



TECHNOXIAN

WORLD ROBOTICS CHAMPIONSHIP

WRC 2022 RULES BOOK

BOTSCOMBAT CHALLENGE

1.0 Competition Overview

TechnoXian BotsCombat is the most exciting challenge of world robotics championship series. It celebrates the sport of Robotic Combat through a contest of battling machines. This game gives opportunity to youngsters to design, build and control combat robots to demonstrate their creativity, engineering skills and driving ability. The most rewarding part of designing bots is that student have fun, work together as a team, and learning occurs as naturally as breathing air.

2.0 The Team

Tournament Teams and Team members are subject to the following:

2.1.0. Team Name

All Team names must be approved by TechnoXian. The Team name must be unique and not be identical or very similar to the name of a previously-registered Team. The name also cannot be identical or very similar to any commercially-trademarked name. TechnoXian reserves the right to require the renaming of any Team whose name it deems inappropriate, offensive or conflicting. Once a Team has been accepted for entry into the Tournament, the Team's name cannot be changed, unless they receive written permission from TechnoXian.

2.2.0. Team Personnel

A Team must consist of a minimum of 2 people, at least one who is not a Minor (Less than 18 Years). There are no specific limits to the maximum number of people that may be on any Team. However, there are limits on the number and age of Team members who can be on a Pit Crew. No person can be a member of more than one Team.

2.3.0. Team Technical Expertise

One member or a combination of members of the Team must have knowledge and understanding of all of the technical aspects of the Team's Bot.

2.0 The BattleBox (Arena)

2.1.0. Field Dimensions

The BattleBox is a fully enclosed 40 foot by 40-foot rectangle raised 1 feet off the ground. The BattleBox floor is approximately level, but is not guaranteed to be flat or smooth. The BattleBox employs certain "Hazards" and other obstacles that can block, damage and/or disable a Bot. The BattleBox may also contain debris and/or have



damage from previous Matches. Competitors are encouraged to use the Hazards and obstacles to their advantage. However, TechnoXian. is not responsible for any Bot damage caused by the BattleBox itself, the Hazards or debris within the BattleBox.

2.1.0. No-Flame Zone

The area within 10 feet of the BattleBox walls and 6 feet from the bottom of the roof truss is designated a “No-Flame Zone”. Robots are not allowed to use any flames in this zone. A light Gray line may be painted on the Arena floor to help indicate the boundary of the zone and Referees will warn Competitors if they use their flames near or within that area. Violation of the No-Flame Zone rules can result in a Team being Disqualified, or their flame effect can be disabled for the duration of the Tournament. The penalty levied for violation of the No-Flame Zone will be determined in TechnoXian. at its sole and absolute discretion.

3.0 Matches

3.1.0. Match Format

Match Format One-on-One Matches are started with the two Bots in colored squares on opposite sides of the BattleBox. Rumble Matches are started with each Team's Bot located at designated positions within the BattleBox.

Before the start, all Bots must be completely motionless within their respective squares. After the official start, the Robots fight in an attempt to damage and/or incapacitate their opponent

3.2.0. Weapon Operation

At the beginning of a Match, each Bot must be able to demonstrate the effective operation of at least one of its powered weapon systems. If it cannot, the Robot's Team may Forfeit the Match.

3.3.0. Match Time Limits

Unless a Match terminates early, the Match will last for 3 minutes of fighting time. The time limit does not include any time elapsed as a result of Timeouts.

3.4.0. Early Termination

A Match can be terminated early by Forfeit, Disqualification or Incapacitation. Tap-Outs are not allowed.

3.5.0. Time Between Matches

Teams and their respective Bots may be required to compete in multiple Matches in one day. However, no Team will be required to compete in more than one Match in any 60-minute period. Teams who are not prepared to compete after this period may be required to Forfeit.

There is no specified maximum time between Matches, and due to the scheduling of the Tournament and/or production related activities, Teams may have different amounts of time between their respective matches. TechnoXian Officials will use reasonable efforts to schedule matches in a manner that minimizes the between-Match time differences



3.6.0. Match Postponement

If a Team will not be able to compete in a Match as originally scheduled, e.g., due to problems with their Bot, they may request that the Match be postponed to a later time. All such requests are subject to the approval of TechnoXian Officials, taking into account factors such as production and Tournament schedules, fairness considerations, etc. After a Team has been granted a Match postponement, any subsequent requests for additional postponements must also be approved by the opposing Team in the affected Match, in addition to the approval process set forth above. Additionally, TechnoXian reserves the right to postpone any Match for any reason in their sole and absolute discretion. Any such postponement will not count as a Team requested postponement.

