the *Match* ends, the Head Referee make the final decision about *Penalties* after confirming the *Robot* failure with the Field Technical Advisor.

Professor Proton

11-30-2016, 03:37 PM

<G14> Robots Grasping Game Elements & <S2> Robot Extension Outside the Playing Field

Quote:

Originally Posted by **FTC9794** »

Question: *Is it legal to touch the beacon from the top to prevent it from moving? The robot has an arm that comes over the top of the beacon to prevent it from moving away from the robot as it presses the button.*

Answer: The action described is not allowed because it violates rule <G14>. The *Robot* will also violate rule <S2> if it extends beyond the outside face of the *Playing Field Wall* and contacts anything outside the *Playing Field Perimeter*.

Professor Proton

11-30-2016, 04:15 PM

Rotating the Center Vortex Using a Cap Ball

Quote:

Originally Posted by **FTC8923** »

*The rule about grasping states that robots may not grasp the center vortex pole. The ball is considered to be part of the robot per the definition of Controlling, and since the cap balls are flexible, they technically make more than one point of contact with the pole. In post #34 of the Miscellaneous thread, it was ruled illegal to *rapidly* rotate the center vortex with a cap ball (or other methods). **Question:** Is it legal to rotate the center vortex by pushing a cap ball against the vertical pole, provided the rotation rate of the center vortex does not exceed the limitation?*

Answer: Yes, if the *Cap Ball* is not *Possessed* by the *Robot*.

Professor Proton

12-06-2016, 04:58 PM

<S1> Unsafe Robot and Playing Field Damage - Scuff Marks on a Particle

Quote:

*Originally Posted by **FTC5559** »****Question:** Is it a penalty if your robot leaves scuff marks onto the particles due to our flywheel shooter?*

Answer: Robots should not be *Penalized* for making marks on *Particles* that can be removed by cleaning.

Professor Proton

12-06-2016, 05:40 PM

Section 1.5.2 Autonomous Period - Inadvertent Scoring of a Beacon

Quote:

*Originally Posted by **FTC7026** »**Here is the statement from the Game Manual Part 2: The Alliance matching the color that is triggered at the end of the Autonomous Period will receive thirty (30) points per Beacon, regardless of which **Alliance Robot** triggered it ...**During the autonomous period in a match this weekend, after we had claimed a beacon, an accidental contact with our cap ball caused one of our claimed beacons to be re-claimed for the opposing alliance.****Question:** Can the game design committee confirm if accidental claiming/reclaiming of a beacon by a cap ball can be ruled as ineligible for scoring during Autonomous?*

Answer: A Beacon triggered by an *Inadvertent* action is legally *Scored*.

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Miscellaneous Game Questions - Answer Thread

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Professor Proton

12-12-2016, 09:50 PM

Is a mini-bot attached with an elevated scissor extension to a main-bot legal?

Quote:

Originally Posted by **FTC12357** »

Our team has a minibot that comes off of the main robot, the wires are run from the mainbot to the minbot on a rigid scissor extension that is raised 28 inches above the ground to eliminate the risk of entanglement. It is very similar to this robot design <https://youtu.be/ue3FCX6Itew> for the 2012-2013 Ring It Up! game except we raise our scissor extension up higher and we do not have slack wires ever (The wires are secured directly to the metal scissor extension bars). Our plan is to bring the minibot back to the mainbot and stop using it as soon as anyone raises to the height of our scissor extension, to prevent tipping both their robot and our robot from tipping over.

Question 1: *Right now, we are using the minibot just to help pickup particles and bring them to the mainbot to be launched, is this legal?*

Question 2: *We are also considering adding a beacon button pusher to it so it can help us claim the beacons during end game and autonomous, is this legal?*

Thanks!

Answer 1: The Game Design Committee enjoys seeing how *Teams* solve the annual game challenge and this *Robot* is a very creative approach to playing VELOCITY VORTEX.

The Game Design Committee is not able to give absolute approval to the *Robot* without an in-person inspection. A Robot Inspector at an event will confirm that the *Robot* complies with all the construction rules. All that the Game Design Committee can say is that in general, the mini-bot/main-*Robot* concept described in the post does not appear to violate any construction rules. Keep in mind that the entire *Robot* must comply with the *Robot* starting volume rule, <G3>.

While the construction of the *Robot* appears to be legal, compliance with game rules will be decided by referees during *Match* play. Complying with the following game rules could be more challenging for this *Robot* than it is for a more conventional *Robot* design.

- <S1> Unsafe *Robot*
- <G15> Destruction, Damage, Tipping, etc.
- <G13> Robots Deliberately Detaching Parts
- <G16> *Pinning, Trapping, or Blocking Robots*
- <G20> Timely removal of *Robots* from the *Playing Field* at the end of a *Match*
- <GS9> *Particle* interference
- <GS10> *Blocking Access* to an opposing *Alliance's Scoring Elements*
- <GS11> *Cap Ball* interference

Blocking *Robots*, *Scoring Elements*, and launched *Particles* are of particular concern. A *Robot* this big could be a real barrier to allowing free access to *Particles*, *Cap Balls*, and *Vortex goals*.

Rule <G13> is also a major issue. *Robot* parts that are released but remain connected by a tether and interfere with an opposing *Alliance Robot* are considered detached for the purpose of this rule. If the mini-bot or connecting scissor extension interfere with an opposing *Alliance Robot*, a *Major Penalty* and a *Yellow Card* will be issued.

Finally, for your consideration, how will the mini-bot and rigid scissor extension hold up against a *Robot* playing defense directly against the mini-bot? *FIRST* Tech Challenge games are highly interactive; *Robot-to-Robot* contact and defensive game play should be expected. Is the mini-bot and scissor extension robust enough to survive a push or impact from another *Robot*?

Answer 2: Answer #1 also applies to Question #2.

Professor Proton

12-12-2016, 10:33 PM

<S2> Robot Extension Outside the Playing Field Perimeter

Quote:

Originally Posted by **FTC10421** »

Regarding our cap ball lifting mechanism, our robot uses the side of the playing field to lock a door hinge that would allow the mechanism to lift the ball. The arm goes outside the playing field, but it does not make contact with anything on the outside. There's a rule in the game manual that states that the robot cannot make contact anything outside the playing field; however, it does not touch anything outside the field.

Question: *Would we be allowed to use the side of the playing field to lock the mechanism, so we could lift the ball?*

Answer: The intent of rule <S2> is to prevent penalizing *Inadvertent* safe *Robot* extension outside the *Playing Field Perimeter*. To keep the rule simple, the Game Design Committee selected contact with something outside the *Playing Field Perimeter* to determine if the extension is unsafe. The *Robot's* actions described in the question violate rule <S2> because it is a planned extension outside of the *Playing Field Perimeter* that is a safety risk for referees standing nearby.

Professor Proton

12-13-2016, 06:34 PM

<G15> Destruction, Damage, Tipping, etc. - Robot dragging a cable around the field

Quote:

Originally Posted by **FTC8390** »

Question: *Is it legal to build a robot that is comprised of 2 minibots connected together by a long tether that stretches across the field?*

Answer: A *Robot* that drags a cable around the *Playing Field Floor* is an entanglement risk and is not allowed by rule <G15>.

Additional concerns include:

- 1) *Particles* and *Cap Balls* drug by the tether would be considered *Controlled*.
- 2) Rule <G13> consequences of a *Major Penalty* and *Yellow Card* will be issued if a mini-bot or the tether affects game play by an opposing *Alliance Robot*.

Wil Wheaton

12-13-2016, 08:56 PM

Understanding Deliberate and Chronic and <G15> Destruction, Damage, Tipping, etc.

Quote:

*Originally Posted by **FTC10096** »*

Can you provide clarification on the meaning of deliberate and quantify chronic as it relates to <G15>?

Answer: In general, deliberate means "with intent" and chronic means "repeated numerous times". i.e. we use standard definitions.

For <G15> to apply, referees are looking for contact that is clearly part of a strategy to destroy/damage/tip/entangle game elements or opposing alliance robots. Repeated, hard contact that is outside of the course of normal game play may be an indication that <G15> may apply. Simply making contact with a robot while playing defense is not enough by itself to justify a penalty under <G15>.

Keep in mind that FIRST Tech Challenge is a highly interactive game and some robot-to-robot contact should be expected and should be designed for ...

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Pre-Match - Answer Thread

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Administrator

09-22-2016, 11:03 AM

Pre-Match - Answer Thread

Answers to questions posted pertaining to Pre Match activities.

Raj

10-19-2016, 11:00 AM

Pre-match: Using Gamepad During Init Phase to Set Up Autonomous?

Quote:

*Originally Posted by **FTC8923** »*

During setup for a game match, teams set opmode for their autonomous program. The "Select OpMode" window easily gets cluttered with numerous autonomous OpModes. One idea the team had was to write a single autonomous OpMode that can be configured with a gamepad during the init phase of the OpMode. Assuming we don't cause a delay of game, would this be legal for us to do?

A: Yes, you can use the gamepad to select which branch of your Autonomous OpMode you will run for a given match as long as the following remains true: 1) The setting is read in the init() phase; 2) The pressing of the gamepad is done prior to the referees randomizing the beacons; 3) It does not cause a delay in the start of a match; and 4) The only button you press at the beginning of the Autonomous period is the start button on the driver's station Android device.

Professor Proton

10-25-2016, 09:16 PM

Section 1.5.1 Pre-Match - Center Vortex Orientation

Quote:

*Originally Posted by **FTC11897** »*

***Question:** Can you tell me how the vortex is going to be set up for the beginning of the autonomous round, for example will it be randomized by you, or will it be set up from the previous round? Thank you very much.*

Answer: Section 1.5.1 of the Game Manual Part 2 states that "Field Personnel will rotate the *Center Vortex Assembly* into the starting orientation shown in Figure 1.3-1."

