SOFTEC 2017

Robo Rumble Rules

Note: The rules described below are in accordance with the international standards. Changes necessary are purely at the discretion of the SOFTEC Society. Any amendments made will be notified prior to the competition dates.

Knockout Match Rules

Match Duration: 10 minutes

The distribution of prizes for this event is as follows:

1st Prize	PKR 50,000
2nd Prize	PKR 25,000

Decision criteria:

1. The robot has been knocked out if,

i. Robot is unable to move transitionally.

ii. Robot is unable to rotate within 50 second time frame. Within this time frame opponent will be restricted not to attack. This time allotted would not be a part of the time allotted for the round.

2. Any of the teams surrenders or taps out.

i. This is done by the team leader verbally indicating to the referee that his/her team is surrendering.

ii. After a tap out request has been made, referee will declare the opponent winner.

- A team chooses to forfeit a match before it has started.

- A team and its robot are not ready as per the designated schedule. Any delays entertained will be at the discretion of the judge/referee/organizing committee.

- In case when no robot could be knocked out during the match, team with more points will be declared winner.

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Details of points earned or lost during the match

- Pushed opponent's robot out of the arena 5 pts.

- Going out of arena -4 pts.
- Turning opponent's robot upside down 10 pts.

- Taking off any part of opponent's robot 15 pts.
- Attack during 20 second time frame -10 pts.

- Pushing robot to platform weapons (if any) 10 pts.
- Getting into platform weapons -8 pts.

- If at any time both robots are stuck to any part of the arena or with them such that they cannot move, the robots will be moved with or without assistance back to the starting positions. The match will be restarted by the referee. Any movement during the time the match is paused that jeopardizes the safety of any person during this time will result in immediate disqualification from the event.

- Disqualification of the team if damage caused to the arena.

- If platform weapons are operational and active, any damage caused by them to the robot are deemed fair and there will be no appeals of any kind involving issues with platform weapons that will be entertained.

Robot Building Rules

*Note: These rules are followed by several organizations conducting such competitions. The rules described below are in accordance with the international standards. Changes necessary are purely at the discretion of the SOFTEC Society. Any amendments made will be notified prior to the competition dates.

- Combat robotics is dangerous. All participants build and operate robots at their own risk. Please take care to not hurt yourself or others when building, testing and competing.

- Compliance with all event rules is obligatory. It is expected that competitors will comply with the rules and procedures of their own accord and not require constant policing.

- If you have a robot or weapon design that does not fit within the categories set forth in these rules or is in some way ambiguous or borderline, please contact SOFTEC 2017. Safe innovation is always encouraged, but surprising the event staff with your

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Brilliant exploitation of a loophole may cause your robot to be disqualified before it ever competes.

- Each event has safety inspections. It is at their sole discretion that your robot is allowed to compete. As a builder you are obligated to disclose all operating principles and potential dangers to the inspection staff.

- Cardinal Safety Rules: Failure to comply with any of the following rules will result in instant expulsion from the event and possible barring from future competition.

  - The weight limit for the Robot is 30 Kg
  - The maximum allowed dimensions of the Robot are 2x3x2 (width length height) ft.
  - All Robots MUST have a ground clearance of around 5-10mm or more to cater for uneven surfaces.
  - Radios may not be turned on at or near events for any purpose without obtaining the appropriate frequency clip or explicit permission from the event.
  - Proper activation and deactivation of robots is critical. Robots must only be activated in the arena, testing areas, or with expressed consent of the safety officials.
  - All robots must be able to be FULLY deactivated, which includes power to drive and weaponry, in less than 60 seconds by a manual disconnect.
  - All robots not in an arena or official testing area must be raised or blocked up in a manner so that their wheels or legs cannot cause movement if the robot is turned on.
  - It is expected that all builders will follow basic safety practices during work on the robot at your pit station. Please be alert and aware of your pit neighbors and people passing by.

2. Mobility

1. All robots must have easily visible and controlled mobility in order to compete. Methods of mobility include:
   - Walking (linear actuated legs with no rolling or cam operated motion).
   - Rolling (wheels, tracks or the whole robot).
   - Ground effect air cushions (hovercrafts)
   - Shuffling (rotational cam operated legs).
   - Flying (airfoil using, helium balloons, ornithopters, etc.) is NOT allowed. • Jumping and hopping is allowed.