4.0 The BOT

The team must build and bring one pre-constructed, autonomous or manual, wireless robot whose purpose is to push, throw, flip, hit, drag or otherwise move the opponent out of the battle ring within the maximum battle time. The following section details the rules and specifications regarding the robot; please be sure to read them carefully and refer to them as you design your robot.

4.1.0. Bot Shape & Weight

The participating bots can be wireless or wired and must be controlled remotely. A bot must fit inside **100 centimetres wide and 100 centimetres high** cube at the beginning of a Battle. There are no size constraints once the Battle has begun, robot can expand its parts after the battle starts. Additionally, nothing can intentionally detach from the robot. Robots will not be immediately penalized if pieces detach as a result of breakage. In the case of repeated breakage, the Referee may invalidate a Battle, request certain remedies be taken, or disqualify the Team.

There are two categories in competition. Weight norms for both categories would be as follows:

Under 30Kg (66 LBS): Bot's weight at any given point of time should be between 15Kg (33LBS) to 30Kg (66 LBS) including the battery. Weight tolerance can be $\pm 10\%$.

Under 60Kg (133 LBS): Bot's weight at any given point of time should not be between 30Kg (66LBS) to 60Kg (133 LBS) including the battery. Weight tolerance can be $\pm 10\%$

Weight will be measured at the time of inspection before starting the competition.

Weight Exclusions: Safety cover, restraints, small cameras or telemetry package installed into bot do not count towards the weight of the bot.

Additional Decoration Weight: Bots can have additional decoration that increases the bots' weight over the defined limit, subject to the following.

- The bot without the decoration cannot weigh over the defined limit.
- The decoration itself cannot weigh more than 2 Kg or 4.4 pounds.
- The decoration cannot protect the robot or serve as a weapon.
- The decoration cannot easily become a fouling hazard.



- The decoration must be removable with simple tools in 5 minutes or less.
- Prior to a match, any opposing Team has the right to require removal of the decoration.
- TechnoXian officials can require removal of the decoration at any time for any reason.

4.2.0. Activation and Deactivation

The Master Switch locations and their access should be one of the first things you think about when designing your bot. If your bot is not easy and safe to activate and deactivate, it will not be approved. Activation and deactivation must be done by one person and within the maximum amount of time permitted herein. Even if a bot's activation and deactivation system meet the letter of the rules as defined below, TechnoXian will make the final decision whether to accept or reject the system

- **Activation:** It cannot require more than 30 seconds to activate the bot, including the removal of safety covers and restraints and the operation of the Master Switches. When Master Switch is turned on, there must be no motion at all by the bot or its weapons.
- **Deactivation:** When bot is deactivated, it must be incapable of moving or of operating any of its weapons. Deactivation cannot require more than 30 seconds. If the bot has just been seriously damaged in combat, the deactivation time requirement may be waived for that match, but the bot must be otherwise rendered safe before removing it from the arena.

4.3.0. Electrical System

- **Maximum Voltage** The maximum allowed voltage used for the weapon and motion systems is 60 volts with the batteries fully charged. The maximum voltage allowed for any low-power auxiliary systems anywhere else in the bot is 240 volts. However, if your bot uses any voltages higher than 60 volts, you will have to convince us that you know what you are doing, and we reserve the right to reject your bot's design for failure to meet our safety requirements.
- **Batteries** Any type of commercially-available battery may be used. If your bot uses lead-acid batteries, they must be factory-marked as AGM-type. Protect your batteries well. If your batteries catch fire during a match, the arena may (at the sole discretion of the TechnoXian) be sealed off until the fire has burned itself out and the fumes have cleared. Batteries have to be removed from the bot after each match, and re-installed just prior to a new match, so they should be readily accessible