Professor Proton

10-31-2016, 10:28 PM

Section 1.5.1 Pre-Match - Robot Placement on the Playing Field

Quote:

*Originally Posted by **FTC11194** »*

Question 1: *Where exactly do the robots start?*

Question 2: *If they are touching the perimeter, can the robot start at an angle?*

Answer 1: *Drive Teams place their Robots on the Playing Field with the constraints described in section 1.5.1 of the Game Manual Part 2.*

Answer 2: Yes.

Wil Wheaton

11-09-2016, 09:28 PM

<G3> and Pre-Match Robot Sizing?

Quote:

*Originally Posted by **FTC5037** »*

How is rule G3, the robot starting volume constraint, enforced at the start of a match?

Answer: Routine detailed resizing of robots during match setup should not be a normal part of setup. Referees will be watching for significant violations. Minor concerns will be addressed by sending the robot back to inspection to be appropriately checked for sizing compliance **after** the match.

An 18" stick at the field is an OK tool for verifying significant violations, but realistically should not be used to check for "millimeter" compliance. In all cases, the official measure of size compliance is the sizing cube used during Robot Inspection.

Professor Proton

11-16-2016, 12:22 AM

Section 1.5.1e - Pre-Match - Preloading Particles

Quote:

*Originally Posted by **FTC8533** »*

*Given that Game Manual Part 2 Pre Match Section 1.5.1e states in part;
"Teams within an Alliance are required to pre-position or pre-load a total of three Alliance specific Particles for the Autonomous Period. Each Particle must be Completely Inside the Alliance's Playing Field Area and in contact with a single Robot. No more than two Particles may touch a single Robot. The Particles may also touch the Playing Field."*

Question: *May a team pre-load two particles in robot #1 and pre-position the third particle on the playing field so that it is;*
a) touching the side of their alliance partner robot #2 and
b) can be drawn into robot #1 during auton
Providing that the third particle is NOT touching robot #1?

Answer: Yes.

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Autonomous Period - Answer Thread

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Administrator

09-22-2016, 11:02 AM

Autonomous Period - Answer Thread

Answers to questions posted pertaining to the Autonomous Period.

Professor Proton

09-22-2016, 12:20 PM

<GS2> Particle Scoring Eligibility & Game Manual Part 1 Section 5.3.1

Section 5.3.1 of the Game Manual Part 1 asks teams to reflect on their *Robot's design and the question: "If everybody did this, would the game play be impossible? If the answer to the question is yes, the design component is probably not allowed."*

VELOCITY VORTEX is played with *Particles* that are *Scored* in goals and recycled back to the *Playing Field* for continuous game play. The Game Design Committee's intent is for open recycling, where *Scored Particles* return to random locations on the *Playing Field Floor* so that both *Robots* on an *Alliance* have an equal opportunity to access, *Control*, or *Possess* their *Alliance's Scored Particles*. A closed recycling game strategy that denies a reasonable opportunity for an *Alliance Partner Robot* to access, *Control*, or *Possess* a *Scored Particle* is not in the spirit of the *FIRST Tech Challenge* and is not allowed. Game play with closed recycling of *Particles* would be impossible and unfair to *Alliance Partners*. Therefore, *Robot* designs and/or game strategies that deny their *Alliance Partner* equal access to *Scored Particles*, is considered to be a violation of rule <GS2>.

Professor Proton

09-26-2016, 12:14 AM

Section 1.5.2 Autonomous Period Beacon: Triggering the Beacon Button Multiple Times

Quote:

*Originally Posted by **FTC4211** »*

Question: *Is the robot allowed to press the Beacon Button twice in the Autonomous period in order to correct a mistake? Thanks!*

Answer: Yes, the action described is allowed. There is no rule that limits the number of times a *Robot* may press a *Beacon* trigger button in the *Autonomous* and *Driver-Controlled Periods*.

Tip from the Game Design Committee: To help prevent accidental resetting of a *Beacon* twice by a button press, there is a built-in five second delay after a button is released before the trigger buttons become active and are able to change the illuminated state of the *Beacon* again.

Professor Proton

09-28-2016, 08:02 PM

Section 1.5.2 Autonomous Period - Robot Scoring Particles From Its Starting Location

Quote:

*Originally Posted by **FTC7171** »****Question:** Are robots required to move before throwing particles into the center vortex during the autonomous period?**Thank you.*

Answer: No, *Robots* are allowed to launch *Particles* without moving from their *Match* starting location.

Professor Proton

09-28-2016, 10:07 PM

<G16> Pinning, Trapping or Blocking Robots-Access to Beacons in the Autonomous Period

Quote:

*Originally Posted by **FTC8923** »****Question 1:** Is it legal for a robot to block the opposing alliance's beacons during the Autonomous Period? We are aware of the rules stating that you may not enter the other side for 10 seconds, and that you may not score the other beacons, but can you block access to them?****Question 2:** If not, could your robot intentionally "sweep" the area to push other robots away from their beacons? We ask as we have seen similar defensive play in autonomous play in previous years.**Thanks!*

Answer 1: Intentional Blocking of an opposing *Alliance Robot* from accessing their *Alliance's Beacon* during the *Autonomous Period* violates rule <G16>.

Answer 2: Yes, this is an allowed strategy, provided that the opposing *Alliance Robot* does not become *Pinned*, *Trapped*, or *Blocked*. See rule <G16> for the details.

Professor Proton

09-28-2016, 10:17 PM

Section 1.5.2 Autonomous Period - Stopping Game Play Early

Quote:

*Originally Posted by **FTC8923** »****Question:** Is it legal for drivers to press the stop button on the Driver Station during the Autonomous Period? We realize that teams could strategically stop their robots, but what if the robot starts to cause damage? Are the drivers allowed to prevent damage by stopping the robot midway through the Autonomous Period? Can the drive team ask the referee to be allowed to stop their robot in these kinds of situations?*

Thanks!

Answer: *Drive Teams* may not stop game play early during the *Autonomous Period* for strategic reasons. *Drive Teams* with the cooperation of either a Referee, Field Technical Advisor, or Field Technical Advisor Assistant may press the stop button on the *Driver Station* if there is unexpected *Robot* behavior that has or is very likely to damage another *Robot*, the *Playing Field*, or the *Robot* itself.

Professor Proton

10-05-2016, 12:43 AM

Section 1.5.2.3 Autonomous Period Particle Scoring and Rule <GS10>

Quote:

*Originally Posted by **FTC9915** »*

Question 1: *During autonomous, if our robot picks up the opposing alliance's particles and shoots them into the center vortex, does it count? There is no way during autonomous to intentionally pick up opposing alliance's particles, it has to be accidental, right?*

Question 2: *Is there a penalty if opposing alliance's particles our robot accidentally picked up remain inside our robot when autonomous is ended?*

Answer 1: Yes, *Particles Scored* during the *Autonomous Period* into an *Alliance-specific Center Vortex* earn fifteen points each for the *Alliance* corresponding to that *Vortex*, regardless of *Particle* color and the *Alliance Robot* that launched the *Particle*.

The action described in the question is *Controlling* an opposing *Alliance's Particle* and that violates rule <GS10>. After the first warning, a *Major Penalty* is assessed and an additional *Minor Penalty* is assessed for every five seconds that the rule violation persists. The rule applies to intentional and accidental *Control* of the opposing *Alliance's Particle*.

Repeated violation of <GS10> could bring the Egregious Behaviour rule ,<G26>, into play for flagrant violation of game rules.

Answer 2: Rule <GS10> is violated in the *Autonomous* and *Driver-Controlled Periods* as soon as a *Robot Controls* the opposing *Alliance's Particle*. There is no "free pass" to *Control* an opposing *Alliance's Particle* during the *Autonomous Period*. Rule <GS10> *Penalties* will be assessed during the *Autonomous Period* and continue during the *Driver-Controlled Period* until the opposing *Alliance's Particle* has been released from the *Robot*.

Tip from the Game Design Committee: Turn off the *Robot's Particle* collection system during the *Autonomous Period* to avoid violating rule <GS10>.

Professor Proton

10-06-2016, 12:19 AM

<G16> Pinning, Trapping, or Blocking Robots - Access to a Beacon

Quote:

*Originally Posted by **FTC9915** »*

Question 1: *During autonomous, after 10 seconds, is it legal to move our robot to just outside of the white gaffe tape, this still gives opposing alliance's robot enough room to access their beacon from other directions if it's programmed to?*

Question 2: *During autonomous, after 10 seconds, while our robot is moving*

towards an opposing alliance's beacon, a few inches away from white gaffer tape line area, collides with opposing alliance's robot, both are stalled afterwards, does it violate blocking, pinning, trapping according rule of G16?

Question 3: *During autonomous, after 10 seconds, is it legal to move our robot to the middle of opposing alliance's two beacons? Is this a blocking access scenario?*

Question 4: *Essentially, the question is which area our robot can move to in the opposing alliance side doesn't violate G16?*

Answer 1: The action described is legal, if the *Robot* playing defense is *Outside* the *Area* defined by the soft foam floor tile (not including the tile connecting teeth) that contains the one-inch-wide gaffers tape.

Answer 2: The action described is legal, if the *Robot* playing defense is *Outside* the *Area* defined by the soft foam floor tile (not including the tile connecting teeth) that contains the one-inch-wide strip of white gaffers tape.

Answer 3: This is a legal strategy, if the *Robot* playing defense is *Outside* the *Area* defined by the soft foam floor tile (not including the tile connecting teeth) that contains the one-inch-wide strip of white gaffers tape when an opposing *Alliance Robot* attempts to access the *Beacon*.

Answer 4: It is a <G16> rule violation for *Blocking*, if a *Robot* is attempting to access its *Alliance's Beacon* and an opposing *Alliance Robot* is *Inside* the *Area* defined by the soft foam floor tile (not including the tile connecting teeth) that contains the one-inch-wide strip of white gaffers tape.

Tip from the Game Design Committee: Triggering the *Beacon* is a high value achievement during the *Autonomous Period*. The game rules were written to protect *Robots* that are actively attempting to access their *Alliance's Beacons* during the *Autonomous Period*. Referees will pay very close attention to *Robots* that intentionally *Pin*, *Trap*, or *Block* an opposing *Alliance Robot* that is actively attempting to access their *Alliance's Beacon* during the *Autonomous Period*. *Robots* should stay clear of the soft foam tile containing the white gaffers tape on the opposing *Alliance's* side of the *Playing Field* during the *Autonomous Period*.

