Maharaja Agrasen College
University Of Delhi
presents...

VZEON '14
THE CRADLE OF INNOVATION

RoboTron

RoboWars

Rules & Regulations:-

1.Competition Structure & General Considerations:

1.1 The participants will be instructed about the competition structure at a later date after the deadline for application submission so that the final number of teams will be known and thus an adequate competition structure can be devised.

1.2 Each duel will consist of two robots challenging each other in a three (3) minute battle. In the final knockout tournament stage, the battle duration will be of five (5) minutes.

1.3 The initial robot pairing will be done by a randomized transparent ballot in front of the audience on competition day. Following each duel, the table league will be updated accordingly. The top robots in the league table will then enter a finalist's tournament for the semi-finals and eventually the top 2 for the final battle.

1.4 In the case that there are two (2) robots occupying the third (3rd) place of the leader board by the end of the tournament, a direct elimination battle of three (3) minutes will take place. If due to timing constrains the battle cannot be held, the decision of who will pass to the next stage of the tournament will be done by the judges in accordance with Section 1.4.3 (ii) taking into consideration all the duels.

1.5 It must be made clear that no competitor will be allowed to touch/modify the respective robot until the end of the duel.

1.6 The winner will be the robot that successfully wins the maximum number of duels from the planned tournament hierarchy.

1.7 A duel will be ended in either of the following prioritized manners:

1.7.1 A Knockout system:

1.7.1.1 If your opponent is rendered immobilized irrelevant of the reason being and stays stationary (Explicitly implying no shift in the actual location of the robot) for more than 30 seconds you will win the round). Note:

• If a robot gets stuck and cannot move out of its position on its own within 30 seconds, then that robot is considered immobilized.

• Sole functionality of weaponry is NOT considered as movement unless the latter are able to provide the robot with a shift in its actual position.

1.7.2 Arena Contraptions

1.7.2.1 Non-flat Terrain

A section of the arena will have a non-flat topography. Traction is key in order to conquer this topography and the fighting robots can use the terrain in order to render their opponent inoperative.