4.4.0. Remote Control

All communications to or from bots must use a commercially available remote control ("RC") system that uses a form of Digital Spread Spectrum ("DSS") communication



with automatic pairing between the transmitter and receiver. There are many systems and conversions available. A good commercial DSS system is virtually immune to interference. It is your responsibility to confirm that your RC equipment cannot interfere with any other RC system operating on the same frequency. Your control systems have to be designed such that if your transmitter(s) lose power or are turned off, your bot and its weapon(s) will stop moving. We will verify your system at the Tournament. If your RC system interferes with other systems at the Tournament, you may be disqualified. You may also be disqualified if you can't demonstrate that your RC system provides reliable, positive control in the arena. If you have elaborate RC communication station equipment, you will have 60 seconds to set it up and 60 seconds to remove it

4.5.0. Active Weapons

A weapon is a powered part of your bot that is remotely operated, independent of its mobility method (wheels or otherwise). The weapon can be used in conjunction with moving the bot, but the basic effectiveness of the weapon cannot depend on bot movement. The weapon's effectiveness also cannot depend on the use of Flames. Every bot must have a real weapon (or multiple weapons). If the weapon does not look like it can damage or incapacitate another bot, that bot will not be accepted.

4.5.1. Pneumatics: Pneumatics can be dangerous. If you are not familiar with pneumatic systems, use another energy source for your weapons. Requirements for any pneumatic system are:

- Systems can use Nitrogen (N₂) gas or compressed air. CO₂ cannot be used.
- The gasses cannot be deliberately heated or cooled.
- The maximum allowed stored pressure is 3000 psi and maximum allowed regulated system pressure is 400 psi.
- There are no specific restrictions on the system design; however, the pneumatic system must use best practices and commercially available components that are rated for the operating pressures used.
- On-board air compressors that fill a buffer tank are allowed and preferred over stored N₂. In a match, you may start pressurizing after the arena has been closed, but prior to the start of combat.
- You must have a way to shut off or purge the pneumatic system as part of the deactivation procedure.
- Team required to bring own adapter hose and data sheets describing all filling system components. Like the rest of your bot, they will have to be approved by TechnoXian inspectors or you cannot compete. Pressures above the stated limits may be approved if you can convince us that you have the necessary knowledge and experience to safely engineer such a system.

4.5.2. Hydraulics:

A hydraulic test point is a mandatory fitment to allow verification of a robot's maximum system pressure. A team will need its own test gauge and hose. Hydraulic fluid storage tanks must be of a suitable material and adequately guarded against rupture. Requirements for any hydraulic system are:



- The maximum allowed system pressure is 3000 psi. A higher limit may be approved if you can convince us that you've the necessary expertise to engineer a reliable and safe system.
- The hydraulic fluid must be non-flammable, non-corrosive, have moderate-to-low toxicity, and be rated for the maximum pressure used in the hydraulic system.
- There are no specific restrictions on the system design; however, the hydraulic system must use best practices and commercially available components that are rated for the operating pressures used.
- Hydraulic reservoir tanks must be protected within the bot.
- You must have a way to depressurize the system as part of the deactivation procedure.

4.5.3. Springs and Flywheels:

Any large springs used for drive or weapon power must have a way of loading and actuating the spring remotely under the robot's power. Under no circumstances should a large spring be loaded when the robot is out of the arena or testing area. These devices must be made safe before removing the robot from the arena or testing area. Flywheels or similar kinetic energy storing devices must not be spinning or storing energy in any way, unless inside the arena or testing area. These devices must be made safe before removing the robot from the arena or testing area.

4.5.4. Flames: Flame outputs are intended for showmanship only and are not considered to be an Active Weapon, as defined below.

- Only pure propane, pure butane, or a combination of the two can be used.
- Total gas storage per Bot is limited to 16.4 ounces.
- All gas storage tanks must be protected with armour.
- The gas cannot be deliberately heated or cooled.
- The flame effect can be reliably started and stopped at will using the remote control.
- The maximum length of the flame is 4 feet, regardless of the pointing direction.
- The length and angle limits of the flame must be adjustable.
- Flames from Bots must be aimed vertically downward.
- At maximum gas flow, the flame can't operate for more than 1 minute total time. Note that the 4-foot flame length requirement will be strictly enforced, with potentially serious consequences for bots with flames exceeding this limit. TechnoXian officials reserve the right to test a bot at any time to verify the flame length. Refer to the Tournament Rules for more details

4.5.4. Internal Combustion Engines: IC engines are allowed, but with the following requirements:

- The engine must use a self-starter that is activated by remote control.
- Any electric fuel pumps must be able to be shut off by remote control.



