

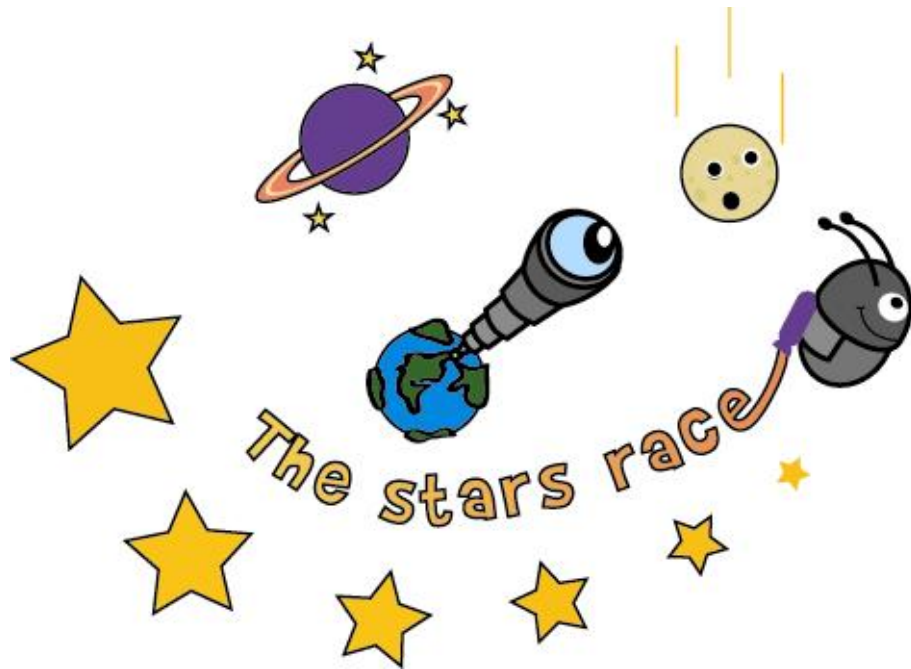


2009 RULES FOR EUROBOT JUNIOR

PAGE 1 SUR 33



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This year robots are going to have the gears in the stars. Many elements prevent astronomers to observe the sky and its stars. Robots are going to help them to put systems in place in order to improve this observation. They will place telescopes face to the stars, switch of the more artificial lights in order to discover constellations, take down the moon, recreate the ancient site of Stonehenge and send observation probes in the space.





CONTENTS

1. PRESENTATION.....	3
2. AIM OF GAME	4
3. PLAYING AREA AND GAME ACTIONS DESCRIPTIONS	5
3.1. PLAYING AREA	5
3.2. STARTING ZONES.....	6
3.3. THE TELESCOPE.....	7
a. <i>Description of game elements and disposition at the beginning of game ..</i>	<i>7</i>
b. <i>Action and constraints.....</i>	<i>8</i>
3.4. THE CONSTELLATIONS.....	9
a. <i>Description of game elements and disposition at the beginning of game</i>	<i>10</i>
b. <i>Action and constraints.....</i>	<i>11</i>
c. <i>Cooperation action: Take down the moon</i>	<i>12</i>
3.5. STONEHENGE ARCHES	14
a. <i>Description of game elements and disposition at the beginning of game</i>	<i>14</i>
b. <i>Action and constraints.....</i>	<i>16</i>
3.6. OBSERVATION'S PROBES	18
a. <i>Description of game elements and disposition at the beginning of game.</i>	<i>18</i>
b. <i>Actions et constraints</i>	<i>19</i>
4. ROBOTS.....	22
4.1. AUTONOMOUS PART (AP).....	22
4.2. ROBOT AND AP DIMENSIONS	23
4.3. POWER SUPPLY	24
4.4. COMMAND SYSTEM FOR THE ROBOT	25
4.5. CABLE	25
5. MATCHES.....	26
5.1. IMPLEMENTATION	26
5.2. THE MATCH	27
5.3. COUNTING POINTS	28
6. MEETINGS	29
6.1. APPROVAL	29
6.2. QUALIFICATIONS	29
6.3. FINAL PHASES.....	30
6.4. QUALIFICATION FOR EUROBOT JUNIOR FINAL.....	31



1. PRESENTATION

Eurobot Junior is opened to the young people from 7 to 18 years old (or until the last year of high school) forming a club, a group of friends or in a school structure (pupils, schoolchildren or high school students). Their aim is to allow young people to be the actors of their learning and to put into practice knowledge and know-how, by participating in a playful and friendly event.