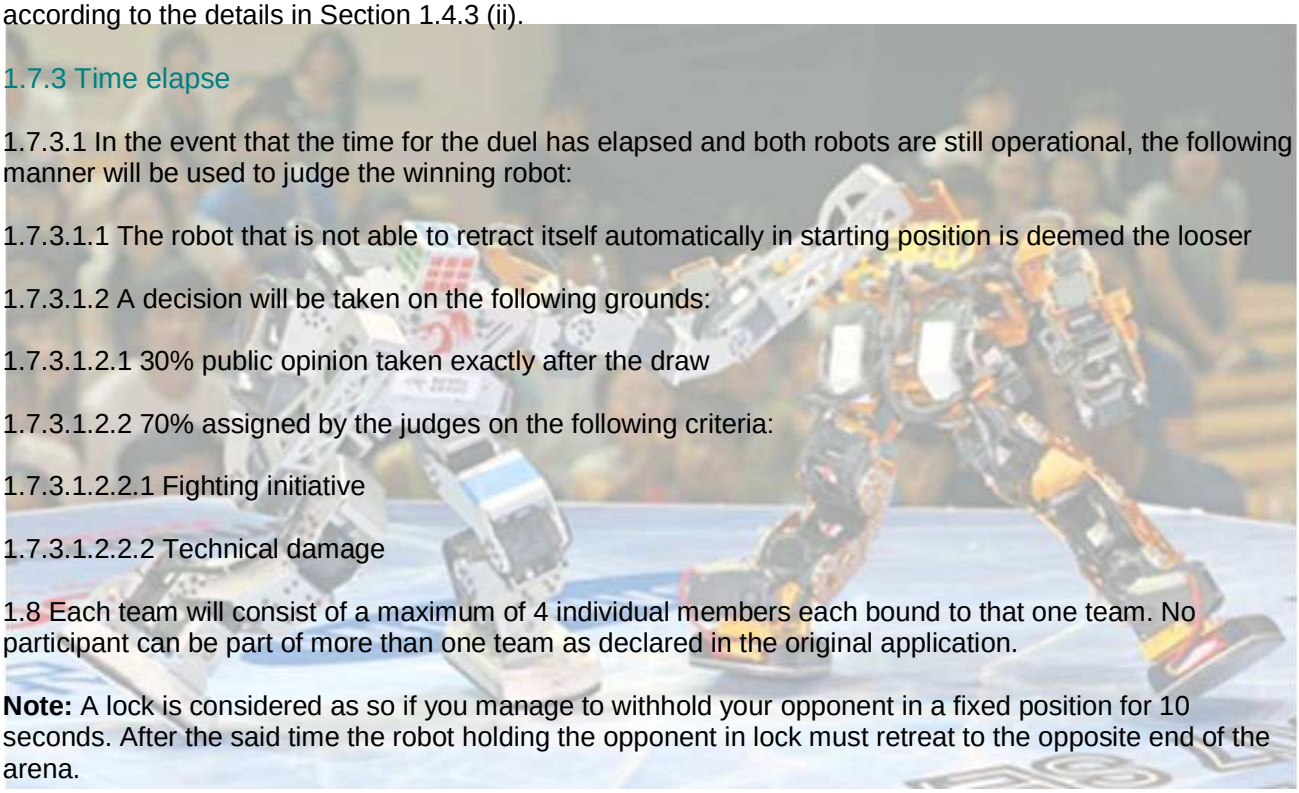
1.7.2.2 The Corner of Doom

In a corner of the arena there will be situated a power tool. This tool will be switched on for a definite period of time which will be notified to the participants during the fight.

1.7.2.3 Pit System

One of the robots is pushed into a designated area called a “pit”. This area will only be made available for a fixed percentage of the time, (which will be subsequently notified), towards the end of the duel.

In the occurrence of both robots falling after each other in the pit, the outcome of the duel will be decided according to the details in Section 1.4.3 (ii).



1.7.3 Time elapse

1.7.3.1 In the event that the time for the duel has elapsed and both robots are still operational, the following manner will be used to judge the winning robot:

1.7.3.1.1 The robot that is not able to retract itself automatically in starting position is deemed the looser

1.7.3.1.2 A decision will be taken on the following grounds:

1.7.3.1.2.1 30% public opinion taken exactly after the draw

1.7.3.1.2.2 70% assigned by the judges on the following criteria:

1.7.3.1.2.2.1 Fighting initiative

1.7.3.1.2.2.2 Technical damage

1.8 Each team will consist of a maximum of 4 individual members each bound to that one team. No participant can be part of more than one team as declared in the original application.

Note: A lock is considered as so if you manage to withhold your opponent in a fixed position for 10 seconds. After the said time the robot holding the opponent in lock must retreat to the opposite end of the arena.

THE FINAL DECISION MADE BY THE JUDGES IS BINDING

2 General Construction:

2.1 Each robot must have an active weapon.

2.2 The fitting of interchangeable body panels or alternative weaponry is allowed between duels.

2.3 Any on-board equipment that could require attention between duels for maintenance - e.g. recharging of compressed gas cylinders, charging batteries, resetting of weapons, etc. - should be easily and quickly accessible i.e. systems must be installed in such a manner that they can be removed for filling and testing within five minutes.

