BATTLE BOTS

Problem Statement :

Design and construct a remote-controlled robot capable of fighting in a tournament against another robot.

Specifications:

- There will be no restrictions on the dimensions of the bot.
- The weight of the machine should not exceed 70 pounds (31.75 kg).
- All batteries should be on board.
- The weight of remote controller will not be counted.
- Each bot must meet the requirements described in this problem statement..
- Robots operating on hydraulic mechanisms are not allowed.
- Only active weapon bots are allowed
- The robots must be electric powered and wireless(remote controlled).
- Participants can also use Bluetooth/Arduino/RC techniques to control the bot.

Restrictions:

- Flying (using airfoil, helium balloons, ornithopters, etc.) is not allowed.
- The robots should not secure itself on the ring surface by using suction cups, diaphragms, sticky treads, glue or other such devices.

Weapon Systems:

- Robots can have any kind of magnetic weapons, cutters, flippers, saws, lifting devices, spinning hammers etc. (if they qualify the criteria mentioned below) as weapons.
- Liquid projectiles (Foam, liquefied gases)
- Weapons causing invisible damage are not allowed (Electrical weapons, RF jamming weapons and others).
- Only active weapon bots are allowed (sumo bots are not allowed).

COMPETITION RULES AND SPECIFICATIONS:

Team Specifications:

- Any team can participate in BattleBots, ADASTRA-2K19.
- A team may consist of a maximum of 5 participants (including team leader).
- These participants can be from the same institutes/different institutes.
- **Team Name**: Every team must have a unique name. ADASTRA Organizers reserve the right to reject entries from any team whose name it deems inappropriate, offensive or conflicting.
- Organizers must be notified if a team's name has been changed.
- **Team Representative**: Each team must specify their team representative (leader) at the time of registration on the website.
- All the important communications between ADASTRA Organizers and the registered teams will be done through their team representative.
- The team representative must submit valid contact details (phone no., email ID etc.) at the time of registration.

NOTE: During any kind of conversation, registration, communication, mails or submissions the team must identify themselves by their Team ID only provided at

the time of registration and not by your team name. Please DO NOT use your team name as your identification in any kind of communication with us.

Criteria for victory:

- A robot is declared victorious if its opponent is immobilized.
- A robot will be declared immobile if it cannot display linear motion of at least one inch in a timed period of 10 seconds.
- A bot with one side of its drivetrain disabled will not be counted out if it can demonstrate some degree of controlled movement.
- In case both the robots remain mobile after the end of the round, the winner will be decided subjectively by the judges.
- A robot that is deemed unsafe by the judges after the match has begun will be disqualified and therefore, declared the loser.
- The match will be immediately halted and the opponent will be awarded a win.
- If a robot is thrown out of the arena the match will be stopped immediately, and the robot inside the arena will automatically be declared as the winner.
- Points will be given on the basis of aggression, damage, control and strategy.
    - **Aggression**: Aggression is judged by the frequency, severity, boldness and effectiveness of attacks deliberately initiated by the robot against its opponent. If a robot appears to have accidentally attacked an opponent, that act will not be considered when judging for aggression.

    - **Control:** Control is judged in terms of the ability to attack an opponent at its weakest point, using weapons in the most

effective way, and minimizing the damage caused by the opponent.

- **Damage**: Through deliberate action, a robot either directly or indirectly reduces the functionality, effectiveness or defensibility of an opponent. Damage is not considered relevant if a robot inadvertently harms itself. Also, if a pressure vessel or a rapidly spinning device on a robot fragments, any damage to the opponent will not be considered "deliberate".
- **Strategy**: The robot exhibits a combat plan that exploits the robot's strengths against the weaknesses of its opponent. Strategy is also defined as a robot exhibiting a deliberate defense plan that guards its weaknesses against the strengths of the opponent.