- **Robot control requirements:**

All robot radio systems must have a way to change frequencies or coded channels to prevent radio conflicts.
Having at least two frequencies or coded channels available is recommended.

You will be required to send the frequency that you are using prior to the event so that any overlap of frequencies can be avoided. Please send it in this format:

TEAM NAME/ROBOT NAME:

TEAM LEADER NAME:

FREQUENCIES:

It is recommended, but not required to have a separate power switch for the radio.
It is highly preferable that you have at least 4 different frequencies.

4. Batteries and Power

1. The only permitted batteries are ones that cannot spill or spray any of their contents when damaged or inverted. This means that standard automotive and motorcycle wet cell batteries are prohibited. Examples of batteries that are permitted: gel cells, Hawkers, NiCad, NiMh, dry cells, AGM, etc. Hint: Best batteries to use are Lead Acid DRY batteries.

- All onboard voltages above 48 Volts require prior approval from this event. (It is understood that a charged battery's initial voltage is above their nominal value)

- All electrical power to weapons and drive systems (systems that could cause potential human bodily injury) must have a manual disconnect that can be activated within 15 seconds without endangering the person turning it off. (E.g. No body parts in the way of weapons or pinch points.) Shut down must include a manually operated mechanical method of disconnecting the main battery power, such as a suitable high current switch (Hella, Whyachi, etc) or removable link. Relays may be used to control power, but there must also be a mechanical disconnect.

- All efforts must be made to protect battery terminals from a direct short and causing a battery fire.
- All Robots must have a light, easily visible from the outside of the robot that shows its main power is activated.

6 Internal Combustion engines are allowed however is highly not recommended.

5. Rotational weapons or full body spinning robots

- Spinning weapons that can contact the outer arena walls during normal operation must be pre-approved by the event. (Contact with an inner arena curb, or containment wall is allowed and does not require prior permission.)

- Spinning weapons must come to a full stop within 60 seconds of the power being removed. Use a breaking mechanism if you have to.

6. 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 robots power.

  - Under no circumstances must a large spring be loaded when the robot is out of the arena or testing area.

- Any flywheel or similar kinetic energy storing device must not be spinning or storing energy in any way unless inside the arena or testing area.

- All springs, flywheels, and similar kinetic energy storing devices must fail to a safe position on loss of radio contact or power.

- **Special weapon descriptions allowed in the SOFTEC 2017 event**

- Entangling weapons are NOT allowed in the SOFTEC 2017 event.

- Liquid weapons are NOT allowed in the SOFTEC 2017 event.

- Powdered material or chaff weapons are NOT allowed in the SOFTEC 2017 event.

- Heat and Fire are NOT allowed in the SOFTEC 2017 event.

  - Fire Fuel types allowed are propane or butane. The maximum quantity allowed is 4oz.
  - The Fuel tank must be as far from the outer armor of the robot as practicable and be protected from heat sources within the robot.
  - The Ignition system must have a remote operated shut-off that allows the operators to disable it using the radio control system.

8. Forbidden Weapons and Materials

The following weapons and materials are absolutely forbidden from use:

- Weapons designed to cause invisible damage to the other robot. This includes but is not limited to:
    - RF jamming equipment, etc.
    - RF noise generated by an IC engine. (Use shielding around sparking components)
    - EMF fields from permanent or electro-magnets that affect another robot's electronics.
    - Weapons or defenses that stop combat completely of both (or more) robots. This includes nets, tapes, strings, and entanglement devices.

- Weapons that require significant cleanup, or in some way damages the arena to require repair for further matches. This includes but is not limited to:
    - Liquid weapons not specifically allowed in the Special Weapons section 13.3. (Also, a bot may not have liquid that can spill out when the robot is superficially damaged.)
    - Foams and liquefied gasses
    - Any powders, sand, ball bearings and other dry chaff weapons.

- Un-tethered Projectiles!

- Heat and fire are forbidden as weapons. This includes, but is not limited to the following:
    - Heat or fire weapons.
    - Flammable liquids or gases
    - Explosives or flammable solids such as:
        - DOT Class C devices
        - Gunpowder / Cartridge Primers
        - Military Explosives, etc.

- Light and smoke based weapons that impair the viewing of robots by an Entrant, Judge, Official or Viewer.

  This includes, but is not limited to the following:
    - Smoke or dust weapons
    - Lights such as external lasers above 'class I' and bright strobe lights which may blind the opponent. ii.

• 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.

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For further inquiries, please do not hesitate to contact:

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