A team is a group of young people who made a robot for the contest. A young person can only be a part of a single team, **even if teams belong to the same structure**, but we encourage the sharing of experiences between the teams. The project can be supervised by an adult (teacher, parent, animator, and so on) but the robot must be conceived and built by the young of the team.

One structure (club, school, etc.) can supervise and register several teams, in compliance with the conditions of registration.

Eurobot Junior has as vocation to take place in a friendly and sportive spirit. As in any match, the decisions of referees are without appeal, with the exception of an agreement between all the parties.

EUROBOT JUNIOR WILL CONGREGATE TEAMS SELECTED ON THE NATIONAL FINALES IN FRANCE, BELGIUM, RUSSIA AND MAYBE IN OTHER COUNTRIES.



Read very carefully the rules from the first to the last page in order to take knowledge of the differences against the last years!



2. AIM OF GAME

The robots have to put in place or recreate systems permitting a better observation of the stars :

- **The telescope, first tool of the astronomers** : robots have to swivel the lever of the telescope around up to the zone permitting the best observation of the sky.
- **The constellations, the artificial lights of the cities prevent, very often, the observation of the stars** : robots have to move the switches in order to turn off the lights and allow, like this, a better observation of the stars and constellations formed.
In the same way, the moon, too bright sometimes, bothers the astronomers : robots have to help each other in order to take down this one, and so, permit to reveal extra stars.
- **The arches of Stonehenge, the astronomy is a very ancient science** : robots have to move the arches in order to reconstitute the prehistoric site of Stonehenge, that has might be served of observatory.
- **The observation probes, in order to improve the knowledge of the stars, the observation with eyes is not always sufficient** : robots have to throw probes in the space.



3. PLAYING AREA AND GAME ACTIONS DESCRIPTIONS

Important Notice:

Organizers commit themselves in respecting the best accuracy in the realization of the playing area. However, margins of +/- 2% compared to playing area dimensions and of +/-20% compared to game elements size will be reserved. Any complaint concerning these margins shall not be recorded. The eventual modifications of this information will be indicated in a complementary document (Frequently Asked Questions) diffused to every teams.



These margins are not applicable to robots' size constraints.

3.1. Playing area

The playing area is a rectangular plane, 3000 millimeters long and 2000 millimeters wide, made up of two wooden pieces (2000mm long, 1500mm wide each), inclined of 10% towards the public. The details of the colours of the table are given in appendix.

A wooden edge, painted as precise in appendix, is 50 mm height from the playing area's floor. This edge is outside of the table and so that does not enter in the playing area's dimensions.

The starting zones are squares located against the edges on both sides (see §3.2). Note that the telescopes are half outside the playing area. This detail as well as the disposition of the elements figure in the appendix.



All dimensions of the playing area as well as the positioning of variable components are indicated in the sketches provided **in appendix only**. In case of ambiguity between the illustrations in the rules and in the appendix, it is those of the appendix, that it will have to take into account



3.2. Starting zones

They are located on the edges of the table and are represented by a painted square of the team's colour, that the dimensions figure in appendix (yellow at right, red at left, seen by the public).

Before starting, main robot and its Autonomous Part (see 4.1) shouldn't be out of the limits of the starting zone.

In case of an AP (Autonomous Part) following line, it is authorized to place the AP against the border of the table, in between on the white line drawn for that purpose. It is indeed rarely tolerated that the AP leave outside the starting area of the robot.

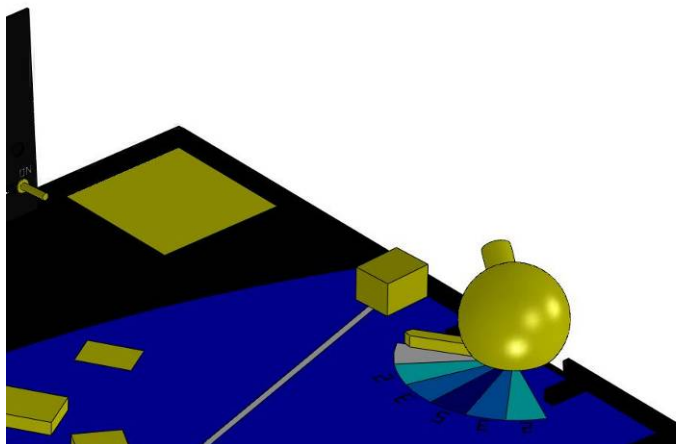


Figure 1

All the pictures was made with SolidWorks software



Team will be declared failed, in case of the robot will not completely leave its starting area and if its AP stayed against the border, without moving.

