

Rules@Ragnarok Robowar

1. ABOUT

We bring to you the first edition of the robowar event of IISc Bangalore. The event is held under Pravega, IISc's UG SciTech fest, and shall be organized on the 2nd and 3rd of September, at the campus.

2. REGISTRATION GUIDELINES

Tournament Teams and Team members are subject to the following:

➤ ELIGIBILITY

Grades 10-12 and First and Second-year college undergraduates. A team **may** consist of older members, but they cannot occupy the positions of Captain or Operator. Younger students are not allowed as participants. Teams are allowed one mentor if mandated by their institution.

➤ TEAM NAME

As cool as they sound, we can't accept any trademarked names or those similar to them. Be creative! Also, don't be gross. We will ask you to rename any Team whose name is inappropriate. Once a Team has been accepted for entry into the Tournament, you can't do anything about the name.

➤ CAPS ON TEAM SIZE

We allow solo participation. The cap on team members is 10. No person can be a member of more than one team. Nope.

3. THE ARENA

➤ FIELD DIMENSIONS

The Arena is an enclosed 25-foot by 25-foot square raised 1 foot off the ground. The floor is approximately level but is not guaranteed to be flat or smooth. The Arena **may** employ certain weapons and other obstacles that can block, damage, and/or disable a Bot. Competitors are encouraged to use the Hazards and obstacles to their advantage.

➤ NO-FLAME ZONE

The area within 4 feet of the Arena walls is designated a “No-Flame Zone”. Robots are not allowed to use any flames in this zone. We don’t want no flaming audience members. An orange line will 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 that area. Violation of the No-Flame Zone rules **will** result in the team’s flame effect being disabled for the duration of the Tournament.

1 4. Matches

➤ MATCH FORMAT

One-on-One Matches are started with the two Bots in marked corners on opposite sides of the Arena.

Before the start, all Bots must wait within their respective squares.

After the start, the Robots fight in an attempt to damage and/or incapacitate their opponent.

If no linear movement is recorded within 1 minutes of the start, the bot will automatically lose the match, no matter the point advantage.

➤ 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 within the first 2 minutes unless the bot is specifically a rammer/ramp-based flipper. Otherwise, you automatically lose the match.

➤ 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.

1.1.1 # Early Termination

A Match can be terminated early by Forfeit, severe incapacitation or request by a team to stop the match (like, if you want to salvage your robot and you can clearly see you’re going to lose and have your bot annihilated)

➤ TIME BETWEEN MATCHES

Teams and their respective Bots **will** 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 repair-related activities, Teams may have different amounts of time between their respective matches. We will use reasonable efforts to schedule matches in a manner that minimizes the waiting time.

➤ 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 the Ragnarök robowar team, taking into account factors such as 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, we might postpone any match for any reason in our sole and absolute discretion. Any such postponement will not count as a Team requested postponement.

4. THE BOT

The team must build and bring one pre-constructed, autonomous, or manual, wireless or wired 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.**

➤ BOT SHAPE & WEIGHT

- ❖ The participating bots can be wireless or wired and must be controlled remotely. A bot must fit inside a meter cube at the beginning of a Battle.
- ❖ Nothing can intentionally detach from the robot.
- ❖ Robots will not be immediately penalized if pieces detach as a result of breakage but in the case of repeated breakage, the Referee may disqualify the Team.

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

- Under 30Kg: Bot’s weight at any given point of time should be between 10Kg to 30Kg including the battery. Weight tolerance can be $\pm 10\%$.
- Under 60Kg: Bot’s weight at any given point of time should be between 30Kg to 60Kg including the battery. Weight tolerance can be $\pm 20\%$

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

➤ ACTIVATION AND DEACTIVATION

If your bot is not easy and safe to activate and deactivate, it will not be approved.

You must follow these guidelines:

§ Activation: It cannot require more than 10 seconds to activate the bot. 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.

➤ 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**.

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 may decide that you don't, leading to disqualification.

§ 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**. Remember, batteries can catch fire/explode on taking severe damage/load.

➤ REMOTE CONTROL

It is your responsibility to confirm that your control equipment **cannot interfere with any other system operating on the same frequency**. Further, 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.

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 control system provides reliable control in the arena.

➤ 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, take advantage of that. The principal weapon's effectiveness cannot depend on the use of flames.

4.5.1. Pneumatics: Warning: Pneumatics can be dangerous. Requirements for any pneumatic system are:

§ The gasses cannot be deliberately heated or cooled.

§ The maximum allowed stored pressure is 3000 psi and the maximum allowed regulated system

pressure is 400 psi.

§ 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.

➤ HYDRAULICS:

§ The maximum allowed system pressure is 3000 psi. A higher limit **may** be approved if you can convince us that you have 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.

§ Hydraulic reservoir tanks must be protected within the bot.

§ You **must** have a way to depressurize the system as part of the deactivation procedure.

➤ 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.

Don't go around loading large springs 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. Basically, thou shalt lift thee weapon only in battle and not massacre innocent audience members. Savvy?

➤ FLAMES:

Flame outputs are intended for showmanship only and are not considered to be a primary weapon. Specifications:

§ 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 armor.

§ The gas cannot be deliberately heated or cooled (To avoid explosions)

§ The effect can be reliably started and stopped at will using the remote control.