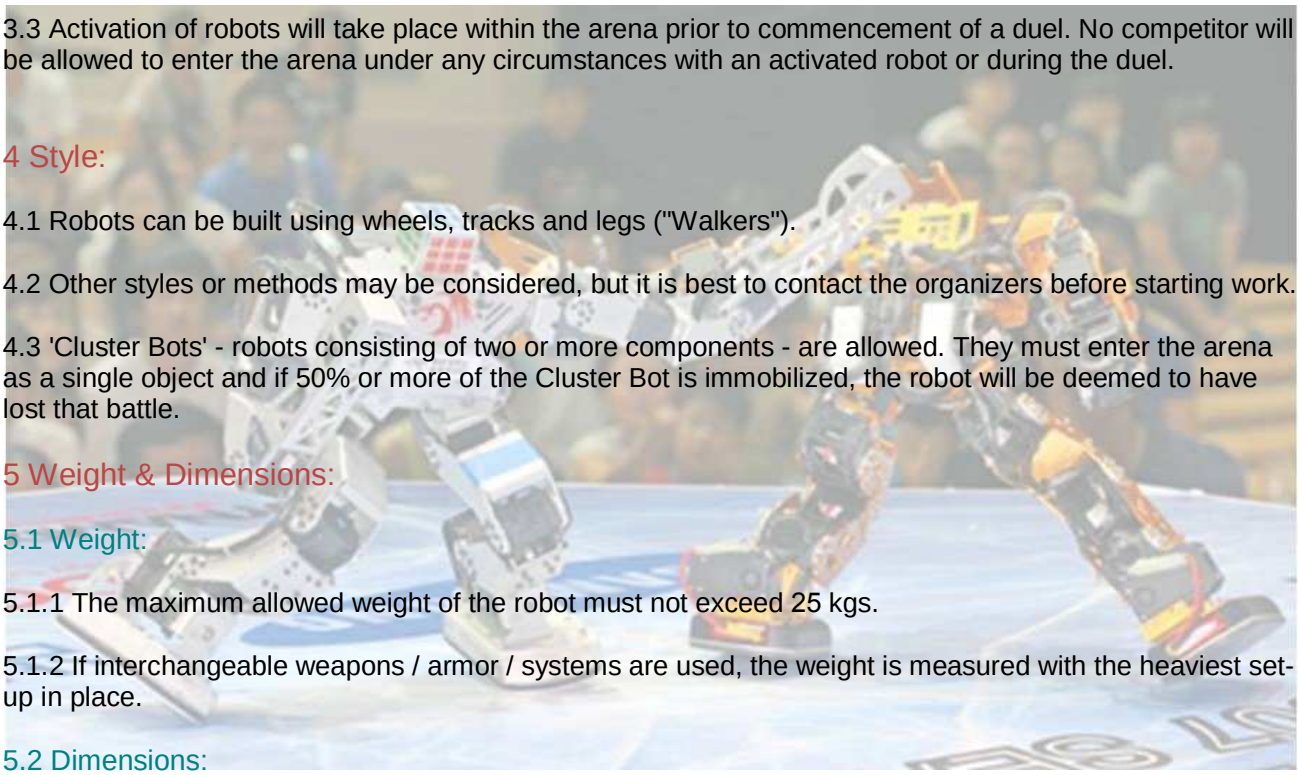
2.4 All compressed gas cylinders will be controlled. Compressed gas cylinders, provided by competitors, will be stored at room temperature, then tested and vented if necessary to 1000 psi. The compressed gas cylinder will only be issued to the competitor for fitting 5 minutes before going into battle. Gas cylinders will only be allowed to be fitted in a purpose built area.

3 Safety:

3.1 Robots will be inspected for safety, reliability and conformity to the rules before being allowed to compete.

3.2 The organizers reserve the right to ban or disqualify any robot that, in their opinion does not conform to the rules or is unsafe and could cause injury to personnel or damage to the arena, video set or equipment.

IT IS ADVISED TO CONSULT WITH ORGANISERS PRIOR TO DEVELOPING CONTROVERSIAL SYSTEMS.



3.3 Activation of robots will take place within the arena prior to commencement of a duel. No competitor will be allowed to enter the arena under any circumstances with an activated robot or during the duel.

4 Style:

4.1 Robots can be built using wheels, tracks and legs ("Walkers").

4.2 Other styles or methods may be considered, but it is best to contact the organizers before starting work.

4.3 'Cluster Bots' - robots consisting of two or more components - are allowed. They must enter the arena as a single object and if 50% or more of the Cluster Bot is immobilized, the robot will be deemed to have lost that battle.

5 Weight & Dimensions:

5.1 Weight:

5.1.1 The maximum allowed weight of the robot must not exceed 25 kgs.

5.1.2 If interchangeable weapons / armor / systems are used, the weight is measured with the heaviest set-up in place.

5.2 Dimensions:

5.2.1 Overall dimensions must not exceed 50cm x 50cm x 40 cm in width, breadth and height respectively.

5.2.2 Width, breadth and height is measured to the extremities of the robot, i.e. includes any overhanging bodywork, weaponry or protrusions. Providing the robot starts a fight with weaponry or other devices in a retracted position, the length and width is measured with these in this retracted position.

5.2.3 After every duel the robot is expected to autonomously retract itself in its original dimensions provided that these have been altered during the fight. Failure to do this will result in the robot losing the battle.