Professor Proton

10-11-2016, 10:08 PM

Section 1.5.2.1 Autonomous Period-Beacon Triggered in Favor of the Opposing Alliance

Quote:

Originally Posted by FTC9765 »

Question: *If, during autonomous, a robot mistakenly activates the wrong color on one of their alliance's beacons, do they still earn an extra particle, or would the other alliance?*

Example: Red alliance mistakenly activates one of their beacons to blue, and blue alliance doesn't score one of their own beacons. Would the blue alliance receive the particle? The rule specifies that "the states of all the Claims determines how many bonus Particles are released (up to a maximum of two)"

Answer: For the example, if the *Beacon* is illuminated blue at the end of the *Autonomous Period*, the Blue *Alliance* will receive one Blue *Particle* and thirty points for the *Beacon* triggered in their favor by the Red *Alliance Robot*.

Tip from the Game Design Committee: *Robots* may avoid awarding a *Particle* and points to the opposing *Alliance* by recognizing that the *Beacon* was triggered in favor of the opposing *Alliance* and pressing the button again to change the *Beacon* color.

Professor Proton

10-11-2016, 10:49 PM

Section 1.5.2.1 Autonomous Period - Adding Earned Particles to the Playing Field

Quote:

Originally Posted by **FTC7655** »

1.5.2 Autonomous period summary: "...the bonus Particles, if any, will be introduced onto the field by the Referees by placing them into the corresponding Alliance's Corner Vortex for the Alliance that earned them so that they roll down one of the Particle Returns."

Question: *Is it to be assumed that it will be the decision of the referee as to which of the Particle Returns the new Particles are introduced? And once decided, would it be the same for both alliances?*

The concern is that perhaps one Particle Run introduces the Bonus Particles in a way more beneficial to one Alliance if the introduction is not standard.

Answer: A referee will place the *Particle* in the *Corner Vortex* where the left and right side *Particle Return* ramps meet at the *Vortex Bar*. The *Particle* should have an equal likelihood of rolling down the left or right ramp. The intent is that the *Particle* will be introduced to a random location on the *Playing Field Floor*, subject to the design of the *Corner Vortex Particle Return* ramps.

Professor Proton

10-17-2016, 10:32 PM

<G16> Pinning, Trapping, or Blocking Robots - Blocking Access to a Beacon

Quote:

Originally Posted by **FTC8391** »

Post #5, Answer #2 in the autonomous period answer thread states that it is legal to "sweep" the area to push other robots away from their beacons," provided that "the opposing Alliance Robot does not become Pinned, Trapped, or Blocked".

Post #8 in the autonomous period answer thread states that "Robots should stay clear of the soft foam tile containing the white gaffers tape on the opposing Alliance's side of the Playing Field during the Autonomous Period."

In the Game Manual, Blocking is defined as "Preventing an opposing Alliance Robot from accessing an Area or Alliance specific Game Element for an extended period of time by obstructing ALL paths of travel to the object or Area."

Question: *Is it legal for a robot to "sweep" (drive over but not park on) the opposing Alliance's side of the Playing Field (including the area by the beacons) during autonomous after the 10 seconds have passed?*

Answer: It is legal for a *Robot* to drive around *Inside* the opposing *Alliance's Area* of the *Playing Field* after the first ten seconds of the *Autonomous Period* have elapsed. Keep in mind that all of the rules apply to the *Autonomous Period* unless the Game Manual or Q&A Forum grants an exception. For example, rule <G16> is violated if the defending *Robot* is *Inside* the *Area* defined by the soft foam floor tile (not including the tile connecting teeth) that contains the one-inch-wide strip of white gaffers tape at the same time that an opposing *Alliance Robot* is approaching their *Alliance's Beacon*. In this scenario, the defending *Robot* is *Blocking* because it is between the opposing *Alliance Robot* and their *Alliance's Beacon*. A rule <G16> violation can occur if the defending *Robot* is *Parked* or

moving. "Staying clear of the soft foam tile containing the white gaffers tape" is a guideline that will help to keep a *Robot* from receiving a *Penalty* for *Blocking* access to the opposing *Alliance's Beacon*.

Professor Proton

10-31-2016, 10:51 PM

<GS3> Corner Vortex Scoring Violations - Parking on the Corner Vortex

Quote:

Originally Posted by **FTC9849** 

Question: When parking a robot on the Corner Vortex during the autonomous period, to preclude sliding back down the ramp, is it legal to have one of your robot's wheels parked in the Vortex Bar area where the level changes from the Corner Vortex Ramp to the Particle Return ramp? There would be no part of the robot grasping, only the wheel sitting in the lower level of where balls are scored. Thanks for all you do.

Answer: The *Robot* in the scenario is violating the *Corner Vortex Scoring* rule <GS3>, because it is breaking the vertical plane of the outside (facing the *Playing Field Wall*) vertical face of the *Vortex Bar* and it is probably making contact with the *Particle Return* ramp.

Professor Proton

11-02-2016, 08:05 PM

<G16> Blocking Robots - Parking on the Opposing Alliance's Corner Vortex

Quote:

Originally Posted by **FTC6567** 

Scenario: Ten seconds or later in the autonomous period a red alliance robot goes over to the blue alliance side of the playing field and intentionally parks on the blue alliance corner vortex.

Question 1: Is doing this legal as long as it is after 10 seconds?

Question 2: Will the red alliance robot earn points for parking on the corner vortex?

Thank you!

Answer 1: This is a legal strategy, provided that a Blue *Alliance Robot* doesn't attempt to access the *Corner Vortex* while it is *Blocked* by the Red *Alliance Robot*.

Rule <G16> *Penalties* will come into play if a Blue *Alliance Robot* attempts to access the *Corner Vortex* while access is *Blocked* by the Red *Alliance Robot* that is intentionally *Parked* or *Completely Parked On* the *Corner Vortex*.

Rule <G16> *Penalties* will not come into play if, in the opinion of the referees, the intent of the Red *Alliance Robot* was not to *Park* on the opposing *Alliance's Corner Vortex*. For example, rule <G16> *Penalties* will not come into play if *Parking* on the *Corner Vortex* was caused by the Red *Alliance Robot* colliding with another *Robot*.

Answer 2: Yes, even if rule <G16> *Penalties* come into play.

Professor Proton

11-21-2016, 11:17 PM

Triggering Beacons during the Autonomous Period

Quote:

Originally Posted by **FTC9968** »

Question 1: May a robot trigger both of their alliance's beacons during the autonomous period?

Question 2: May a robot push the opposing alliance's beacons after the ten seconds is up?

Thanks

Answer 1: Yes.

Answer 2: No, per rule <GS6>.

Professor Proton

12-15-2016, 12:18 PM

Section 1.5.2 Autonomous Period - Robot Parking Completely On the Center Vortex

Quote:

Originally Posted by **FTC9901** »

Section 1.5.2 #4 states that "Robots Parked Completely On the Center Vortex Base Area earn ten (10) points". Since the Center Vortex Base Area is 2 ft. x 2 ft (with a pole on center point), what is the definition of "parking completely" (for the case when a robot is 18 in x 18 in)? From my understanding, parking completely on center vortex base area is impossible for this robot dimension.

Answer: The term "*Completely On*" is defined in Section 1.4 of the Game Manual Part 2 in the "*On/Completely On*" section. The definition of *Completely On* applies to all *Robot* sizes.

Challenge from the Game Design Committee: Professor Proton envisions three ways that a *Robot* with an 18 inch x 18 inch drivetrain footprint can *Park Completely On* the *Center Vortex Base*. Will a *Robot* with a maximum footprint dimension accomplish this achievement in an official *Match*?

All times are GMT -4. The time now is 02:05 PM.

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Driver Controlled Period - Answer Thread

Printable View

Administrator

09-22-2016, 11:01 AM

Driver Controlled Period - Answer Thread

Answers to questions posted pertaining to the Driver Controlled Period.

Professor Proton

09-22-2016, 12:21 PM

<GS2> Particle Scoring Eligibility & Game Manual Part 1 Section 5.3.1

Section 5.3.1 of the Game Manual Part 1 asks teams to reflect on their *Robot's design and the question: "If everybody did this, would the game play be impossible? If the answer to the question is yes, the design component is probably not allowed."*

VELOCITY VORTEX is played with *Particles* that are *Scored* in goals and recycled back to the *Playing Field* for continuous game play. The Game Design Committee's intent is for open recycling, where *Scored Particles* return to random locations on the *Playing Field Floor* so that both *Robots* on an *Alliance* have an equal opportunity to access, *Control*, or *Possess* their *Alliance's Scored Particles*. A closed recycling game strategy that denies a reasonable opportunity for an *Alliance Partner Robot* to access, *Control*, or *Possess* a *Scored Particle* is not in the spirit of the *FIRST Tech Challenge* and is not allowed. Game play with closed recycling of *Particles* would be impossible and unfair to *Alliance Partners*. Therefore, *Robot* designs and/or game strategies that deny their *Alliance Partner* equal access to *Scored Particles*, is considered to be a violation of rule <GS2>.

Professor Proton

09-28-2016, 09:55 PM

<GS15> Starting the End Game Achievements Early - Lifting the Cap Ball

Quote:

Originally Posted by **FTC8923** »

Question: *Is it legal to intentionally lift the cap ball during the Driver-Controlled Period for transportation purposes? In Game Manual 2, rule <GS15> states that "Robots may not Intentionally perform any End Game scoring achievements prior to the start of the End Game," but also states "Intentional Controlled movement of an Alliance's own Cap Ball is allowed at all times." So assuming we're not setting up for scoring, would we be allowed to lift the ball above the floor just enough to have complete control over it for transportation around the field?*

Thanks!