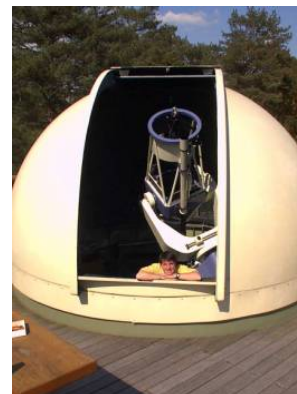
It is sufficient that one of both is not more in contact with its starting area (or border for the AP following of line) in order to the team will not be considered as failed.

The robots will have to improve the observation of the sky in acting on objects (telescopes, switches, arches ...) of the colour of their starting area (yellow or red). An agreement between the teams in order to play the game elements of the other team is not allowed.



3.3. The telescope

The telescope, optical tool permitting to observe the stars, is the main tool of the astronomer. The robots are going to help to point them, the more precisely as possible in order to improve the observation of the stars.



a. Description of game elements and disposition at the beginning of game

For this action, the robots will find on each side of the table, a telescope :

- The telescopes (one per team) are built up of a wooden lever, swivelling, that is based on the playing area, linked with the dome of the telescope. At the beginning, they are pointed in to look outside of the table (Figure 2).
- The lever is placed in the start position, that is the white section. This lever is bevelled at its end (Figure 2).
- The counting area is composed of 5 areas of different colours, permitting to determine the optimal position of the lever. More the colour is dark, better the telescope is pointed, more the area brings back stars (Figure 2).

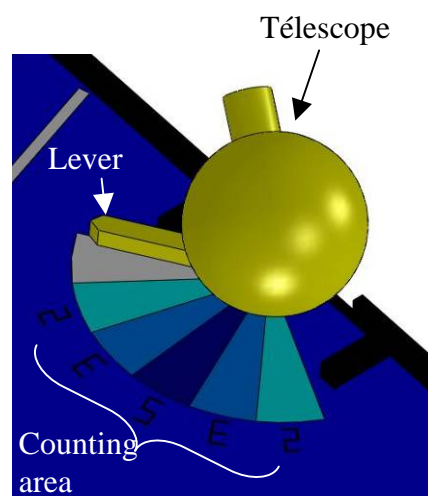


Figure 2



b. Action and constraints

Action:

Like real telescopes, the robots have to make the lever of their telescope swivel the more precisely as possible, up to the best orientation in order to observe the sky. It is this position that brings back the more stars.

It is the head of the lever that determine the counting area that will be counted. The number of stars obtained depends on the location of the lever in this counting area. This action brings back up to 5 stars (Figure 3).

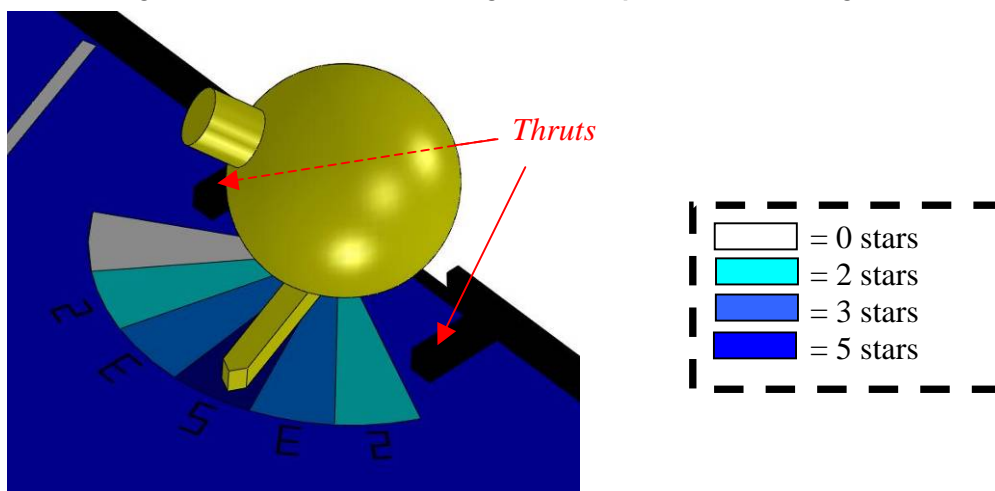


Figure 3 (=5 stars)

Constraints:

The robot will only obtain stars when the lever of its telescope reaches the beginning of its counting area, that is to say, the first sector bringing back points.