- If the engine uses a separate fuel tank, the tank and fuel line must be well protected.
- The fuel tank must be vented (no pressurized tanks) with a vent system that will not continuously leak fuel if the bot is upside-down.

4.6.0. Weapons Restrictions

- **Invisible Damage:** Weapons designed to cause invisible damage to the opponent are forbidden. This includes but is not limited to Electricity, Radio Frequency, Radio Frequency Noise, and Electromagnetic Fields.
- **Entanglement:** Entangling material such as nets, fishing line, cables, string, glues or tapes and any similar devices are forbidden to use.
- **Smoke and Light:** Smoke and light-based weapons, which impair the viewing of robots by an Entrant, Judge, Official or Viewer are forbidden to use. This includes, but is not limited to; Smoke or Dust, Lights such as external lasers and bright strobe lights, which may blind the opponent.
- **Hazardous Materials:** Hazardous or dangerous materials are forbidden from use anywhere on a robot where they may contact humans, or by way of the robot being damaged (within reason) contact humans.
- **Explosives:** Explosives of any kind are not allowed as a weapon system for the robot.
- **Prohibited Weapons:** The following weapon types are not allowed under any circumstances:
 - Fouling devices such as glue, nets, fishing line, ball bearings and such.
 - Squirting liquids or liquefied gasses such as liquid Nitrogen.
 - EMP generators or other means intended to damage or jam the opponent bot's electronics.
 - Deliberate smoke generators.
 - Bright lights, lasers, etc., that are distracting or dangerous to vision.
 - Weapons that damage the other bot by destroying themselves

5.0.0 Competition Structure

During official match play, there are key positions must be filled.

5.1.0. Referee

Each match is controlled by the referee. He has full authority to enforce the rules of the match to which he has been appointed. Referees observe and supervise the Competitors before, during and after Matches and to give final scoring and making decision. The referee is encouraged to use the designated walking area next to the field. The decisions of the referee regarding facts connected with play are final.



The referee may only change a decision on realizing that it is incorrect or, at his discretion, on the advice of an assistant referee, provided that he has not restarted play.

The referee is not held liable for any kind of injury suffered by an official or spectator, any damage to property of any kind nor any other loss suffered by an individual, club, organization, institution or other body.

The bot handlers are the only team member that may talk to the referee.

Duties

- The general duties of Referees are Starting Matches, Stopping Matches early, declaring a win by Knockouts, Declaring and administering Timeouts, watching for safety violation The referee ensures a safe match for all participants and bots. The referee ensures a fair match according to the rules of the match.
- The referee ensures that there is no interference by unauthorized persons or team members.
- If at any time before or during a Match, a Referee observes disruptive or other inappropriate behaviour by any Operator or Team support person in or around the Arena, the Referee has the authority to require that person to leave the Arena area immediately.

5.2.0. Assistant Referee

The assistant referee supports the referee wherever he can. He is encouraged to use the designated walking area next to the BattleBox, opposite the referee. No team members are allowed to talk to the assistant referee.

Duties

- The assistant referee indicates when misconduct or any other incident has occurred out of the view of the referee.
- The assistant referee discusses unclear situations with the referee

5.3.0. Bot Handler

Before the start of the match, every team has to designate bot handlers and a captain.

Duties

- The captain asks the referee for timeouts if necessary
- The bot handler can substitute a bot during match play.
- The bot handler asks the referee for the permission to substitute a bot in the next stoppage and, if the referee agrees, substitutes the bot.

5.4.0. Match Preparation

All people that fill a role in the match have to be ready at least 10 minutes before the start of the match to allow the referee to make the following preparations

- **Match Result Sheet:** The referee obtains a match result sheet along with ball from the organizing committee. After the match, the referee fills in the final score, collects the required signatures and submits the sheet to the organizing committee.



- **Choosing Team Colours:** The referee asks the captain of the teams about their preferred team colour (either blue or yellow). The sticker of the same colour will be given to teams to put on their bots.
- **Choosing Side and Kick-off:** The referee tosses a coin with both captains. The winning team chooses the goal it will attack in the first half of the match. The other takes the kick-off to start the match.
- **Designating Bots:** The referee asks both captain which bot they will use as the keeper. The keeper can be changed anytime during the game with referee's permission.