Answer: Intentionally lifting the *Cap Ball* any height above the *Playing Field Floor* is an act of

Scoring an achievement that is reserved for the *End Game*. Intentionally lifting the *Cap Ball* before the start of the *End Game* violates rule <GS15>.

Professor Proton

11-01-2016, 01:18 PM

<GS10> Blocking Access - Cap Ball Blocking Access to Particles

Quote:

Originally Posted by **FTC4962** »

We had our first qualifying tournament last weekend, and something came up that we hadn't thought about.

The particles and cap balls tend to frequently end up in the non-ramp corners of the playing field during the TeleOp period. This is especially true of the particles introduced by rolling them down the particle returns after the autonomous period. Those simply roll into that corner unless there a robot parked in the way.

Question: *If, for instance, two blue particles are in the corner of the field behind/under a red cap ball that is also in the same corner, is the blue alliance allowed to bump the red cap ball out of the way so they can retrieve the blue scoring elements? Or are those elements considered out-of-play for the blue alliance until the red alliance comes and removes the red cap ball?*

Thank you.

Answer: Yes, the Blue Alliance Robot may briefly Control the red Cap Ball for the purpose of gaining access to the Blocked blue Particles.

Tip from the Game Design Committee: Drive Teams should not take advantage of this exception to gain an intentional tactical advantage.

Professor Proton

11-06-2016, 08:54 PM

<GS15> and Controlling the Cap Ball Before the End Game

Quote:

Originally Posted by **FTC4587** »

This is a follow-up to question #3 in the Driver Controlled Period thread.

Based on on the sentence in GS15 that states:

Intentional Controlled movement of an Alliance's own Cap Ball is allowed at all times.

And the answer to post #3 that is focused on whether the Cap Ball is lifted, it is our understanding that we can move the cap ball to our preferred location for end-game scoring before the end game as long as we don't lift the ball off the mat.

Question 1: *Is this correct?*

Question 2: *If so, can we also actually grasp the Cap Ball and move it before end game (again as long as we don't lift it off the mat) to move it to a strategic location?*

Thanks.

Answer 1: Yes.

Answer 2: Yes.

Professor Proton

11-15-2016, 06:59 PM

<G16> Pinning, Trapping, or Blocking Robots - Robot Blocking a Beacon

Quote:

*Originally Posted by **FTC2818** »*

Question 1: *Since beacons are equal-opportunity scoring elements in the Driver-Controlled period, is a robot permitted to BLOCK a beacon that it currently "Claims", to prevent the opposing alliance from changing its color?*

Question 2: *Does this ruling depend on the Defending robot's color or the side of the field that the beacon is currently on?*

Comment: It's exciting that offense & defense switch colors at the same time the beacon does.

Thanks.

Answer 1: No, rule <G16> comes into play during the *Driver-Controlled Period* if an opposing Alliance *Robot* attempts to access the *Blocked Beacon*.

Answer 2: No.

Professor Proton

11-16-2016, 12:41 AM

<G16> Pinning, Trapping, or Blocking Robots - Blocking Access to a Beacon

Quote:

*Originally Posted by **FTC7244** »*

Question: *If two opposing alliance robots are approaching the same unclaimed beacon, with robot #1 pushing robot #2 away to reach it and closing off all access to it in the process, is this considered blocking?*

Answer: *Robot #1 is not Blocking Robot #2, provided that Robot #1 moves away from the Beacon in a timely manner so that Robot #2 may access the Beacon. Referees will allow a reasonable amount of time for Robot #1 to interact with the Beacon and move away before issuing a Blocking Penalty warning.*

Professor Proton

11-16-2016, 01:13 PM

<G16> Blocking Robots - Robot Parked in Front of One Beacon Button

Quote:

*Originally Posted by **FTC7244** »*

Question: During the driver-controlled period, if a red robot is sitting in front of a beacon so that it is blocking only one button, is this still considered blocking access, since a blue robot could simply press the open button to claim it for their alliance?

Answer: The scenario described is not *Blocking* access. For *Blocking* access to apply, ALL paths to the *Beacon* would need to be *Blocked*. The scenario suggests that a path to a button on the *Beacon* is available for the Blue *Alliance Robot*. That the path available is not a preferred or easiest path is not sufficient to deem all paths *Blocked*.

Professor Proton

11-21-2016, 09:28 PM

<G16> Blocking Robots - Cap Ball Access

Quote:

Originally Posted by **FTC6299** »

A blue alliance cap ball is in a corner of the playing field. A red alliance robot continuously oscillates back and forth within approximately a foot in front of the cap ball in the corner to prevent the opposing alliance from gaining possession during the end game.

Question: Since moving back and forth when the opposing alliance tries to move around the alliance robot would not be blocking all access to the cap ball at one time, would this action be considered legal or be considered blocking?

Thanks

Answer: The scenario described in the question is *Blocking* access to an *Alliance* specific *Game Element* and it is not allowed per rule <G16>. The Red *Alliance Robot* is actively defending a constrained area of the *Playing Field*; intentionally *Blocking* access to an area that contains an *Alliance* specific *Scoring Element*. The active defense played by the Red *Alliance Robot* eliminates all paths of travel between the Blue *Alliance Robot* and the blue *Cap Ball*.

Professor Proton

11-21-2016, 11:34 PM

<GS15> Starting the End Game Achievements Early - Bouncing Cap Ball

Quote:

Originally Posted by **FTC10096** »

Scenario: Before the end game during the driver-controlled period a robot's controlled pushing of a cap ball causes the ball to bounce and lose contact with the playing field floor. The robot is not attempting to lift the cap ball.

Question: Does the cap ball losing contact with the floor (i.e. bouncing) because of controlled pushing by a robot violate rule <GS15>?

Answer: No.

Professor Proton

12-06-2016, 06:25 PM

<GS15> Starting the End Game Achievements Early - Cap Ball lifted by a Particle

Quote:

Originally Posted by **FTC10096** »

We understand that we are allowed to grasp a Cap Ball before the End Game, as long as we are not lifting it.

We also understand that unintentional Cap Ball bouncing during controlled movement (pushing or pulling) will not be penalized.

Question #1: *If we maximize the controlled movement of the Cap Ball prior to End Game, by grasping around it (not under it), as a defensive measure, to prevent other teams from knocking it out, as opposed to loosely controlling it with extending assemblies, and we are clearly not engaging the lift mechanism to lift the Cap Ball, should we be penalized for intentionally starting the End Game early due to the Cap Ball bouncing during controlled movement?*

Question #2: *If during controlled movement, the Cap Ball lifts off of the mat, due to inadvertently running over a particle should we be penalized for intentionally starting the End Game early?*

Answer #1: This question was previously addressed in the "Driver Controlled Period - Answer Thread" post #5.

Answer #2: A referee watching the *Match* will determine if the *Robot* is intentionally or *Inadvertently* lifting the *Cap Ball*. Intentionally lifting the *Cap Ball* before the start of the *End Game* violates rule <GS15>. An *Inadvertently* raised *Cap Ball* above the *Playing Field Floor* does not violate rule <GS15>. A *Cap Ball* running over a *Particle* is likely to be viewed as *Inadvertent* and not *Penalized*.

Professor Proton

12-07-2016, 04:47 PM

<GS10> Blocking Access - Cap Ball Blocking Access to Scoring Elements or Goals

Quote:

Originally Posted by **FTC9849** »

Question: *Is it legal to move the other alliance's cap ball during the driver controlled period and before the end game if it appears that it is blocking access to (1) Your alliance's cap ball, or (2) access to the center vortex. We ended up having a cap ball getting caught between our robot and the center pole when trying to cap, and wished we would have moved it prior to lifting the ball. I have a feeling 1 is legal for momentary control but 2 is not. I'd just like to make sure I'm not misinterpreting the rules. Thanks for your help.*

Answer: A *Robot* may briefly *Control* the opposing *Alliance's Cap Ball* if the *Cap Ball* is *Blocking Access* to the *Alliance's own Scoring Element(s)* or *Vortex goal*.

Tip from the Game Design Committee: The intent of this ruling is to allow *Robots* to nudge the opposing *Alliance's Cap Ball* out of the way to gain access to their *Alliance's Scoring Element(s)* or *Vortex goal*. *Drive Teams* should not take advantage of this exception to gain an intentional tactical advantage.



End Game - Answer Thread

Printable View

Administrator

09-22-2016, 11:01 AM

End Game - Answer Thread

Answers to questions posted pertaining to End Game.

Professor Proton

09-22-2016, 12:23 PM

<GS2> Particle Scoring Eligibility & Game Manual Part 1 Section 5.3.1

Section 5.3.1 of the Game Manual Part 1 asks teams to reflect on their *Robot's design and the question: "If everybody did this, would the game play be impossible? If the answer to the question is yes, the design component is probably not allowed."*

VELOCITY VORTEX is played with *Particles* that are *Scored* in goals and recycled back to the *Playing Field* for continuous game play. The Game Design Committee's intent is for open recycling, where *Scored Particles* return to random locations on the *Playing Field Floor* so that both *Robots* on an *Alliance* have an equal opportunity to access, *Control*, or *Possess* their *Alliance's Scored Particles*. A closed recycling game strategy that denies a reasonable opportunity for an *Alliance Partner Robot* to access, *Control*, or *Possess* a *Scored Particle* is not in the spirit of the *FIRST Tech Challenge* and is not allowed. Game play with closed recycling of *Particles* would be impossible and unfair to *Alliance Partners*. Therefore, *Robot* designs and/or game strategies that deny their *Alliance Partner* equal access to *Scored Particles*, is considered to be a violation of rule <GS2>.

Professor Proton

09-25-2016, 01:06 PM

Section 1.5.4 1c - End Game: Cap Ball On the Center Vortex Base

Quote:

*Originally Posted by **FTC5501** »*

In the End Game, a Robot can lift the Cap Ball off of the Playing Field Floor for points. According to the definition of the Playing Field Floor, "The surface of the tiles that make up the base of the playing field," rolling the ball onto the corner vortex would count as being lifted to the low height.

