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[**4th Int. Robotics Competition RoboComp'2013**](http://robocomp.regim.org/)

**Monday 16 December 2013, Sousse, TUNISIA**

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**1. Competition Presentation**

The competition is similar to sumo fighter’s concept; two robots are placed into a circular arena, with a mission consisting in throwing the adversaries out of the arena. The robots locomotion system is free, it could be wheeled, using caterpillar or even legged; robots could be equipped with a handling system allowing him to catch and control its adversary.

Robots could be fully autonomous with an embedded controller or a remote controller. Fully autonomous robots with embedded control will be over evaluated. The arena is a disc with a diameter of 1.5 m, robots are placed in the centre of the circle before the kick-off. The external limit of the arena is black. A disc of 10 cm diameter is placed at the centre of the arena; the disc is grey. An inner circle with a radius of 45 cm of grey color is also placed.

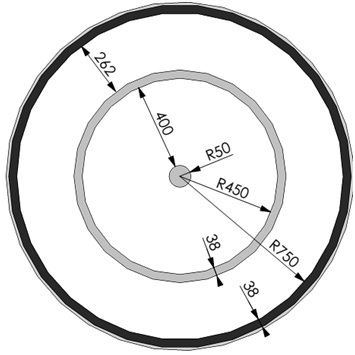


Fig1, Arena configuration

**2. General rules**

1. Winner is declared based on point rating and not on its time score.
2. Winner is declared by the competition chair, based on the rating of the judges.
3. In case of complain, a formal letter should be addressed to the competition chair, it should include all proofs and arguments. A decision is made by the Robocomp Chairs, within 24 hours with a letter addressed to the team leader.
4. Teams should respect security rules, and be “fair play”.
5. During the competitions, only the team leader is authorized to present the robot.
6. During the competitions, only the team leader is authorized to contact committee members for any claim or specific need.
7. Evaluation desk and competition judges are independent; the organizers could not interfere in their decisions.
8. The following comportments could lead a team to be disqualified:
   1. Evidence of non respect to other teams and competitors.
   2. Evidence of non respect to security rules.
   3. Evidence of non respects to competition judges(\*).
9. Competition judges are not part of the competition committee; they are assisted by the Robocomp Com  members, but remain completely free for their decisions.
10. Judges has not the right to be enrolled in any competition.
11. Robocomp Committee members have not the right to be enrolled as team leaders; they could enrol as simple competitors.
12. A team should agree all the above rules and present a written agreement to the homologation desk.
13. Only teams that agree the general rules are authorized to pass the test and to compete if accepted.

**3. Competition rules**

1. The robot size should not exceed (30\*30\*30) cm (large, long, high), and  6 Kgr of weight to be authorized to compete.
2. The maximum authorized size includes all artifacts:  arms, handlers, special features…
3. Robots should be controlled with a programmable device or a remote device and should be fully autonomous.
4. The remote controlled robot is a robot with a control system which is not embedded on the robot, but still autonomous.
5. In case of remote control, the team should handle the security issues, several wireless LANs will be active all around.
6. Robots should be equipped with a Start button as well as an Emergency Stop button.
7. Start and emergency Stop buttons should be placed at the top of the robot and should be easily accessible.
8. Robots without Emergency Stop will not be authorized to compete.
9. Robots should adapt to lighting conditions available at the competition.
10. Competition includes a qualification round and a final round.
11. Prior to compete the robots are placed in their respective starting positions by competition judges.
12. The starting positions are around the grey inner disc.
13. Only a team member is authorized to lunch the robot by the kick- off.
14. The competition starts by a kick-off, given by the Judges.
15. From the kick-off to the end of a fight, teams are not authorized to touch their robots.
16. The competitions judges and organizers are not responsible of the damages that could affect a robots during the challenge.
17. The competition is organized in qualification round and final round.
18. In qualifications the maximum time of a competition is 3 minutes.
19. In finals a competition takes 5 minutes.
20. The competition is ended when a robot is out of the arena or by the end time, the robot remaining within is the winner; Winner is awarded 300 or 600 pts depending on the robot type.
21. If both robots remain on the arena, the robot ahead of his opponent, securing the gray inner circle, get 300 pts.
22. If both robots remain within the inner grey circle, the robot ahead of his opponent is the winner, and receive (0) points.

**4. Evaluation rules**

1. Evaluation is based on the total of points obtained from the addition of score1 + score2.
2. Score 1, evaluates the Robot, see table 1, it is attributed by the homologation desk.
3. Score2 evaluates the robot performance, see table2. It is based on the competition performances.
4. The winner is the team obtaining the maximum points.
5. In case of conflict only the team leader is authorized to discuss with the evaluation desk, after been authorized to.

**4.1 Score N1: Robot rating N1**

|  |  |  |  |
| --- | --- | --- | --- |
| **I- Mechanical design** | | | **Score** |
| Proof of mechanical design | Proof of mechanical design :1- Did you use design software? | Yes/No | 40 |
|  | 2- Is your Robot close to your Design? | Yes/No | 40 |
| Fitting the competition spirit. | 3- Did you assemble your Robot within the competition? | Yes/No | 40 |
|  | 4- Evidence of professional self design. (solidworks sheets or equivalent) | Yes/No | 40  only if design sheets are presented |
|  | 5- compare the prototype to the design |  | 40 if close |
| Mechanical design ranking, | | |  |
| **II- Control board design** | | |  |
| Proof of board design(Embedded controller) | Proof of electronic design: 1- Did you use design software? | Yes/No | 40 only if design is presented |
|  | 2- Is your board close to your design? | Yes/No | 40 only if the board is self made |
|  | 3- Did you assemble your control broad within the competition? | Yes/No | 40 |
|  | 4- Evaluate the quality of the board |  | 40 if very good & self made. |
| Proof of board design(remote controller) | Proof of electronic design:1- Did you design your wireless LAN ? | Yes/No | 40 ( only if design is presented) |
|  | 2- Are you using a wireless networks protocol? | Yes/No | 40  only if the boards are  self made |
|  | 3- Micro-controller borad + wireless com |  | 20 points |
|  | PC controller  + wireless com |  | 10 points |
| Control design ranking | | |  |

**4.2 Score N 2: Competition rating N2**

|  |  |
| --- | --- |
| ***Position*** | ***Score :*** |
| Removed the adversary from  the Arena | 300 pts (remote controller),  600 (Embedded) |
| Fixed the adversary at its half-land  (out of the inner cercle) | 100 pts (remote controller), 200 (Embedded) |
| Fixed the adversary at its half-land  ( within the inner cercle) | 0 pts |
| First robot to win based on time | +200 point |
| Second position based on time | +100 point |
| Third position based on time | +50 point |

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