The robot is authorised to only make the lever of its colour swivel.

The telescope does have to be swivelled only in operating its lever ; the dome or the telescope do not have in any case to be touched by the robots.

Remark: Thrusts are planned in order to limit the rotation of the lever (Figure 3).



3.4. The constellations

In the night, the observation of the sky and the constellations, is, today, very difficult for people living in cities. The light pollution is at the origin of this problem, caused by a lot of artificial lights.

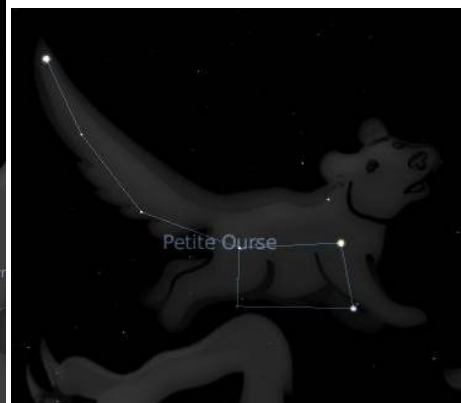
So, the robots will contribute to the reduction of those lights by moving some switches on the position "OFF". This action will favour the observation of the sky and constellations like Ursa Major and Ursa Minor.

Did you know ?

The most well-known constellations are made up like this :

- **Ursa Major** possesses 15 main stars
- **Ursa Minor** possesses 7 main stars

But, in reality, they are both composed of thousands stars and some of them aren't observable with eyes.



Illustrations given by Astronomy section of Planète Sciences:

<http://www.planete-sciences.org/astro/>



a. Description of game elements and disposition at the beginning of game

- **The sky** is represented by a wooden vertical plank, painted in black containing some round holes which represent the stars' locations. (*figure 4*)
- **The stars** are represented by white circles, not visible (hidden behind the plank) at the beginning position (*figure 4*). The stars are arranged so that they form 2 constellations.
- **The switches** : each one, represented by a red or yellow wooden cylinder sticking out the black plank, representing the sky, is put on position "ON". There are 6 switches in total on the playing area (3 are red and 3 are yellow). For each team : 2 switches are located at the bottom in its playing area's half whereas, the third switch is located in the opposing part and it is elevated (figure 5) (dimensions in appendix).

Stars' location of Ursa Major

Sky

Stars' location of Ursa Minor

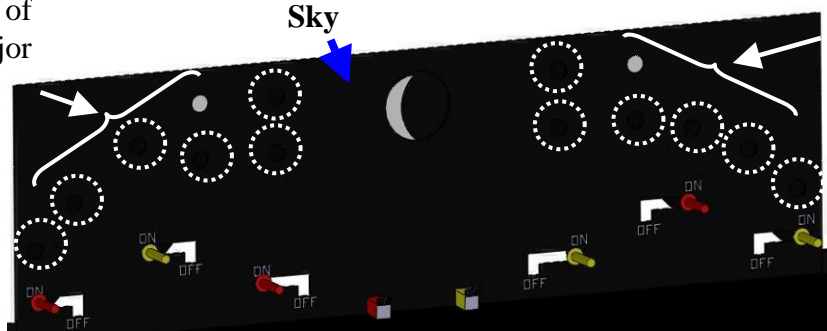


Figure 4

Remark : One star of each constellation is already visible even with the presence of light sources.