Question: *Does placing the Cap Ball or leaving the Cap Ball on the base of the Center Vortex count as low height as well since the base of the Center Vortex is not a tile?*

Answer: Great question! A *Cap Ball On the Center Vortex Base* does not earn *Cap Ball Low Height points*.

Confirmation: A *Cap Ball* that is *On the Corner Vortex* and is not in contact with the *Playing Field Floor* qualifies for the *End Game Low Height Scoring* achievement.

Professor Proton

09-25-2016, 04:03 PM

<GS11> - Cap Ball Interference

Quote:

*Originally Posted by **FTC7655** »*

Rule <GS11> states: "The intent of this rule is to allow Robots to Score the Cap Ball without interference. A Robot interaction with an opposing Alliance Robot may be ruled at the referee's discretion to be Inconsequential and Inadvertent and will not be Penalized."

Question: *Is this to be interpreted as only protecting robots in possession of the cap ball WHILST in the act of scoring? In other words, when a cap ball is knocked out of possession by a direct act of an opposing robot, are no penalties assessed if the affected robot was not actually in the act of scoring?*

Answer: During the *End Game*, a Robot Possessing a *Cap Ball* that is raised any height above the *Playing Field Floor* is in the process of *Scoring* the elevated *Cap Ball* achievement and is protected by rule <GS11>.

Tip from the Game Design Committee: Robots using an elevated *Cap Ball* during the *End Game* to gain an advantage over their opponent, other than the *Score* value of the *Cap Ball*, is not allowed. Examples of inappropriate use of <GS11> protections are:

Using a *Cap Ball* to intentionally:

- i) *Block* an opposing *Alliance Robot* (<G16>).
- ii) *Block* an opposing *Alliance Robot* that is attempting to access their *Alliance's Corner Vortex* (<GS14>).
- ii) *Block* an opposing *Alliance Robot* that is attempting to access their *Alliance's Cap Ball* or *Particles* (<GS10>).
- iv) Interfere with an opposing *Alliance's Particles* that have been launched/released with the intention of *Scoring* (<GS9>).

Penalties should not be assessed against an opposing *Alliance Robot* when an inappropriate use of a rule <GS11> protection has been used against them (<G17>).

Professor Proton

09-25-2016, 11:47 PM

<GS11> - Cap Ball Interference: Rotating the Center Vortex

Quote:

*Originally Posted by **FTC8390** »*

Answer #3 in the Miscellaneous Game Questions thread says "Yes, Robots may purposefully Control the rotation of the Center Vortex, provided that no other rules are violated."

Rule <GS11> says in part "During the End Game, Robots may not interfere with an opposing Alliance Robot that Possesses a lifted Cap Ball above the Playing Field Floor" and "The intent of this rule is to allow Robots to Score the Cap Ball without interference."

Question 1: *May a robot rotate the Center Vortex during the End Game to move it away from an opposing alliance's robot that is trying to score their Cap Ball on the*

Center Vortex, or to make it difficult for that robot to score the Cap Ball?

Question 2: *If a robot rotates the Center Vortex and causes the Center Vortex to hit the Cap Ball held by an opposing alliance's robot, is that action subject to <GS11> Cap Ball Interference penalties (even if the robot makes no contact with the Cap Ball or the opposing robot) or is that a legal defensive strategy?*

Answer 1: The action described violates rule <GS11> because it interferes with a *Robot* that is attempting to *Score* a *Cap Ball*.

Answer 2: The action described violates rule <GS11> because it interferes with a *Robot* that is attempting to *Score* a *Cap Ball*.

Professor Proton

10-03-2016, 08:14 PM

The Game Design Committee Updated Post #5

The Game Design Committee changed the answers in post #5 to correct a discrepancy in the Game Q&A Forum.

We apologize for introducing a temporary inconsistency in the forum.

Professor Proton

10-06-2016, 12:38 AM

Rotating the Center Vortex during the End Game.

Quote:

*Originally Posted by **FTC9915** »*

Question: *Is it legal to spin the center vortex while an opposing alliance robot is trying to dump Particles during end game? The opposing alliance robot is not lifting the cap ball in this scenario but trying to lift up an arm to dump the particles into the center vortex.*

Answer: Yes, provided that no other rule is violated. For example, rotating the *Center Vortex* so that it causes an opposing *Alliance Robot* to tip over violates rule <G16>.

Professor Proton

10-06-2016, 12:48 AM

<RG08> Launching Game Scoring Elements - Cap Ball

Quote:

*Originally Posted by **FTC5414** »*

Question: *If a team chooses to launch the cap ball during end game to score it in the center vortex, is the top of the cap ball or the bottom of the cap ball the point that must remain under the 6ft limitation for launching game elements?*

Answer: Thank you for the terrific question! The lowest part of the *Cap Ball* must not exceed 6 ft. (1.83 m) above the *Playing Field Floor*.

Professor Proton

10-07-2016, 12:34 AM

<GS11> Cap Ball Inteference - Center Vortex Rotation Caused By Scoring a Cap Ball

Quote:

*Originally Posted by **FTC7350** »*

Question: *If a team releases the cap ball as it is being scored, but as a result of it's momentum when landing in the center, the center vortex moves and hits the opposing cap ball or opposing robot holding a cap ball, is it considered a violation of <GS11>?*

Answer: *A Robot attempting to Score a Cap Ball in the Center Vortex is playing offense, therefore, the action described does not violate rule <GS11>.*

Professor Proton

10-11-2016, 09:39 PM

<GS11> Cap Ball Interference - Playing Offense versus Playing Defense

Quote:

*Originally Posted by **FTC2818** »*

In light of End Game #5 answer: "Answer 1: The action described violates rule <GS11> because it interferes with a Robot that is attempting to Score a Cap Ball."

I'm concerned about whether teams attempting to cap the center vortex will be penalized by movement of the vortex (by their own robot).

It's hard to conceive of a method of capping the Center Vortex, that is guaranteed NOT to move it.

Question 1: *So, if two teams are both attempting to cap the Vortex, and the vortex is rotated in the process, how/will penalties be assessed?*

To me, this brings up the eternal question of: Intent or Accident? "Was the vortex movement intentional or accidental " (regardless of the consequence to the opponent). This can be impossible for the refs to know.

Question 2: *So... are teams generally excluded from getting a <GS11> penalty if they are also in possession of a Cap Ball in end game, because that automatically puts them in potential capping mode? Or will refs be put in the position of having to decide intent?*

Thanks.

Answer 1: *Robots attempting to Score a Cap Ball in the Center Vortex are playing offense and are not subject to rule <GS11> constraints/ Penalties.*

Answer 2: *The referee will make the determination if a Robot is attempting to Score their Alliance's Cap Ball (i.e. playing offense) or interfering with an opposing Alliance Robot that is attempting to Score a Cap Ball (i.e. playing defense). In general, Robots playing offense will not receive a <GS11> Penalty.*

Professor Proton

10-31-2016, 09:47 PM

<G14> Robots Grasping Game Elements & <G15> Destruction, Damage . . . - Center Vortex

Quote:

*Originally Posted by **FTC3805** »*

Scenario: A robot scores the cap ball in the center vortex using a lifting mechanism that has a string on the end of two forklift-like prongs. The string may get stuck behind the vertical red or blue tubing, leaving that robot unable to raise said forklift and exit that area without lifting out the cap ball as well.

Question 1: *Is it legal to end the game in that position with the string around the center vortex?*

Question 2: *Would that ruling be different even if it were not in contact with anything?*

Answer 1: The scenario violates rule <G15> due to *Robot* entanglement with the *Center Vortex* and rule <G14> for grasping a *Game Element*.

Answer 2: The scenario violates rule <G15> due to *Robot* entanglement with a *Game Element*.

Professor Proton

11-02-2016, 11:22 PM

Game Manual Part 2 Section 1.5.4 - End Game Cap Ball Scoring Clarification

During the *End Game*, the color of the *Cap Ball* must match the *Alliance* color of the *Robot* or *Center Vortex* goal for the *Cap Ball* to count as *Scored*. For example:

- i) A Red *Alliance Robot* lifting a red *Cap Ball* is eligible to earn the low or high height *Scoring* achievements.
 - ii) A red *Cap Ball* lifted by a Blue *Alliance Robot* has zero *Score* value for the Blue *Alliance*.
 - iii) A red *Cap Ball* supported by the red *Center Vortex* goal and not in contact with a Red *Alliance Robot* earns 40 points.
 - iv) A red *Cap Ball* in the blue *Center Vortex* goal has zero *Score* value.
-

Professor Proton

11-02-2016, 11:27 PM

<GS11> Cap Ball Interference - Launched/Released Cap Ball Clarification

A *Cap Ball* that has been fully released by a *Robot* and is above 18 inches (45.7 cm) from the *Playing Field Floor* with a realistic intention of *Capping* a *Center Vortex* is protected by rule <GS11>.

Professor Proton

11-15-2016, 06:37 PM

Section 1.5.4 End Game - Cap Ball Completely On Plywood

Quote:

*Originally Posted by **FTC11697** »*

Question 1: In the context of lifting the Cap Ball during the End Game, what is the definition for "Completely Off the floor"?

Question 2: If the robot places something (i.e. Plywood) between the Cap Ball and the floor tiles, is the Cap Ball off the floor?

Question 3: Because the Cap ball is not touching the floor tiles, do we qualify for "Low height" points?

Answer 1: The definition of "Off / Completely Off" is in Section 1.4 of the Game Manual Part 2.

Answer 2: Yes.

Answer 3: Yes, provided that the plywood referenced in question #2 is not detached from the Robot.

Professor Proton

11-15-2016, 08:55 PM

<GS8> Robot Height - Scoring Particles During the End Game

Quote:

Originally Posted by **FTC6567** »

Rule <GS8> allows robots to extend higher than 29 inches during the end game.

Question: Is the robot allowed to score particles in the center vortex during the end game by extending higher than 29 inches?

Answer: Yes.

Professor Proton

11-16-2016, 12:27 AM

Section 1.5.4 End Game-Cap Ball Off the Playing Field-Is Contact with a Robot Required

Quote:

Originally Posted by **FTC7244** »

Question: Does a raised cap ball have to be in contact with a robot in order to be scored at the low or high height?