6 Motive Power:

6.1 General:

6.1.1 Motive power for the drive and/or weapons may be electric, internal combustion (IC), hydraulic, or pneumatic.

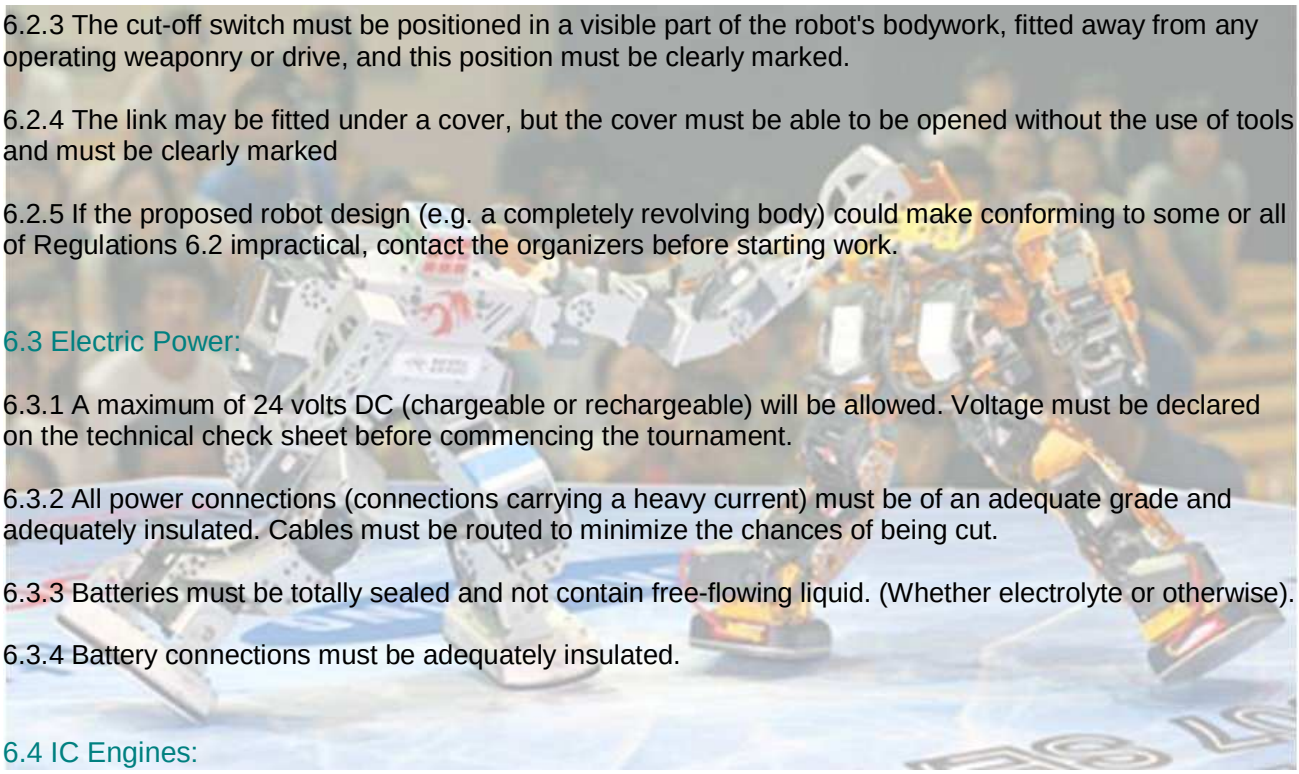
6.1.2 A combination of engines - e.g. electric drive and IC weapons, an IC engine driving a hydraulic pump is allowed.

6.1.3 Other types of engines may be considered, but it is best to contact the organisers before starting work.

6.2 Safety:

6.2.1 All robots must be fitted with on-off switches/or removable links that operate both radio receiver and drive/weapon circuits - in practice totally removing all power from the robot.

6.2.2 If there is more than one isolating switch, these must be positioned adjacent to one another.



6.2.3 The cut-off switch must be positioned in a visible part of the robot's bodywork, fitted away from any operating weaponry or drive, and this position must be clearly marked.

6.2.4 The link may be fitted under a cover, but the cover must be able to be opened without the use of tools and must be clearly marked

6.2.5 If the proposed robot design (e.g. a completely revolving body) could make conforming to some or all of Regulations 6.2 impractical, contact the organizers before starting work.

6.3 Electric Power:

6.3.1 A maximum of 24 volts DC (chargeable or rechargeable) will be allowed. Voltage must be declared on the technical check sheet before commencing the tournament.

6.3.2 All power connections (connections carrying a heavy current) must be of an adequate grade and adequately insulated. Cables must be routed to minimize the chances of being cut.