Switches

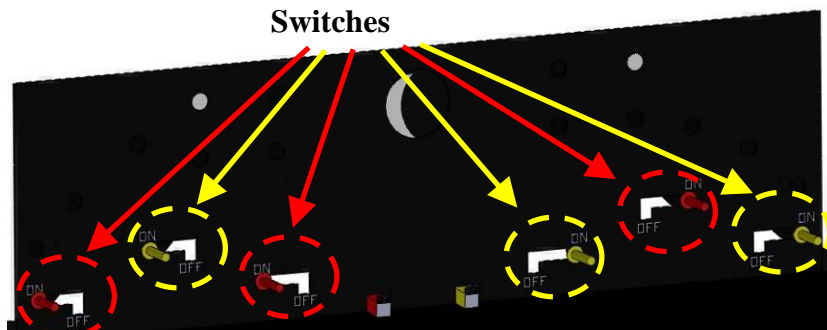


Figure 5



b. Action and constraints

Action :

The robots have to move, parallel to the ground, 3 switches each from position "ON" to position "OFF".

Attention, since the sky is vertical, the switches aren't parallel with the surface of the playing area (*figure 6*).

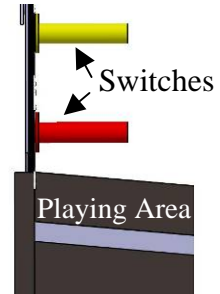


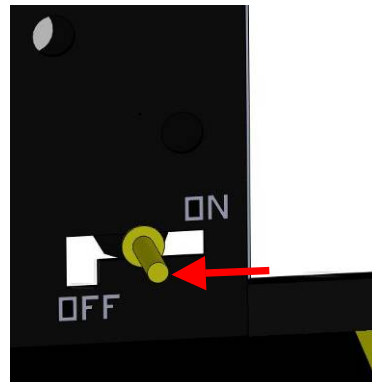
Figure 6 (side's view)

For each switch located on position « OFF », 2 stars become visible in the corresponding holes in the sky. When the 3 switches on the same side turned off, a constellation stands out.

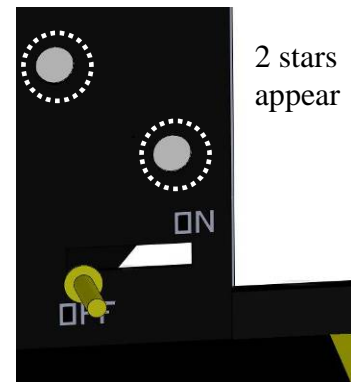
It's the positioning of the switch on position "ON" which will count if the stars don't appear. A switch is validated when it slides completely on position "OFF" in its notch.



Position "ON"
(Not valid)



Halfway position
(Not valid)



Position « OFF »
(Valid)

2 stars appear

The positions ON and OFF will write clearly on the sky

This action brings back 2 stars by switch. Each team can collect up to 6 stars.

Attention, the constellations aren't assigned to a team in particular. They are just present for the educational sight and the visual effect.



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Glimpse when all the switches are on position "OFF"

Constraint :

Each robot has to only move the switches of its colour without interfere with the adverse robot.

c. Cooperation action: Take down the moon

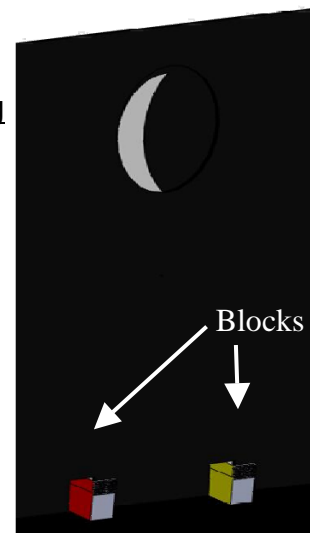


The moon's light, equally, obstruct the observation of the stars in the sky.

The robots, together, have to make the moon disappear to let appear some extra stars in the sky.

Description of game elements and disposition at the beginning

- The moon is present at the beginning of the match (*figure 7*).
- The wooden blocks are rectangular (dimensions in appendix), positioning on the ground and obstruct the knocking over of the moon (*figure 7*).





PAGE 13 SUR 33

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The blocks have, at their end, a metallic piece and a hook side velcro, in order to make easier the gripping (*figure 8*).