Answer: No.

Professor Proton

11-16-2016, 01:03 AM

<GS11> Cap Ball Interference - Cap Ball On an Opposing Alliance's Corner Vortex

Quote:

Originally Posted by **FTC7244** »

Question: If a red robot pushes its red cap ball up on the blue corner vortex ramp during end game and the blue robot bumps into it while trying to score on the same ramp, causing the red robot to lose possession of their cap ball, does this still count

as cap ball interference against blue, or does the fact that red was blocking their corner mean that blue was forced into the penalty?

Answer: The Red *Alliance Robot* is violating rule <GS14> because it is *Blocking* the Blue *Alliance Robot* from *Scoring* a *Particle* in the blue *Corner Vortex*. In this scenario, the Blue *Alliance Robot* should not be called for violating the *Cap Ball* interference rule, <GS11>.

If the Blue *Alliance Robot* makes contact with the Red *Alliance Robot* without an attempt to *Score* a *Particle*, rule <GS11> would also apply and the Blue *Alliance Robot* could be guilty of *Cap Ball* interference if the contact is not both *Inconsequential* and *Inadvertent*.

Professor Proton

11-21-2016, 09:38 PM

<G14> Robots Grasping Game Elements - Center Vortex

Quote:

*Originally Posted by **FTC3805** »*

To lift and cap our cap ball we have two brackets that raise up with a little L shaped piece on the end.

Question: *When scoring the cap ball, if one of the L brackets on the end happens to get caught on one of the poles of our center vortex by accident and we end up incidentally turning the center vortex would this be considered grasping?*

Answer: Referees watching the *Match* will determine if the *Robot* grasps the *Center Vortex* and violates rule <G14>. Depending on the actions of the *Robot*, the "L bracket" could grasp the *Center Vortex* or it could legally interact with the *Center Vortex*.

Professor Proton

11-22-2016, 11:27 AM

<G8> Stopping Game Play Late - Powering Motors After the Match Ends

Quote:

*Originally Posted by **FTC3785** »*

Question: *May robots continue to run their Motors to hold up the cap ball at a certain height after the match ends?*

Answer: No, per Figure 1.5-1 in the Game Manual Part 2 and rule <G8>.

Professor Proton

11-30-2016, 03:59 PM

Section 1.5.4 End Game - Capping the Center Vortex

Quote:

*Originally Posted by **FTC8923** »*

Capping is defined as "The Cap Ball is supported by an Alliance-specific Center Vortex and not in contact with a Robot on the corresponding Alliance." Let's say a

*robot with forks lowers the cap ball into the vortex, and the forks are touching the center vortex, but not the cap ball. **Question:** Would that count as a capped score, or high score?*

Thanks!

Answer: The *Center Vortex* is *Scored* as *Capped* because the *Robot* is not touching the *Cap Ball*.

There is insufficient detail in the description of the scenario to discern if there are any rule violations. It is possible that the *Robot* is violating rules <G14> for grasping the *Center Vortex* and <G15> if the *Robot* is entangled in the *Center Vortex*.

Professor Proton

12-08-2016, 09:50 AM

<GS16> Cap Balls in Contact With a Robot & <G13> Robots Deliberately Detaching Parts

Quote:

*Originally Posted by **FTC4042** »*

Our team is using a lift with a piece of duct tape on the end of an arm to lift our cap ball.

Question 1: *If for some reason, we score the cap ball but that piece of duct tape comes off inadvertently, and remains attached to the ball, would that violate rule <G13>, or any other rule giving a penalty? If not, would <G19> still apply, counting the cap ball as un-scored?*

Question 2: *If the cap ball is within the vortex, but the duct tape is still attached and just after the match ends, the tape falls from the ball. Would this count as scored?*

Thanks!

Answer 1: Rule <GS16> is in play because the *Cap Ball* in the scenario is in contact with the *Robot*. The *Center Vortex* is not *Scored* as *Capped* because of *Robot* contact with the *Cap Ball*. The *Cap Ball* is eligible to receive *Scoring* points based on its height.

The first instance of the tape detaching from the *Robot* will result in a warning for violating rule <G13>. Repeated tape detaching from the *Robot* in a subsequent *Match* will be considered as deliberate. After the warning, instances of detached tape should receive a *Minor Penalty* because the action is no longer *Inadvertent*. A *Major Penalty* could be assessed for affecting the game play of the *Cap Ball* if the tape remains attached to a *Cap Ball* that is not *In* the *Center Vortex* goal nor *Controlled* by the offending *Robot* (i.e., the *Cap Ball* is accessible to other *Robots*).

Rule <S1> consequences will be applied for damaging a *Game Element* if the tape leaves a residue on the *Cap Ball* that affects game play.

Answer 2: The *Center Vortex* would be counted as *Capped*. Rules <G13> and <S1> consequences will be applied as described in Answer #1 above.

Professor Proton

12-14-2016, 06:40 PM

<G16> and <GS11> - Robot Lifting a Cap Ball is Blocking access to a Beacon

Quote:

*Originally Posted by **FTC5501** »*

Question 1: *If we claim a beacon and are sitting in front of it, blocking both buttons, but the other alliance isn't trying to access it to score then does that count as blocking access?*

Question 2: *We have to push our cap ball up against a wall to get it onto our forks to score. Once it is on we don't drive much for fear that it will fall off and we just lift it in the air from where we are. If this occurs against a beacon, are we considered blocking the beacon even though we are performing the action of lifting the cap ball. Can we only lift the cap ball in areas that aren't in front of the beacon?*

Question 3: *In the case above, if we are raising the cap ball and a team is trying to access the beacon but bumps into us and knocks the cap ball off then do they incur a penalty?*

Answer 1: No. This question was previously addressed in the "Driver Controlled Period - Answer Thread" post #6.

Answer 2: A *Robot* that has raised a *Cap Ball* off the *Playing Field Floor* is not protected from incurring *Penalties* for violating rule <G16>.

Answer 3: A *Robot* may not use <GS11> protections to *Block* an opposing *Alliance's* access to a *Beacon*. The *Robot* lifting the *Cap Ball* is violating rule <G16> and it has an obligation to move out of the way. The *Robot* trying to access the *Blocked Beacon* should not receive a <GS11> *Penalty*.

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Playing Field - Answer Thread

Printable View

Administrator

09-22-2016, 11:03 AM

Playing Field - Answer Thread

Answers to questions posted pertaining to the Playing Field.

Professor Proton

09-26-2016, 10:17 AM

<GS2> Particle Scoring Eligibility - Center Vortex Base

Quote:

*Originally Posted by **FTC8390** »*

The Playing Field Floor is defined as "The surface of the tiles that make up the base of the Playing Field." From this definition, the black base of the Center Vortex is not part of the Playing Field Floor.

<GS2> says in part "After Scoring, Particles must make contact with the Playing Field Floor before they are eligible to be Scored again."

Question: *May robots pick up Particles from the black base of the Center Vortex and score them without violating <GS2> or must the Particles touch a floor tile first? In other words, should the black base be considered part of the Playing Field Floor for purposes of <GS2> or not?*

Answer: Great question! *Robots* may collect *Particles* from the *Center Vortex Base* and legally *Score* them without violating rule <GS2>.

Professor Proton

09-28-2016, 09:38 PM

Vision Patterns Underneath Beacons

Quote:

*Originally Posted by **FTC7171** »*

Question: *Please clarify what the vision patterns under the beacon are for. Also, will they be same for all competitions?*

Thank you.

Answer: *Teams* may use the *Robot Controller* Android device camera in conjunction with Vuforia navigation software, which is part of the default software application library for the *FIRST* Tech Challenge, to determine the *Robot's* location on the *Playing Field* when at least one of the Vision Targets is viewed by the camera. This information will help a *Robot* navigate to a *Beacon* location during the *Autonomous Period*.

The four images in Appendix B of the Game Manual Part 2 will be used at all competitions and they will always be in the same locations on the *Playing Field*. See the "Field Setup and Configuration Guide" for the locations of the Vision Targets.

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Miscellaneous Tournament Rules - Answer Thread

Printable View

Administrator

10-11-2016, 01:16 PM

Miscellaneous Tournament Rules - Answer Thread

Answers to your questions about Tournament Rules that don't fall into the other established categories.

Barry

10-11-2016, 01:28 PM

Quote:

*Originally Posted by **FTC7172** »»*

What is the minimum number of teams needed to hold a "valid" League Meet? Appendix B of the League Meet Guide mentions "a 10-team (minimum) League Meet", but I can't find anywhere else that directly answers this question.

For example, if a League has 10 teams, but on the day of the League Meet only 8 teams show up to the event (or only 8 teams have a robot that passes inspection), is 8 teams a sufficient "quorum" to proceed with the Meet and have those matches count towards the League Tournament?

Thanks!

Pm

Thanks for your question! Ideally, every team in a League will compete in every meet, but we realize that sometimes weather or other unexpected circumstances can cause a team to change their plans and not attend an event. When that happens, we generally allow the event to continue, and the matches to count toward the League Tournament, even if there are fewer than 10 teams participating.

If the circumstances warrant it, your local Affiliate Partner may decide to cancel or reschedule an event if they expect a low turnout. That decision would be made at the local level.

Thanks!

Raj

10-19-2016, 11:00 AM

Pre-match: Using Gamepad During Init Phase to Set Up Autonomous?

Quote:

Originally Posted by **FTC8923** »

During setup for a game match, teams set opmode for their autonomous program. The "Select OpMode" window easily gets cluttered with numerous autonomous OpModes. One idea the team had was to write a single autonomous OpMode that can be configured with a gamepad during the init phase of the OpMode. Assuming we don't cause a delay of game, would this be legal for us to do?

A: Yes, you can use the gamepad to select which branch of your Autonomous OpMode you will run for a given match as long as the following remains true: 1) The setting is read in the init() phase; 2) The pressing of the gamepad is done prior to the referees randomizing the beacons; 3) It does not cause a delay in the start of a match; and 4) The only button you press at the beginning of the Autonomous period is the start button on the driver's station Android device.

