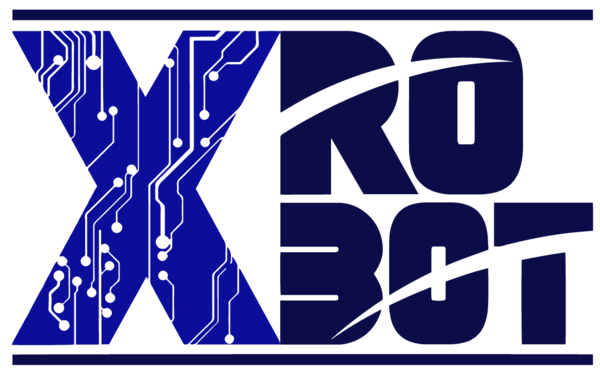
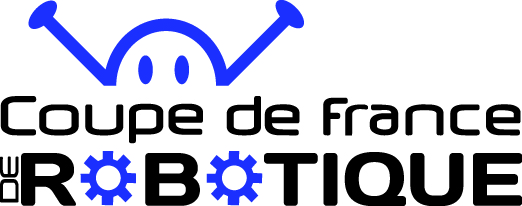
**System requirement specification R1**

**Robot**

**deadline 13th february**

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**Content**

1. **Dimensions**
2. **Energy sources**
3. **Other requirements**
4. **Embedded beacon**
5. **Match**
6. **Robot abilities**

**1 - Dimensions**

|  |  |
| --- | --- |
| REQU 1 | The perimeter of the robot shall not exceed 1200mm at rest, and 1500mm when deployed |
| REQU 2 | The robot shall start the match at rest |
| REQU 3 | A free space of 100m x 70mm shall be placed on the side of the robot |
| REQU 4 | The height of the robot shall never exceed 350mm. However it shall be tolerated that the height of the emergency stop button reaches 375mm. |

**2 - Energy sources**

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| --- | --- |
| REQU 5 | The robot shall be powered with electrical batteries |
| REQU 6 | Any Lithium battery shall be protected within an certified fireproof bag |

**3 - Other requirements**

|  |  |
| --- | --- |
| REQU 7 | The robot shall be started when a string is pulled |
| REQU 8 | The string shall measure >= 500mm |
| REQU 9 | The robot shall have an emergency stop button, activated when pushed from top to bottom |
| REQU 10 | The emergency stop button shall be red |
| REQU 11 | The diameter of the emergency stop button shall be >= 20mm |
| REQU 12 | The emergency stop button shall freeze any action and movement of the robot in less than 1s |
| REQU 13 | The robot shall stop automatically 100s after the start |

**4 - Embedded Beacon**

|  |  |
| --- | --- |
| REQU 14 | The robot shall be equipped with an embedded beacon |
| REQU 15 | The upper face of the beacon shall be placed at a height of 430mm from the ground |
| REQU 16 | The convex envelope of the beacon shall be, at any height, between a circle (diameter 70mm) and a square (length 100mm) |
| REQU 17 | The upper face of the beacon shall be entirely covered with Velcro (hook side) |
| REQU 18 | The beacon shall be placed as near as possible to the center of the robot (when seen from above). It shall be entirely contained in a circle of diameter 200mm, whose center is the mass center of the robot |
| REQU 19 | The beacon can only be filled with sensors. |
| REQU 20 | If a portion of the beacon is removed to integrate sensors, the height of the removed part shall not exceed 20mm. |
| REQU 21 | The beacon shall be able to support a weight <= 300g |

**5 - Match**

|  |  |
| --- | --- |
| REQU 23 | The robot shall be installed on the match table in <= 3min by two persons |

**6 - Robot abilities**

|  |  |
| --- | --- |
| REQU 24 | The robot shall be able to play 3 matches (3 x 100s) in a row when its batteries are fully charged |
| REQU 25 | The robot shall be able to move forward on a straight line with a precision of 5cm after 1m |
| REQU 26 | The robot shall be able to spin around a vertical axis with a precision of 1° (rotation <= 90°) or 2° (rotation > 90°) |
| REQU 27 | The top speed of the robot shall be >= 0,5m/s |
| REQU 28 | The robot shall reach the speed of 0,5m/s in less than 1s |
| REQU 29 | When rolling at full speed (0,5 m/s), the robot shall be able to brake and stop in less than 200mm |

Design

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