COGNIZANCE 2K24

Faculty of Technology & Engineering

Chandubhai S Patel Institute of Technology

Department – Electronics and Communication Engineering

Title of Technical Event: BattleBot Blitz

Event Coordinators:

Faculty Coordinators

1. **Prof. Brijesh Kundaliya (94296-67783)**
2. **Prof. Miral Desai (98258-38325)**

Student Coordinators

3. **Kushal Shah (ID: 21ec069, Contact no: 72269-54280)**
4. **Priyanshu Talapara (ID: 21ec080, Contact no: 72269-54280)**
5. **Kashyap Vagani (ID:22ec063, Contact no: 94088-29627)**
6. **Pruthvish Dave (ID:23EC019, Contact No: 9925004526)**

Event Description:

The BattleBot Blitz Contest is an electrifying competition that showcases the engineering prowess of custom-built robots engaged in intense combat. Witness the thrilling clash of mechanical titans as they battle for supremacy in a no-holds-barred arena!

Team Specification:

No. of Participants per entry/ Team: 4

They can be from different institutions and colleges.

Task:

In this contest, participating teams are tasked with designing and constructing a remote-controlled robot capable of competing in a tournament against other robots. It's a test of engineering ingenuity, strategic thinking, and precise control.

General Rules and Regulations:

1. Any violation of the following rules will result in instant disqualification without exception.
2. Weight Limit: Each robot must not exceed 10 kilograms.
3. Sharp-edged mechanisms or weapons are strictly prohibited.
4. Power Source: Robots must be battery-operated (inside the bot).
5. Control: Wireless remote control is mandatory; wired remotes are not allowed. (RF, WiFi, or Bluetooth controllers may be used)

Specifications of Robot:

- There are no restrictions on the physical dimensions of the robots.
- The robot's total weight, including batteries, must not exceed 10 kilograms. The weight of the remote controller will not be included in this calculation.
- The machine should not be designed to intentionally split into parts or allow for detachment during the contest.

Battery And Power Supply:

- Robots must operate using onboard and sealed batteries. Eligible battery types include NiMH, NiCd, Lithium-ion, and Dry cells.
- The use of internal combustion systems is strictly prohibited.
- Teams are responsible for providing their power sources, including battery eliminators.
- The voltage between any two points within the robot should not exceed 36 volts DC at any time.
- Batteries must be securely packed and insulated to prevent short circuits and battery fires. Failure to comply will result in disqualification.
- Batteries must be leakproof and undamaged to participate.
- Onboard batteries must be well-protected, or teams risk immediate disqualification.
- Changing batteries during a match is not allowed.
- Only robots with onboard batteries are permitted. Teams are advised to have an extra battery ready and charged for subsequent rounds to avoid delays.
- Teams must adhere to scheduled match times; failure to appear within the allotted time will result in disqualification.

Mobility:

- Robots can employ rolling systems (wheels or entire bot) or non-wheel drive systems.
- Jumping or hopping robots are not allowed.
- Flying robots are strictly prohibited.
- Robots should not secure themselves to the arena surface using suction cups, diaphragms, sticky treads, glue, or similar devices.

Weapon Systems:

- Robots are allowed to equip various weapon types such as cutters, flippers, saws, lifting devices, or hammers.
- The following weapons are strictly prohibited:

    - Liquid projectiles.

- Inflammable liquids.
- Flame-based weapons.
- Explosive or intentionally ignited solid or potentially ignitable solid.
- Weapons designed to entangle opponents' weapons (spinners) with chains, ropes, or loose fabrics.
- High-power magnets or electromagnets.
- Radio jamming, Tasers, Tesla coils, or any other high-voltage devices.
- Tethered or untethered projectiles.

Spinning weapons must adhere to specific regulations:

- Spinning weapons must come to a full stop within 60 seconds of power removal using a self-contained braking system.

Spring-loaded or flywheel devices must follow these guidelines:

- Large springs should not be loaded when the robot is outside the arena or testing area.

All kinetic energy storing devices, including springs and flywheels, must fail to a safe position upon the loss of radio contact or power.

Rounds:

Abstraction Round: In the Abstraction Round, participating teams are required to submit their robot designs, ideas, and details, including drawings or CAD models. The judging panel will evaluate these submissions.

Competition Round: The top 10 selected teams from the Abstraction Round will present their rovers and participate in the competition. The competition structure will be tree-based, spanning two days, with semi-finals and finals held on the 2nd day.

Event Rules:

- A robot is declared the victor if its opponent is immobilized.
- If both robots remain mobile after the round's end, the winner will be determined subjectively.
- A robot deemed unsafe by the judges after the match has begun will be disqualified and declared the loser.
- If a robot is thrown out of the arena, the robot remaining inside the arena is automatically declared the winner.
- Robots cannot win by pinning or lifting their opponents. Pinning or lifting is allowed for a maximum of 20 seconds per pin/lift, and the attacking robot must release the opponent when instructed.
- If two or more robots become entangled, or a crushing or gripping weapon is employed and becomes trapped within another robot, the competitors must

inform the timekeeper. The fight will be stopped, and the robots separated by the safest means.

- If a robot becomes stuck within the arena due to deformities of the arena itself, the timer will be paused, and the robot will be released using the safest means.
- Points are awarded based on aggression, damage, and control.
- If a robot gets stuck in a position that it cannot escape from, it will be considered immobilized and may result in a loss for that robot.
- Bots must be ready for a match within the specified time limit; otherwise, they may forfeit the round.
- Damage inflicted on the arena by a robot will not be considered in the scoring, but any intentional destruction of the arena may lead to disqualification.
- The use of any entanglement devices (nets, cords, etc.) is prohibited.
- Robots must not produce excessive noise or excessive smoke.
- Any robot not functioning correctly may be asked to prove its full functionality outside the arena before participating in subsequent rounds.
- All participants must adhere to the decisions made by the judges and event organizers. Disputes may be addressed within reasonable limits.
- Participants are encouraged to maintain the spirit of sportsmanship and exhibit respect for fellow competitors.
- Unsportsmanlike conduct, including taunting or aggressive behavior, may result in warnings, point deductions, or disqualification.
- In case of deliberate, repeated violations or failure to comply with safety and ethical standards, the offending team may be disqualified from the competition.

The judgment and decisions of the referee and event organizers are final and non-negotiable.