Agent Angela Page

12-01-2016, 12:47 PM

Miscellaneous Tournament Rules - Answer Thread

Quote:

Originally Posted by **FTC8548** »

Just to clarify, does the ruling on the bill of materials from last year still apply? Our team was asked to provide a bill of materials at inspection at our last event even though the game manual still doesn't require a bill of materials. Thanks.

*Link to previous year's post for reference:
<http://ftcforum.usfirst.org/showthread.php?p=1#post21653>*

You are correct, the same rules will apply. The bill of materials is not required to be filled out by teams prior to inspection. Teams are required to conduct a self-inspection of their Robot using the Robot and Field Inspection sheets located in the Game Manual Part 1. Teams should submit the completed inspection forms at tournament check-in or at another designated place.

Agent Angela Page

12-14-2016, 04:44 PM

Drive Team Coach

Quote:

Originally Posted by **FTC12102** »

In the game manual it says that a drive team is made up of 2 drivers and 1 coach. Is the "coach" a team member who is verbally assisting the driver? or a literal adult coach of the team?

The Coach as part of the Drive Team can either be a student team member, or the actual adult coach of the team.

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Playing Field Setup - Answer Thread

Printable View

Administrator

09-22-2016, 01:52 PM

Playing Field Setup - Answer Thread

Answers to questions posted pertaining to the setup of the Playing Field.

Agent Angela Page

10-06-2016, 12:04 PM

Cutting Tiles

Quote:

*Originally Posted by **FTC8461** »*

Where is the official instructions for cutting the mats in the center, for the square wooden base?

Thank you for your question. You can find the Field Setup Guide located on our website that provides instructions on how to cut the tiles.

<http://www.firstinspires.org/resource...nd-season-info>

Agent Angela Page

11-01-2016, 12:42 PM

Vision Targets

Quote:

*Originally Posted by **FTC6996** »*

Greetings,

Our team is experimenting with the image recognition - and we would like to know on what type of paper / cardstock the images will be printed, and whether or not they will be laminated.

Thank you very much

FTC 6996 - Oncoming Storm

The Vision Targets should be printed on 8.5 x 11 white cardstock, which can be found at most local office supply or craft stores. The images specifically indicate that they should not be laminated, as this might increase the reflection off the target and therefore make it more difficult to navigate.

Agent Angela Page

11-01-2016, 12:48 PM

Painting Center Vortex Base

Quote:

*Originally Posted by **FTC12102** »**Are we supposed to paint the wooden base of the center vortex black?*

Only Official Events are required to paint the Center Vortex base black. Teams that have purchased their own field for practice can also opt to paint their Center Vortex base black as it will help to seal the base and protect the base from potentially warping over time.

Agent Angela Page

11-01-2016, 02:58 PM

Beacon Button Height

Quote:

*Originally Posted by **FTC7350** »**Given that different types of fields have slightly different heights, and newer mats are slightly thicker than older ones, what is the official height of the buttons on the beacons above the mat? Is it correct that it can be plus or minus one inch from the official height?*

Per rule <G24> from the Game Manual Part 2: Playing Field and Game Elements will start each Match with tolerances that may vary by as much as +/-2.5cm (1.0 inch). Teams must design their Robots accordingly.

This applies to the field perimeter walls as well as all game and scoring elements. Teams must remember that there are a few different variations of field perimeters, and this can potentially change the height of the Rescue Beacon button. It is also possible that an event can have one type of field perimeter for the practice fields, and a different perimeter on the competition fields. The following measurements are approximate heights of each field type:

- AndyMark Field Perimeter (newest version): 12.125"
- IFI Field Perimeter: 11.5"
- Logo Loc Field Perimeter: 12.375"

Teams should be sure to design their Robot to accommodate for the potential variance in the beacon button height.

Agent Angela Page

11-07-2016, 03:07 PM

Playing Field Setup - Answer Thread

Quote:

*Originally Posted by **FTC8668** »**The manual says the targets should be printed such that the target "covers the entire page". But, the PDF provided on-line has a 1" margin around the edge when printed. Since the file is uploaded as a PDF, we can't alter the image size. So, exactly what should be the dimensions of the image not including any margin?**Also, do we trim the white edge before mounting with white gaffers tape? Or do we just put the tape on the outside of the printed 8.5"x11"? Basically, what should be the*

final dimensions of the mounted image with gaffers tape? This is important as some locations might have a final outside dimension width of 11" plus 1.5" of tape on either side giving a total of 14". Others might trim the margin and use 1" (or less) of tape on each side giving a final dimension of 11" or less. This variability could significantly affect a robot's performance.

Step 8-1 in the AndyMark Field Setup Guide directs you to the website where the target images are located. The Target images should be printed as is on 8.5x11" white cardstock, they must not be resized. You do not trim the edges of the Target. When taping the target to the field perimeter it is important to make sure the entire image is visible on the other side.

Step 8-3 Outlines that the target images should be placed underneath each beacon 1 1/2" from the floor in their appropriate location.

Step 8-4 refers to print the *FIRST* Tech Challenge Logo covering the entire page. This way it can be seen by the audience. Also linked through the document is a PDF that you can use instead of downloading the logo image and resizing it to fit the page.

Agent Angela Page

11-07-2016, 03:54 PM

Quote:

*Originally Posted by **FTC12197** »»*

Is there a page in FTC for Dimensions of the Playing Field beside what you can find on Andy Mark?

The Playing Field dimensions are located in section 1.3 of the Game Manual Part 2.

<http://www.firstinspires.org/resourc...nd-season-info>

Agent Angela Page

11-07-2016, 03:57 PM

Playing Field Setup - Answer Thread

Quote:

*Originally Posted by **FTC12197** »»*

What is the dimensions of the Particles. Outside dimension? Please.

The Particles measure 9.5 cm (3.75 inches) in diameter and weigh approximately 56.13 gm (1.98 ounces). These dimensions are noted in the Game Manual Part 2, Section 1.4.

Agent Angela Page

11-14-2016, 04:59 PM

Taping the back of the beacons

Quote:

*Originally Posted by **FTC6981** »»*

This issue did not come up until we progressed to State, Super-Regionals, and Worlds. The issue is that stage crews like to point stage lighting from the outside of the field in, which is obvious. However, many of them were doing it from behind the

beacons. This caused ALL kinds of issues for teams who used color sensors to sense the color of the beacon. We suggested at several events that they use gaffers tape on the BACK of the beacons to minimize the "wash-out" from the stage lighting. I am surprised that the field setup guide did not actually mention this, and I really think it should. Could we please suggest an edit to the set up manual to include covering the backside of the beacons with gaffers tape?

I am surprised we are the first to mention this, because it was an issue at any event where spotlights were shining from the behind the beacons.

Thanks!!!

*FTC Team 6981
Hortonville Robotics*

Thank you for the suggestion. After doing some research we have determined taping the back of the beacon is not the best solution, as this takes away from the audience view of the action on the field. We have made some recommendations to Affiliate Partners and Event Hosts based on your feedback about beacons getting washed out by production lighting. To mitigate the issue at all levels of events (except for Super Regionals and World), we are recommending that partners please make sure to work with their AV vendors to ensure the beacons are not backlit.

FIRST will continue to research the best way to mitigate this issue for Super Regionals and the World Championships where there will be a substantial amount of production lighting.

Agent Angela Page

11-29-2016, 01:49 PM

Flex of Field Perimeter Wall

Quote:

*Originally Posted by **FTC5026** »*

Hey there,

I just saw this youtube video of an Alaska qualifier, and was immediately impressed by the simplicity of the paper boxes to reduce the amount of flex in the perimeter. However, I'm being told by a head ref in a different qualifier, "The issue of flexing perimeter walls was specifically addressed in the most recent Head Ref conference call (11/14) moderated by FIRST FTC. Adding anything (for any reason) to the field including the perimeter is strictly prohibited. In the case where a robot flexes the field or damages the beacon by direct contact could result in a warning then disablement. This year, the game is more finesse than force."

I guess my question is two fold: Could you define strictly prohibited? Part 2: Is setting a box of paper behind the perimeter actually adding anything to the field, or could it be interpreted as a common sense move to stabilize a weakness in the newest AM field that allows so much flexion, especially given that this years game purposefully challenges teams to dart back and forth between beacons, claiming or reclaiming them for 2 minutes?

Thanks for your response. I am sure many tournament organizers would appreciate your answer to this.

Tournament Hosts may use AndyMark, VEX Robotics, and the discontinued LogoLoc playing field perimeter wall kits for official FIRST Tech Challenge tournaments. The perimeter wall kits should be assembled and set up according to the manufacturer's specifications. Modification to the playing field walls used at an official tournament must be approved by FIRST. Any item used to brace the field perimeter wall that is not part of the manufacturer's playing field wall kit, whether it be a box of

paper, weights, etc. is prohibited.

The AndyMark playing field perimeter walls are designed with two straps that run beneath the foam tile mats to increase the rigidity of the playing field walls. These straps are required to be installed at official tournaments. Similar straps are not required for the VEX Robotics and LogoLoc playing fields because they are not supplied by the manufacturer. Adding straps to the Vex Robotics and LogoLoc fields that are similar to the AndyMark playing field straps is an option that FIRST allows.

A Note from the Game Design Committee:

We are hearing reports of teams driving their robots aggressively and repeatedly making very hard contact on the Beacons and the walls adjacent to the Beacons.

Aggressive contact that causes significant flexing of the walls or moves/dislodges a Beacon will be considered field damage and penalized according to <G15>. Teams should expect to receive warnings and may receive Major Penalties and a Yellow Card for excessive or Chronic aggressive Beacon contacts.

Partners and/or event hosts should not brace or reinforce the field walls

Agent Angela Page

11-30-2016, 05:53 PM

IFI Field - Beacon Setup

Quote:

*Originally Posted by **FTC7350** »*

Can you please add a drawing like the one under Step 6-9 on page 10 of the field setup guide for use with an old IFI field? It is not clear how to secure the beacon to the field perimeter.