6.3.3 Batteries must be totally sealed and not contain free-flowing liquid. (Whether electrolyte or otherwise).

6.3.4 Battery connections must be adequately insulated.

6.4 IC Engines:

6.4.1 Fuel capacity is limited to 15 cc.

6.4.2 Separate fuel tanks must be made of an acceptable type of plastic (e.g. nylon).

6.4.3 If the tank is integral to the engine assembly and is made of metal, the cap must be made of plastic or a plastic "pop off" seal fitted.

6.4.4 The tank must be adequately protected from puncture according to safety considerations.

6.4.5 All fuel lines must be of the correct type and held with the correct type of fittings. They must be routed to minimize the chances of being cut.

6.4.6 A return spring must be fitted to the throttle of all IC engines to return the throttle to "idle" or "off" in the case of servo breakage or failure. (This is in conjunction with any failsafe.)

6.5 Hydraulic:

6.5.1 Hydraulic pressure is limited to 3000 psi. The competitor must be able to demonstrate the pressure used and carry with them a portable pressure gauge that can be fitted to the system if required to do so by the organizing team.

6.5.2 The use of accumulators on the Hydraulic circuits is strictly prohibited.

6.5.3 Hydraulic fluid storage tanks must be of a suitable material.

6.5.4 Hydraulic fluid lines and fittings must be to BS (British Standard) specification. The lines must be routed to minimize the chances of being cut.

6.6 Pneumatic:

6.6.1 Pneumatic pressure is limited to 1000 psi. The competitor must be able to demonstrate the pressure used and carry with them a portable pressure gauge that can be fitted to the system if required to do so by the organizing team.

6.6.2 Compressed gas cylinders must conform to current HSE specification only. The following cylinders will be allowed:

6.6.2.1 1.1 kilogram capacity steel

6.6.2.2 1.1 kilogram capacity aluminium

6.6.2.3 2 kilogram capacity aluminium

Or multiples thereof. These compressed gas cylinders must have been examined by a competent person within the last five years and have a valid test certificate and be stamped with the date of the test and the brand of the competent person who completed the examination. If upon inspection we consider that the construction or valve has been altered or tampered with in any way, the robot will be disqualified. Valves must be fitted using the torque values specified in BS 5430.

6.6.3 Pneumatic lines and fittings must be to BS (British Standard) specification BS EN983 or BS ISO4414. The lines must be routed to minimize the chances of being cut.

6.6.4 All gases in pneumatic systems must be inert e.g. air, carbon dioxide (CO_2), argon (Ar) or nitrogen (N_2)

NOTE: CO_2 can only be considered inert when dry, so under no circumstances must moisture be allowed to enter a CO_2 cylinder except under the supervision of a competent person who has the correct drying procedures.

6.6.5 Safety:

6.6.5.1 All compressed gas cylinders and the valves/regulators must be contained within the body of the robot to protect them from puncture

6.6.5.2 The compressed gas cylinder must be securely fastened down and the valve/regulator - unless adequately protected by the bodywork - must have an adequate strap or cage over it.

6.6.5.3 A pressure relief/safety valve must be fitted on the high-pressure side of the circuit set to lift at 1000 psi. CO_2 cylinders must also be protected by a burst disc, set to rupture if the pressure within the cylinder reaches 190 bars (2700 psi).