6.0.0 Match Procedures

6.1.0. Prior to Match Starts

Prior to the start of a Match, all Bots must be in position and not moving. Specifically:

- For a One-on-One Match, each Robot must start completely inside its starting square.
- Each Robot must be motionless on the floor.
- All external components of weapons must be motionless.
- Any Fuel-Powered Engine must be running at idle speed.
- Any flame system must not be ignited.
- Spring-powered devices may have been armed via remote control.
- Autonomous functions may have been remotely enabled.
- If a Team is unable to start their Bot's Fuel-Powered Engine within 60 seconds, the Team can request a Postponement. The Postponement must be approved by TechnoXian. or the Producers.

6.2.0. Beginning of the Match

6.2.1. Countdown to Start: The Referees will determine when each Team is ready to start, at which time an Operator from each Team will show a green card to indicate their Team's readiness to begin the Match. After both Teams have indicated their readiness, the Match will start when the Starting Lights turn from Red to Green. In some circumstances, the Referees may verbally start the Match.

6.2.2 Fault: If a Referee or Judge notices premature Robot movement or any other violation of starting procedure, he or she may declare a Fault, and require a Restart. Operators must cease all Bots movement and follow the instructions of the Referees for a Restart. If a Team's Robot Faults more than two times in a single Match, the Team may Forfeit the Match.

A Restart must begin with all Bots back in their starting positions. The Referees may choose to verbally restart the Match.

6.3.0. During the Match

6.3.1. Referee Decisions: Each Referee must observe his or her Operators and their Robot to check and respond to one or more of the following:

- Pinning, Lifting or Grappling
- One or both Robots Stuck
- Incapacitation



- Deliberate avoidance
- Disallowed flame operation
- Radio Interference Each is described in more detail below

6.3.2. Timeouts: Any Referee can call for a Timeout to stop the Match. All Operators must immediately stop the movement of their Bots and their weapons. Flying Robots must land. The subsequent actions of the Referees, Operators and TechnoXian Officials will depend upon the circumstances that resulted in the Timeout.

6.3.3. Pinning: Pinning Robots may not win by pinning their opponents. Referees will allow pinning for a maximum of 10 Counts per pin then the Referee will instruct the attacker to release. If, after being instructed to do so, the attacker is able to release but does not, the Team may be Disqualified. A weapon that is designed to partly or completely cover (smother) an opponent Robot is allowed. However, covering a Robot may be considered Pinning, depending upon which Robot is in control.

6.3.4. Lifting: Lifting Bots may not win by lifting their opponent's bot off the floor. Referees will allow lifting in one location for a maximum of 10 Counts per lift unless the lifting Robot is actively moving around the Arena. If the Robot is actively moving during the lift, the time limit is 30 Counts after the start of the lift. At the end of the count, the Referee will instruct the lifting Robot to stop the lifting. If, after being instructed to do so, the attacker is able to stop the lifting but does not, their Bot may be Disqualified and the Team will Forfeit the Match

6.3.5. Grappling: Robots may not win by using a weapon or other means to grab and hold the opponent Bot. Referees will allow the Grappling to continue for maximum of 30 Counts. After the count, the Referee will instruct the Grappling Bot to release. If, after being instructed to do so, the attacker is able to release but does not, their Bot may be Disqualified and Forfeit the Match.

6.3.6. Pausing a Count: A Referee can temporarily pause a count if needed to evaluate a Bot's situation, or to consult with a Robot's Operator or with TechnoXian officials

6.3.7. Early Count Termination: A Referee has the option of terminating a count early if the Referee determines that the pinning, lifting or grappling is not serving the purpose of damaging or disabling an opponent, but is just delaying the Match progress.

6.3.8. Stuck Bot Procedures: When a Bot or Bots becomes Stuck on the Arena floor:

- Each Bot's Team needs to tell the Referee if their Bot is Stuck.
- At the Referee's discretion, a Timeout will be declared.
- If a Bot is Stuck against or under an Arena hazard, TechnoXian officials may attempt to unstuck the Robot by manipulating the operation of the hazard.
- If necessary, Bot Handler will enter the Arena and attempt to free the Stuck Robot(s).