Thanks

Please see the most recent version of the Field Setup Guide, version 1.3, that has been updated to include instructions and illustrations on how to mount the beacon to the IFI Fields and to the Logo Loc Fields.

Agent Angela Page

11-30-2016, 05:58 PM

Field Straps Required?

Quote:

*Originally Posted by **FTC8045** »*

Hi

We notice a lot of 'beacon bashing' taking place and the walls flexing as a result of this. The new AndyMark kits have straps under the tiles to help keep the wall in place, but they seem to be rarely used. We're also not sure if those support straps were part of earlier field perimeter kits. Can we expect the walls to be strapped together at official events?

Tournament Hosts may use AndyMark, VEX Robotics, and the discontinued LogoLoc playing field perimeter wall kits for official FIRST Tech Challenge tournaments. The perimeter wall kits should be assembled and set up according to the manufacturer's specifications. Modification to the playing field walls used at an official tournament must be approved by FIRST. Any item used to brace the field perimeter wall that is not part of the manufacturer's playing field wall kit, whether it be a box of paper, weights, etc. is prohibited.

The AndyMark playing field perimeter walls are designed with two straps that run beneath the foam tile mats to increase the rigidity of the playing field walls. These straps are required to be installed at official tournaments. Similar straps are not required for the VEX Robotics and LogoLoc playing fields because they are not supplied by the manufacture. Adding straps to the Vex Robotics and LogoLoc fields that are similar to the AndyMark playing field straps is an option that FIRST allows.

Agent Angela Page

12-14-2016, 04:35 PM

Playing Field Setup - Answer Thread

Quote:

Originally Posted by **FTC3758** 

Hello,

I'd like to be able to reuse the printed Vision targets between events in our league. I've heard from another event organizer that I could possibly use clear sheet protectors (<https://www.amazon.com/Avery-Economy...aper+protector>) to protect the targets and prevent them from being destroyed by tape. I read in the Field Setup Guide that lamination is discouraged due to it being reflected. I'm wondering if these clear sheet protectors would also be too reflective, or if it would work.

Thanks!

Protective sheet covers are not allowed on the Vision Targets. It is possible that the protector can add some reflections to the image that might make it harder to identify the target.

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Engineering Notebook - Answer Thread

Printable View

Administrator

09-22-2016, 01:45 PM

Engineering Notebook - Answer Thread

Answers to questions posted pertaining to the Engineering Notebook.

Leonard Nimoy

11-07-2016, 08:12 PM

7.3.3 Engineering Notebook Formats

Quote:

*Originally Posted by **FTC9835** »*

Hi,

We have attended several trainings where we were told to do either digital or handwritten notebooks. We wanted to know if there is more weight given to one or the other? And what is the consideration for a notebook that has both handwritten and digital?

Thanks in advance!

RoboChicks Team # 9835

Answer: As outlined in the [Engineering Notebook Guidelines](#) (as well as in Game Manual part 1), "There is no distinction made between handwritten and electronic Engineering Notebooks during judging; each format is equally acceptable." I think your second question is asking if it is okay to have text and similar aspects of your engineering notebook that are done online, then printed, and inserted into your notebook. Yes, this is okay. At your event, the team needs to have a consolidated notebook that has the required sections present (see page 10 of Guidelines). In all cases, the digital or online aspects need to be printed out and included directly in the notebook that is presented to the judges. Depending on how the handwritten notebook is done, it may be difficult to insert the content that is done digitally in an order that makes sense.

Howard

12-13-2016, 11:26 AM

Summary Page Clarification

Quote:

Our team is looking for clarification on requirements for the summary page. The summary page is supposed to have important pages for the judges to consider on it. The game manual states that we should tab 6-8 pages of the Engineering Section to support the summary page. Our question is if we can include other pages on the summary page as long as we don't tab them. For example, if we want to include a major outreach event can we still list it under important pages as long as we don't tab it? The entry wouldn't be in the Engineering Section so should we leave it off the summary page?

Thanks for the question.

Answer:

Per the Game Manual Part 1, 7.3.4

Attach a summary page to the front cover of the Engineering Notebook. The summary should be a brief, one-page narrative about the Team, the school or organization, and an overview of the highlights of the Team's season. The Team summary page should also include the Team number and point the Judges to pages in the Engineering Notebook that the Team would most like the Judges to consider.

and section 7.5.2

Strongly suggested criteria for the Think Award: Teams should tab/flag 6 to 8 pages of the Engineering Section to support entries on the summary page.

With that we can answer your questions:

Can include other pages on the summary page as long as we don't tab them: **Yes, though keep in mind the summary sheet should be brief and be easy to navigate**

If we want to include a major outreach event can we still list it under important pages as long as we don't tab it?: **Yes, and you can even tab it. Engineering section should have tabs, but tabs are not limited to the Engineering section. However, be careful not to overdo it!**

The entry wouldn't be in the Engineering Section so should we leave it off the summary page: **Summary page should include highlights of the team's season, including, but not limited to work documented in the Engineering section**

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Judges Interview - Answer Thread

Printable View

Administrator

09-22-2016, 01:45 PM

Judges Interview - Answer Thread

Answers to questions posted pertaining to the Judges Interview.

Howard

12-12-2016, 10:32 PM

Team Participation in the Judge's Interview

Quote:

*Originally Posted by **FTC9657** »*

We were wondering if it's required to have the entire team in the interview room/counts against you if you do not have the entire team. We have a rather large team, so would there be harm in having designated presenters and only having them go in? Particularly if things like the Motivate Award say "all Team members participate in their presentation." We would still have most team members present.

Answer: Taking a look at the Game Manual Part 1...

4.6.3: *Each Team should have at least two student Team representatives and the Robot available; the entire Team is encouraged to participate.*

7.4.1: *No awards will be determined on the basis of this interview alone.*

7.5.6 Motivate Award: *This Team embraces the culture of FIRST and clearly demonstrates what it means to be a Team. Required criteria includes Team can articulate the individual contributions of each Team member, and how these attribute to the overall success of the Team. Strongly suggested criteria includes All Team members participate in their presentation, and actively engage with the judges.*

So with that we can answer your questions...

- 1) Is it required to have the entire team in the interview: **No**
- 2) Does it count against you if you do not have the entire team: **It is not required, but suggested.**

Judges will want to see how your team functions and communicates as a whole. The more opportunities Judges have to see your team in action (including the interview), the more information they will have when making their decisions. There are many reasons why team members may be absent from the interview. Perhaps they are sick, or could not make the event. Maybe there is something critical that needs to be happening in the pit (because, nothing goes wrong in the last minute... right?). Or maybe you have a massive team, and the logistics of squeezing everyone in the interview room has an overall effect of lowering the quality of the information you give to the judges. This will need to be something that your team decides. Keep in mind though, if you do leave team members out of the interview, judges may want to know why!

Finally I'll leave this answer with a question. Is there a way team members participate in the interview but not be physically in the room?



Advancement Criteria - Answer Thread

Printable View

Administrator

09-22-2016, 01:53 PM

Advancement Criteria - Answer Thread

Answers to questions posted pertaining to Advancement Criteria.

Barry

12-07-2016, 06:32 PM

Advancement from Qualifying Tournaments

Quote:

Originally Posted by **FTC10794** »

I'm curious if other states work the same way as NorCal, or if this is even considered a legitimate advancement scheme. NorCal has 14 qualifiers, though it counts it as 17 qualifiers because 3 events have two fields. To that end, they are advancing two teams from all but the 3 two-field events, which advance four. For most competitions, they are only advancing the host team of the event, and the Inspire Award winner. The Winning Alliance Captain doesn't get to go.

I did a breakdown of the data as I saw it. Is this a legitimate advancement scheme? It doesn't seem like a robotics competition if the winning robot doesn't get to advance to the regional championships.

A breakdown of the data would indicate there are 12 host teams, for 14 qualifiers (not the 16 the website claims), plus 14 Inspire Award winners, equals 26 teams. From the 3 two-field qualifiers, an additional six teams get slots: 3 Winning Alliance Captains and 3 Inspire 2nd place. That adds up to 32 of the 48 available slots. The remaining 16 slots are then to be filled via lottery. There are still 9 Winning Alliance Captains that do not have a spot (as there are 14 qualifiers, and 3 are two-field events that automatically advance the Winning Alliance Captain plus 2 no-host events). Instead of advancing these Winning Alliance Captains automatically, when there are clearly still slots available for them to take, and filling the last available slots by lottery, the policy is instead to fill all 16 slots via lottery. This in turns creates the highly probable situation where a Winning Alliance 2nd pick or Think Award winner is selected to go to the regional championships instead of a Winning Alliance Captain who earned the spot, according to the rule of advancement from the game manual (section 4.8.2, part 1). How is this a sensible solution? It appears more like faulty mathematics, where it was decided to simply divide the number of available seats by the number of qualifiers and then declare that that is the most any competition can send automatically, while advancing an optional team over a mandatory team, instead of taking a moment to consider the situation and work out a neater, more equitable solution.

Hello Team 10794,

Thank you for your forum post.

The advancement criteria being used in NorCal follows our *FIRST* Tech Challenge advancement criteria policy. The organizers are not deviating from that policy in any way. While you may not agree with the policy, *FIRST* recognizes it as a legitimate way to advance teams. The Inspire Award winning team advances because they have earned the highest and most important award that is offered by the *FIRST* Tech Challenge program. The host team advances because they have taken on the burden of hosting an event, which in turn helps *FIRST* to further our mission. Though *FIRST* leaves the decision to advance or not advance the host teams to our Affiliate Partners, we recognize that if no teams hosted events, there would not be 14 qualifiers in the NorCal region, and teams in the NorCal region would not have multiple opportunities to compete. We respect and support the Affiliate Partner decision to provide multiple opportunities for teams in their region to compete. We believe it is possible for a team to build an excellent robot and meet the requirements for the Inspire Award, and we encourage all teams to aspire to that goal.

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