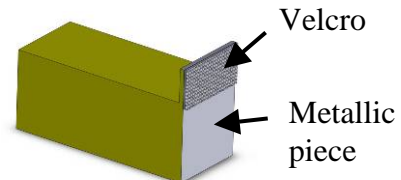
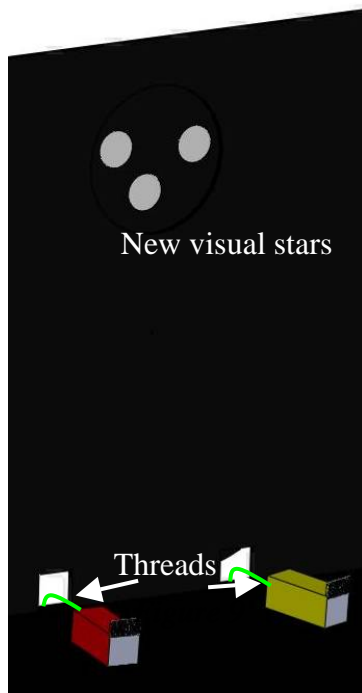


Figure 8

Action et constraints

Each robot has to only take out its colour block holding back the moon (*figure 9*).

The retreat of the 2 blocks allows the moon's knocking over and the sight of new stars (*figure 9*).



The cooperation action is only validated when the 2 blocks are completely taken out. The retreat of only one block isn't enough to obtain the stars allowed to the cooperation, during the qualification phases. Each block is pushed in the sky for 3 cm.

The cooperation action is allowed if both teams approve this action before the game and if the referee is warned in order to observe and validate the action.

Remark : For an easier maintenance, each block is attached, behind the sky, by a 10 cm thread (*figure 9*).

The cooperation gives 3 extra stars for both teams.



Attention, the cooperation disappears during final phases, but the action "take down the moon" continues. 3 stars will be given to the team who will retreat completely its block, even if the other block stay in place.



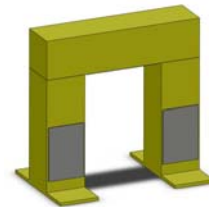
3.5. Stonehenge arches

The most famous prehistoric monument in England, Stonehenge, may have been used to observe the sky, the stars, or to study the seasons. Robots will also help the astronomers in rebuilding this archaeological site in order to discuss this theory.

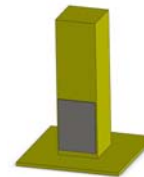
a. Description of game elements and disposition at the beginning of game

For this action, each robot has :

- 3 arches coloured with the team colour, which are U shaped. These wooden arches are already assembled (rigid body) and stood up at the beginning of the game.



- 1 stone coloured with the team colour, figured by a wooden parallelepiped, initially placed stood on a base



In order to make their prehension easier, arches and stones are made with metallic pieces, on one side only. Arches only are also equipped with hook side Velcro. Please refer to Figure 10.

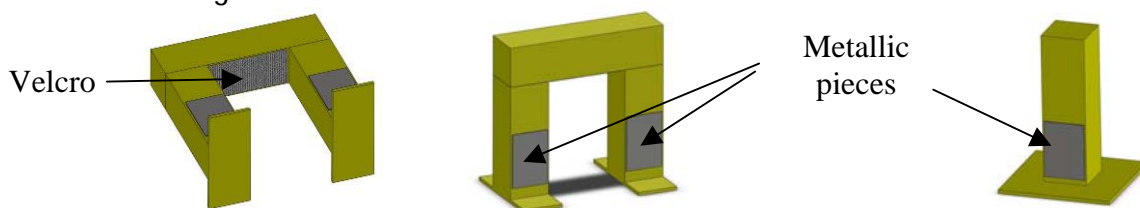


Figure 10

At the beginning of the game, arches and stones are placed according to the following figure (figure 11).

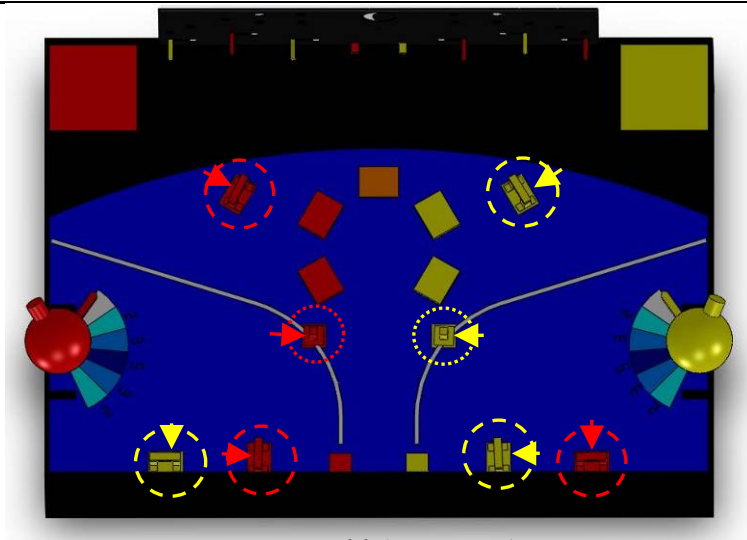


Figure 11 (Top view)