- If safe to do so, the Bot Handler will turn upright any inverted Bots. They will also attempt to locate and orient the Bots such that they cannot immediately make contact on restart without first manoeuvring.
- The Referees will verbally restart the Match.
- The Match will be continued for the remaining Match time. During the Timeout and restart, Teams must follow all instructions from TechnoXian officials. TechnoXian will not be responsible for any inadvertent damage done to Bots when attempting to unstick them.

6.3.9. Failure to Unstick: Under some circumstances, it may not be possible to attempt to quickly unstick Bots without damaging the Robots. In such circumstances:

- If more than 90 seconds have elapsed in the Match, the Referee will decide the Match winner.
- If less than 90 seconds have elapsed in the Match, a Rematch will be scheduled. If a Rematch is not possible, the Judges will decide the Match winner.
- In the case of a Referee's decision, the winner will not be declared to have won by a Knock-Out

6.3.10. Responsiveness: A Robot is considered Responsive if it can display some kind of controlled translational movement along the Arena floor. A damaged Robot moving about the arena is considered to be non-Responsive if the Operator cannot demonstrate the ability to basically control the direction of movement. Just randomly moving the Robot is not sufficient. A Robot that can only rotate in place due to partial failure of the drive mechanism is also considered to be non-Responsive.

6.3.11. Uncontrolled Robot Movement: If at any point it appears that a Bot cannot move in a controllable manner during a Match, the Referee will direct the Team to show that the Bot can move forward in an approximate straight line and/or a specific direction. If the Referee determines that the Operator cannot control the Bot's movement or direction, the Referee can start the Count.

6.3.12. Radio Interference: If Radio Interference occurs during a Match, a Team must immediately tell the Referee. A Timeout will be called and a reasonable attempt will be made to eliminate the interference. In the case of an unresolved Radio Interference issue, TechnoXian Officials reserve the right to declare that one Robot is the Match winner

6.3.13. Flame Effects: Flame effects are intended for "showmanship" rather than as a weapon. However, if a Bot using flame effects damages an opponent, that damage will be considered valid.

6.3.14. Flame Off: If a Referee notes that a Bot operates its flame system within the No-Flame Zone, the Referee will declare "Flame Off", and the Operator must turn off the flame immediately. Failure to comply may result in the Team forfeiting their Match.

6.3.15. Flame Length: If a Bot's flame length is observed to exceed the maximum length specified in clause, the Team may, at the discretion of TechnoXian officials, be barred from using the flame in subsequent matches or alternatively may be Disqualified.



6.3.16. Flame System Failure: If an Operator is unable to turn off their flame system, the match will be stopped and the offending Bot is to be driven to the center of the BattleBox (and away from the opponent Bot) until the flame system runs out of gas. Depending upon the circumstances, TechnoXian Officials may choose to re-start the Match, or to declare the other Bot the Match winner by default

6.3.16. Bot Fire: If a Bot begins to smoke or catches fire, the Match may be stopped, and the opponent Bot(s) will be moved as far from the burning Bot as practical. If safe, Team may attempt to extinguish the fire. However, TechnoXian Officials have no obligation to attempt to extinguish the fire, or to permit anyone to enter the Arena while the Robot is burning.

7.0. Winning the Match

At the conclusion of each One-on-One Match, the winner will be decided by the following criteria:

7.1.1. Forfeit Due to Rules Violation: If Referee believe that one Team's Bot was violating a Tournament Rule, they will inform TechnoXian officials, who may then declare the opposing Team the winner by Forfeit. The Forfeit can be declared either during or immediately following the Match.

7.1.2. Knock-Out Due To Engagement Avoidance: If a Referee believes that an Operator is deliberately avoiding the engagement of their Bot with the opponent Bot, the Referee will notify that Operator that their Robot must make physical contact with, or otherwise engage, the opponent Bot. If the Operator does not attempt to comply, the Referee may declare that the Operator's Team has lost due to a Knock-Out.

7.1.3. Single Incapacitation Knock-Out: During a Match, a Bot must at any time be able to demonstrate that it is Responsive. This is confirmed as follows:

- At any time and for any reason, a Referee can request that a Team's Operators show that their Bot or Multi-Bot is Responsive.
- After the request, the Referee will start a count-down from 20 (of which the final 10 counts will be called out loud) for the Operators to demonstrate that the Bot can exhibit controlled translational movement.
- If the Bot cannot demonstrate that it is Responsive before the end of the count-down, it will be declared Incapacitated.