7 Weapons:

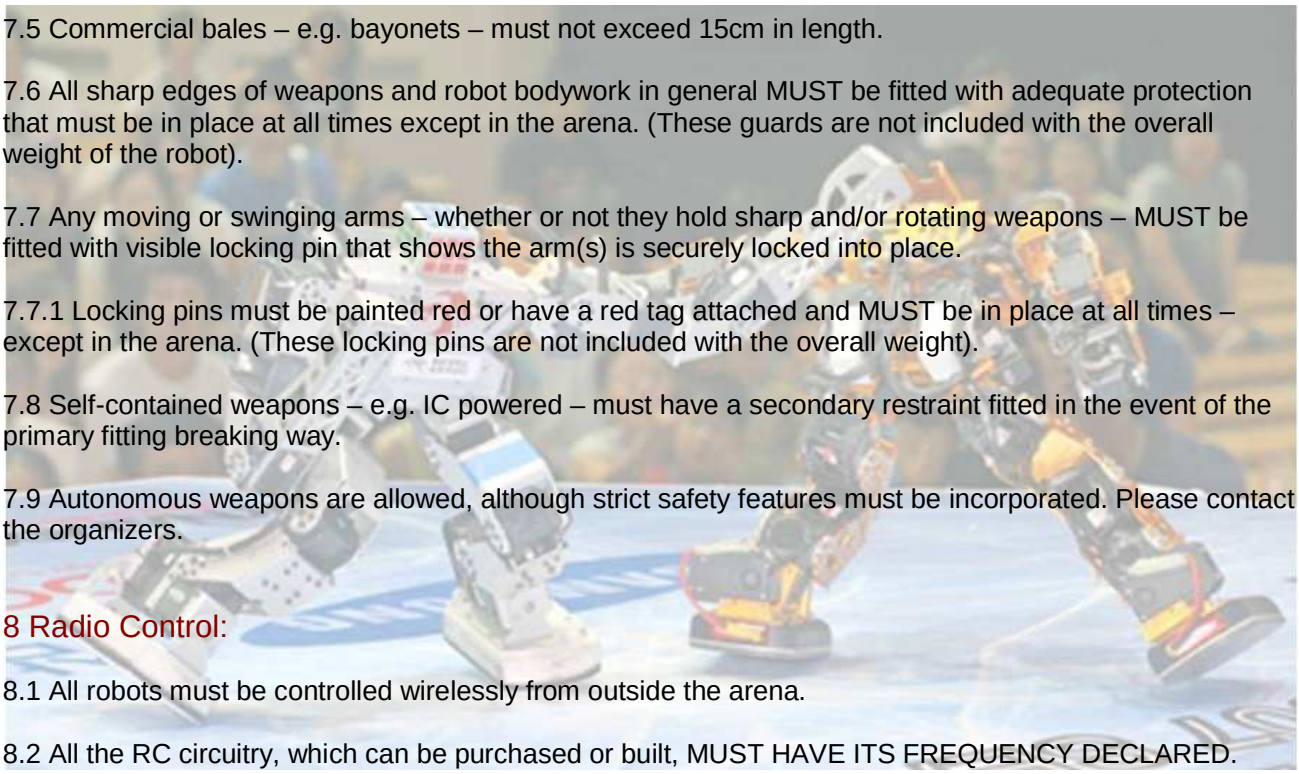
7.1 All pyrotechnics, explosives, flames, firearms, liquids, corrosives, electronic devices – e.g. radio jamming, heat-guns – are banned.

7.2 Devices using inflammable or combustion-supporting gases are banned other than commercially available I.C. engines.

7.3 Untethered projectiles are not allowed.

7.3.1 Tethered projectiles are allowed, but the tether may not exceed 1.5m in length, (measure from the center of the robot to the tip of the projectile).

7.4 Rotating hardened steel blades that may shatter are not allowed. Prior to installation discuss the blade grade with the organizing committee.



7.5 Commercial bales – e.g. bayonets – must not exceed 15cm in length.

7.6 All sharp edges of weapons and robot bodywork in general MUST be fitted with adequate protection that must be in place at all times except in the arena. (These guards are not included with the overall weight of the robot).

7.7 Any moving or swinging arms – whether or not they hold sharp and/or rotating weapons – MUST be fitted with visible locking pin that shows the arm(s) is securely locked into place.

7.7.1 Locking pins must be painted red or have a red tag attached and MUST be in place at all times – except in the arena. (These locking pins are not included with the overall weight).

7.8 Self-contained weapons – e.g. IC powered – must have a secondary restraint fitted in the event of the primary fitting breaking way.

7.9 Autonomous weapons are allowed, although strict safety features must be incorporated. Please contact the organizers.

8 Radio Control:

8.1 All robots must be controlled wirelessly from outside the arena.

8.2 All the RC circuitry, which can be purchased or built, MUST HAVE ITS FREQUENCY DECLARED. Teams are requested to use 2.4GHz technology rather than FM in order to minimize interference between other teams' radios and from external sources.

9 Maintenance Stand:

9.1 Power tools are allowed on the event day. Care must be taken not to damage venue property. Any damage done to the premises will have to be paid by the offending team.