NOTE: Qualification of a robot to next level is subjective and totally on the decision of the judges. A robot winning in a round against its opponent doesn't guarantee its entrance into the next round. If the judges found the winner robot incompetent to enter into the next round, it may get disqualified. Judges can disqualify both the robots of a match from advancing to the next round. All the decisions taken by the judge will be final and binding to all. Any queries afterwards will not be entertained.

Event Specific Terminology:

- **Disabled**: A robot is not functioning correctly due to either an internal malfunction, or contact with the opposing robot or Arena Hazard.
- **Disqualification**: A robot is no longer permitted to compete in the current BattleBots tournament.
- **Immobilized**: In the judges' opinion, a robot is not responsive for a specified period of time.

- **Knockout**: Occurs when the attack or deliberate actions of one robot causes its opponent to become immobilized.
- **Lifting**: Occurs when one robot controls an opponent's translational motion by lifting the drive mechanism of the opponent off of the Arena floor.
- **No Contact**: Neither robot makes contact with the other for a specified period of time.
- **Pinning**: Occurs when one robot, through sheer force, holds an opponent stationary in order to immobilize it.
- **Radio Interference**: Refers to the situation where at least one robot becomes non-responsive or non-controllable due to the effect of the other robot's remote-control signal.
- **Non-Responsive**: In the judges' opinion, the robot cannot display some kind of controlled translational movement along the arena floor.
- **Restart**: Occurs after a fault or a timeout has been declared and the competing robots are ready to continue.
- **Stuck**: A robot is hung-up in a part of the arena, an arena hazard or an opponent, such that it is effectively non-responsive.
- **Tap-Out**: Occurs when a robot's operators decide that they no longer want to continue the match and concede the win to the opposing team.

- **Technical Knockout**: Occurs when a robot wins due to immobilization of its opponent even though, in the judges' opinion, no action of the winning robot caused the opponent's immobilization.
- **Timeout**: A temporary halting of a match. Timeouts are usually called to separate robots, but can be called for other reasons as well.

Certificate Policy:

- Certificate of Excellence will be given to all the winners.
- Certificates of Participation will be given to all the teams who qualify first round of the competition.
- The teams which get disqualified due to disobeying any of the competition rules will not be considered for the certificate.
- Particulars about prize money will be declared later.

Safety Rules:

- Compliance with all event rules is mandatory.
- It is expected that competitors stay within the rules and procedures of their own accord and do not require constant policing.
- Special care should be taken to protect the on-board batteries and pneumatics, robot without proper protection will not be allowed to compete.
- If you have a robot or weapon design that does not fit in this ruleset (even having some elements that are not mentioned as allowed/disallowed in this ruleset) or is someway ambiguous, please contact ADASTRA-2K19,EATM,BBSR at the earliest.

- Safe innovation is always encouraged, but surprising the organizers with your brilliant exploitation of a loophole may cause your robot to be disqualified before it even competes.

- Each event has safety inspections. Your team will be allowed to compete at the sole discretion of ADASTRA authorities, to whom as a builder you are obligated to disclose all operating principles and potential dangers to the inspection staff.

- Proper activation and deactivation of robots is critical. Robots must only be activated in the arena, testing areas, or with expressed consent of the event coordinators.

- All weapons must have a safety cover on any sharp edges.

- All participants build and operate robots at their own risk. Combat robotics is inherently dangerous.

- All the resources provided at the time of competition from the organizers should be strictly used only after the consent of the organizers.

- There is no amount of regulation that can encompass all the dangers involved. Please take care to not hurt yourself or others when building, testing and competing.
- Any kind of activity (repairing, battery handling etc.) which may cause damage to the surroundings during the stay of the teams in the competition area should not be carried out without the consent of organizers. Not following this rule may result in disqualification.
- Once the robots have entered into the arena, no team member can enter into the arena at any point of time. In case if a fight has to be halted in between and some changes have to be done in the arena or condition on the robot(s), it will be done by organizers only.

ARENA SPECIFICATIONS

Safety Precautions:

PRIZES

The winning should got a prize of amount Rs30,000/-