If one Team's Robot becomes Incapacitated, then the opponent Team will be declared the winner. The win will be considered a KnockOut. The Referees' decision in regards to when an Incapacitated Bot is deemed Knocked Out shall be final and not subject to challenge or appeal.

7.1.4. Non-Responsive Count Termination: Referees have the option of terminating a count early if both Referees agree that a Bot or Multi-Bot is non-Responsive and obviously will not recover.



7.1.5. Flying Bot Incapacitation: A Flybot will be considered Incapacitated when it can no longer fly or move along the Arena floor in a controlled fashion.

7.1.6. Multiple Incapacitation: If both Bots become Incapacitated, but not simultaneously, the Bot that became Incapacitated last will be declared the winner. The determination of which Bot was last-Incapacitated will be decided by the Referee in their sole and absolute discretion. The Referee may review Match video footage to determine the order of Incapacitation. A win due to Multiple Incapacitation will be considered a Technical KnockOut.

7.1.7. Simultaneous-Action Incapacitation: If some action by one or both of the Bots ("Action") causes both Bots to become Incapacitated within 5 seconds of the Action, a "Simultaneous-Action" Incapacitation will be declared, and the following procedure will be used to determine a winner:

If the Action occurred more than 60 seconds after the start of the Match, the Referee will decide the winner.

If less than 60 seconds have elapsed during the Match, a rematch may be scheduled. If a rematch is not possible, TechnoXian officials will decide the winner.

A win due to Simultaneous-Action Incapacitation will be considered a Technical KnockOut.

7.1.8. Multiple Knock-Out: If both Bots become disabled, and it's not obvious which Bot became disabled last, the decision may be put to the Referee. However, TechnoXian officials have the option to declare that both (or all) Bots in the match have lost due to a Knock-Out.

7.2.0. Referee' Determination of Match Winner: Certain criteria and methods are used by the Referee to decide a Match winner in the event a winner is not determined during the course of a Match (i.e., neither Robot is Incapacitated, Knocked Out, Disqualified, etc. during the duration of the Match).

7.2.1. Judging Criteria: The judging criteria uses three factors, each which is assigned a point value, as follows:

Damage – 5 Points

Through deliberate action, a Bot either directly, or indirectly using the Arena Hazards, reduces the functionality, effectiveness or defensibility of an opponent. Damage is not considered relevant if a Bot inadvertently harms itself. Also, if a pressure vessel or a rapidly spinning device on a Bot fragment, any damage to an opponent will not be considered "deliberate".

Aggression – 3 Points

Aggression is judged by the frequency, severity, boldness and effectiveness of attacks deliberately initiated by a Bot against its opponent. If a Bot appears to have accidentally attacked an opponent, that act will not be considered Aggression. Consideration is also given if the attacking Bot is risking serious damage on each attack. Continuous ramming attacks using a wedge or other passive armour and without using a powered weapon can reduce a Bot's comparative Aggression score.

Control – 3 Points



Control means a Bot is able to attack an opponent at its weakest point, use its weapons in the most effective way, avoid Arena Hazards, and minimize the damage caused by the opponent or its weapons.

7.2.2. Decisions are Final: Referee' decisions in regards to the outcome of a Match are final and binding upon all Competitors. Referee' decisions are not subject to challenge or appeal.

8.0. General Rules of Tournament

8.1.0. Prohibited Activities: TechnoXian expects all Competitors to act in a safe and legal manner. The actions of a single Team member may be grounds for Disqualification or Expulsion of the entire Team. The following activities are prohibited; violation of any of these terms may result in Competitor and/or Team Disqualification, as determined by TechnoXian. and/or Producer in their sole and absolute discretion.