9.2 No welding equipment is allowed on the premises.

9.3 Only repairs may be carried out in the workshop. Modifications to the robot once technically checked are prohibited.

9.4 A staff member will notify the team 2 minutes prior their fight so that the team will start closing their

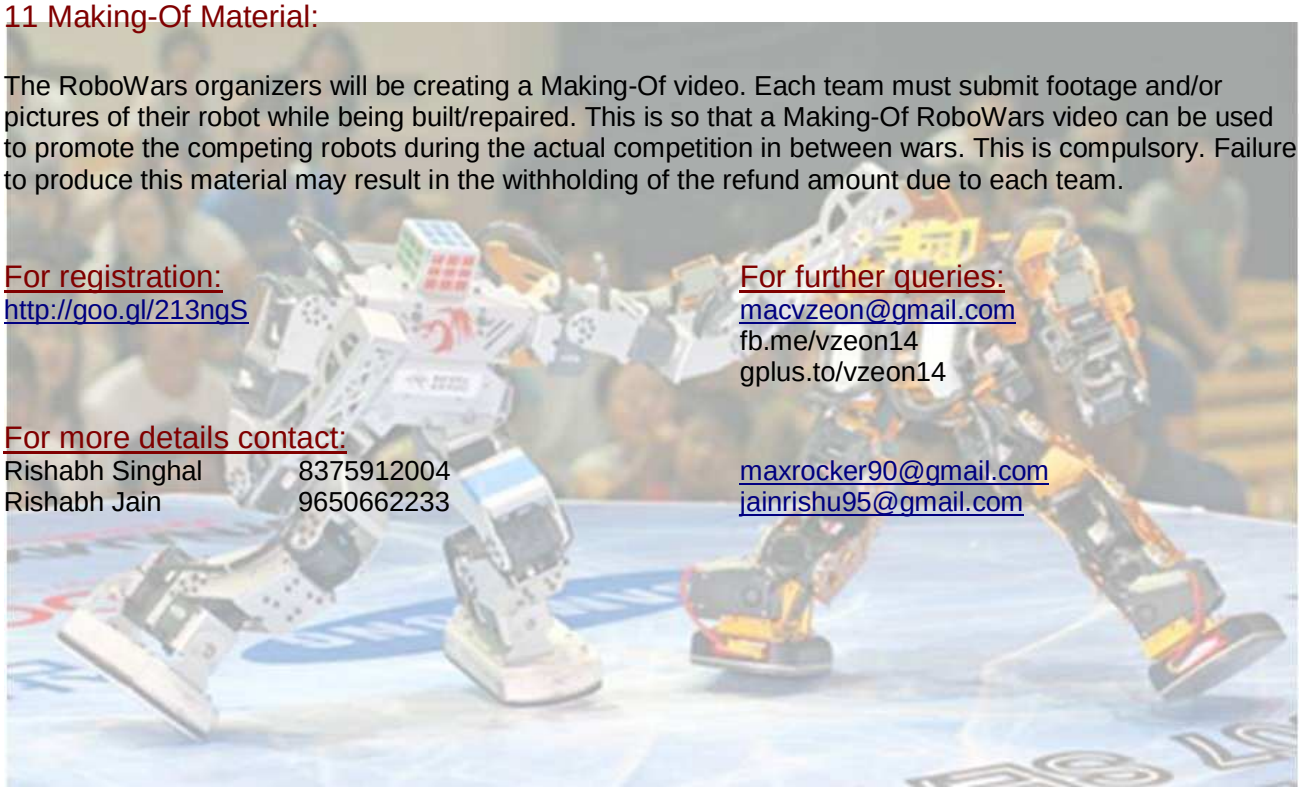
robot and finalize their repairs and adjustments. If a team does not approach the arena in time, the jury is empowered to disqualify the team for that fight.

10 Submission Details:

The competitors will be asked to hand in their robots on the event day where robots will be measured and weighed to make sure they abide by the rules. In case of a robot with different combination, the heaviest combination will be chosen for the weigh in. An inventory sheet will be prepared by the organizing team in order to list any additional items the robot will make use of during the event (extra body panels, weaponry, batteries etc.). The organizing committee will only accept items declared on this day on such a list to be utilized for any battle during the event and failure to do this will result in extra weapons being excluded. On this day, the competitors will also be requested to display the robot in operating mode to the organizers, subsequent to which competitors will only be allowed to remove and take the batteries for charging.

11 Making-Of Material:

The RoboWars organizers will be creating a Making-Of video. Each team must submit footage and/or pictures of their robot while being built/repaired. This is so that a Making-Of RoboWars video can be used to promote the competing robots during the actual competition in between wars. This is compulsory. Failure to produce this material may result in the withholding of the refund amount due to each team.



For registration:
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