§ The maximum length of the flame is 3 feet, regardless of the pointing direction. Failure to comply shall result in a forfeit.

§ At maximum gas flow, the flame can't operate for more than 1 minute total time.

➤ INTERNAL COMBUSTION ENGINES:

Ambitious? 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.

➤ WEAPONS RESTRICTIONS

§ 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. Like you know, acids.

§ 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:

- o Squirting liquids or liquefied gasses such as liquid Nitrogen.

- o Deliberate smoke generators.

- o Bright lights, lasers, etc., that are distracting or dangerous to vision.

- o Weapons that damage the other bot by destroying themselves. Includes, you know, explosives.

5. COMPETITION STRUCTURE

➤ REFEREE

Each match is supervised by the referee. She/He has full authority to enforce the rule of the match to which she has been appointed. Referees observe and supervise the Competitors before, during, and after Matches and give final scoring and make the decision.

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 her 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 organizer 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, and watching for safety violations. 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 behavior 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.

➤ ASSISTANT REFEREE

The assistant referee supports the referee wherever he can. 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

➤ 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 controls the bot during match play.

➤ 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: After the match, the referee fills in the final Score and collects the required signatures and submits the sheet to the organizing committee.

6. MATCH PROCEDURES

➤ 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.

➤ BEGINNING OF THE MATCH

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.

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.

➤ DURING THE MATCH

Observations by the referee:

§ Pinning, Lifting, or Grappling

§ One or both Robots Stuck

§ Incapacitation

§ Deliberate avoidance

§ Disallowed flame operation

§ Radio Interference Each is described in more detail below

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.

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 cover (smother) an opponent's Robot partly or completely is allowed. However, covering a Robot may not be considered Pinning, depending upon which Robot is in control.

Lifting:

Lifting Bots will not win by just 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.

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 a 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.

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's progress.

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 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 maneuvering.

§ The Referees will verbally restart the Match.

§ The Match will be continued for the remaining Match time During the Timeout and restart. We will not be responsible for any inadvertent damage done to Bots when attempting to unstick them.

§ On failure to unstick, 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.

§ In the case of a Referee's decision, the winner will not be declared to have won by a Knock-Out

➤ 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.

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 approximately 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.

➤ 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, we will declare a winner or schedule rematch.

➤ 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.

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 will result in the Team forfeiting their Match.

Flame Length:

If a Bot's flame length is observed to exceed the maximum

length specified in clause, the Team may be barred from using the flame in subsequent matches or alternatively may be Disqualified.

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 arena (and away from the opponent Bot) until the flame system runs out of gas.

Depending upon the circumstances, we may choose to re-start the Match, or to declare the other Bot the Match winner by default.

#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, we have no

obligation to attempt to extinguish the fire or to permit anyone to enter the Arena while the Robot is burning.

6. WINNING THE MATCH

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

➤ WINNER BY FORFEIT:

If the Referee believes that one Team's Bot was violating a Tournament Rule, they may then declare the opposing Team the winner by Forfeit. The Forfeit can be declared either during or immediately following the Match.

Forfeit 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 forfeit.

➤ 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 as Via Knockout. The Referees' decision in regard to when an Incapacitated Bot is deemed Knocked Out shall be final and not subject to challenge or appeal.

#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.

FLYING BOT INCAPACITATION:

A flying bot will be considered Incapacitated when it can no longer fly or move along the Arena floor in a controlled fashion.

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.

#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 would decide the winner.
- If less than 60 seconds have elapsed during the Match, a rematch may be scheduled.

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

Note: We may decide that both bots have lost due to a Knock-Out.

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).

Judging Criteria:

The judging criteria use three factors, each of which is assigned a point value, as follows:

➤ Damage – 5 Points

Through deliberate action, a Bot either directly, or indirectly using the Arena weapons, 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 armor 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. This is an attribute of the bot handler rather than the bot!

#Decisions are Final: The referee's decisions in regard to the outcome of a Match are final and binding upon all Competitors. Referee's decisions are not subject to challenge or appeal.

8. GENERAL RULES OF TOURNAMENT

Prohibited Activities: Pravega 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 and violation of any of these terms may result in Competitor and/or Team Disqualification,

as determined by Pravega officials.

§ Unruly Behavior: Fighting, belligerence, threat of physical violence, or other transgressions, including abusive physical contact with any attendee 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 people and vehicles used by authorized personnel for Tournament operations.

§ 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 explicit verbal authorization from a member of the other Team.

§ Smoking: The use of 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.

9. PRIZE:

The winner of the tournament will be awarded a cash prize, certificate and trophy. Pravega reserves 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 sign a Prize Acceptance Form outlining the amount of the total prize that the Team is entitled to, and the portion of the Team prize to which the individual Team member is entitled.

§ **Supernumerary 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:

- o Most Innovative Bot: The organizing committee will decide on this prize on basis of writeups provided and inspection of robots.

- o Best Designer: The winner of this award will be decided by uploading pictures of the bot onto Pravega's Instagram page and counting the number of likes received (40% score), along with points awarded by the organizing committee (which account for 60% of the final score).

You acknowledge and agree that it is your responsibility to read, understand, and comply

with any and all rules provided herein or otherwise by Pravega. It is strongly encouraged that

you check these Rules for any changes that may affect your design, build, and/or ability

to compete in the Tournament.