- **Unruly Behaviour:** Fighting, belligerence, threat of physical violence or other unruly behaviour, including abusive physical contact with any TechnoXian Official, will not be tolerated and can result in the immediate Expulsion of the offending Team member's entire Team from the Tournament.
- **Vehicles in Pit Areas:** Scooters, bicycles, skateboards, skates and similar vehicles cannot be used in any of the Pit Areas. In addition, powered vehicles such as Segways, hoverboards or powered scooters cannot be used or stored in the Pit Areas. The only exceptions are wheelchairs (manual and powered) occupied by disabled persons, and vehicles used by authorized personnel for Tournament operations.
- **Running and Playing:** Running in the Pit Area, except in an emergency, is not allowed. Running while carrying a charged pneumatic tank, or any sharp or otherwise dangerous part, may result in the revoking of the Pit Pass of the offender. Engaging in horseplay, tossing balls or other items, or operating remote-control vehicles or equipment in the Pit Area is also not allowed.
- **Team Property:** No Team member may deliberately touch, handle or otherwise come in contact with any Robot, parts, tools or other equipment belonging to another Team, without the explicit verbal authorization from a member of the other Team
- **Smoking:** Use of either tobacco products, nicotine vapor devices (e-cigarettes) or similar non-nicotine delivery devices is specifically prohibited in any of the Pit Areas, and in any other indoor or nearby outdoor area that is marked as "No Smoking".
- **Alcohol Use:** No alcohol may be consumed at the Tournament by any Team member at any time. In addition, no alcoholic beverage may be brought into any of the Pit Areas. A Team member under the influence of alcohol is not allowed in any of the Pit Areas, and cannot participate in any activity involving the preparation, transport or operation of any Robot at the Tournament.



- **Illegal Drugs:** No possession of illegal drugs or other substances or any use thereof will be tolerated at any time or place during the entire production, on camera or off. Penalty is immediate dismissal of the entire Team of the offender from the Competition and Program.
- **Firearms and Explosives:** No firearms, weapons, explosives or other dangerous items or materials of any kind may be possessed or brought to any Tournament location by any Competitor or anyone else other than authorized law enforcement personnel.
- **Lasers:** Deliberate pointing of any laser at any other person at the Tournament will not be tolerated and may result in the immediate Expulsion of the offending Team member's entire Team from the Tournament.
- **No Pets:** No pets of any kind are allowed anywhere at the Tournament. The only exception is a certified service dog being used to assist a disabled person

8.2.0. Prize: Winner of the tournament will be awarded cash prize, certificate and trophy. TechnoXian reserve the right to make changes to the total prize pool amount and/or the prize pool allocation prior to the commencement of the Tournament.

- **Prize Forms:** Each Team Member will be required to fill out and sign his/her Team's Team Member & Prize Allocation Form prior to commencement of the Tournament. The Team Member Prize & Allocation Form specifies how that Team wants its prizes (if any) allocated amongst the Team Members. Only Team members listed on the Team Member & Prize Allocation Form are eligible to receive a prize (if any). Additionally, prior to the awarding of any Tournament prizes, each Team member entitled to part of the prize will be required to execute a Prize Acceptance Form outlining the amount of the total prize that the Team is entitled to, and portion of the Team prize to which the individual Team member is entitled.
- **Design Awards:** A special Trophy will be awarded to certain artistic, innovative or otherwise exceptional Robots regardless of their performance in the Tournament. The awards are designated and determined as follows:
 - **Most Destructive Bot** The Referee and TechnoXian officials as a group will decide this Award winner
 - **Best Designer:** The winner for this award will be decided by a Maximum Views on YouTube video, poll of all of the Entrant and Backup Teams. The Robot with the most votes wins. In case of a tie, TechnoXian officials will make the tie-breaking vote
 - **Founder's Award** This award will be decided by TechnoXian Officials.

8.3.0. Rule Changes During Competition: Rule changes between years can have unforeseen consequences. If a rule is found to cause significant negative impact to the competition, the rules may be adapted under the following conditions:

- Only between phases of the competition
- Only for major problems, as a last resort.
- The change must be approved by all team leaders (by an unanimity vote)



8.4.0. Final Authority: TechnoXian organizer shall have final authority over the interpretation and application of all Rules and decisions regarding the Rules shall be made by TechnoXian in their sole and absolute discretion. Decisions by TechnoXian in regards to the interpretation and application of the Rules, the Tournament and the Program shall be final and not subject to challenge or appeal.

Notice: These Design Rules may change at any time with or without specific notice to you. Any changes made to these rules will be noted in a revised Design Rules document with a higher Rev number. You acknowledge and agree that it is your responsibility to read, understand, and comply with any and all rules provided herein or otherwise by TechnoXian. It is strongly encouraged that you check these Design Rules often for any changes that may affect your design, build, and/or ability to compete in the Tournament. TechnoXian reserves the right to remove any Team from the Tournament at any time for any reason (including, without limitation, failure to meet safety and/or technical requirements) in its sole and absolute discretion