Remark : The arrows are indicating the initial position of the metallic pieces.

- The arches sites, are elevated and parallel to the playing area, allowing to place arches in order to rebuild Stonehenge (dimensions in appendix). 5 sites are present : 2 reds (for the red team), 2 yellows (for the yellow team) and 1 orange (common for both teams) (Figure 12).

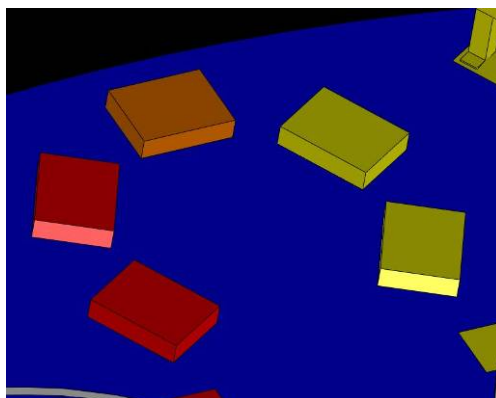


Figure 12



- The **Stones sites**, (one red and one yellow) are placed on the playig area (they're not elevated) against the bottom border in front of the assistance (*figure 13*)

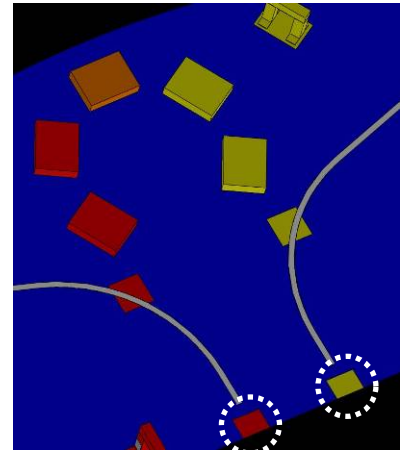


Figure 13

b. Action and constraints

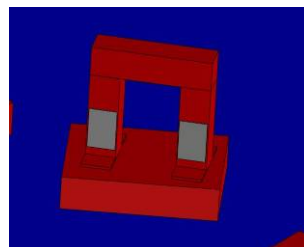
Action:

Each robot will have to drop two of their arches on the elevated sites of his colour. The stone must be placed on the appropriate coloured site, placed on the playing area.

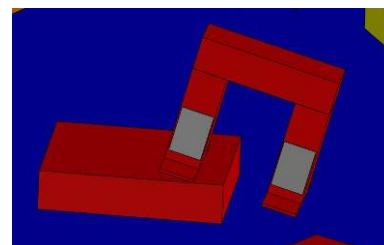
Once one robot has dropped its 3 first game elements (the stone and the two first arches), it can drop its remaining arch on the common site.

Only the arches and stones correctly arisen in their appropriate sites will be validated

- An arch will be considered as **valid** if there is no more contact with the playing area and if it is placed arisen.



Valid arch

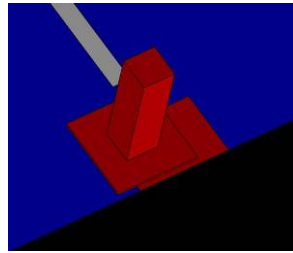


not valid arch

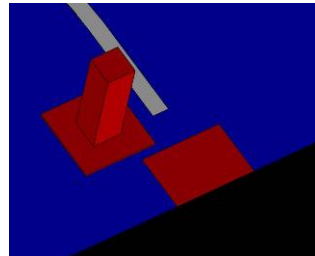


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- A stone will be considered as valid if it is arisen and its base covers, even partially, the appropriate area.



Valid stone



Not valid stone

Each arch or stone scores 3 stars
This action can score up to 12 stars

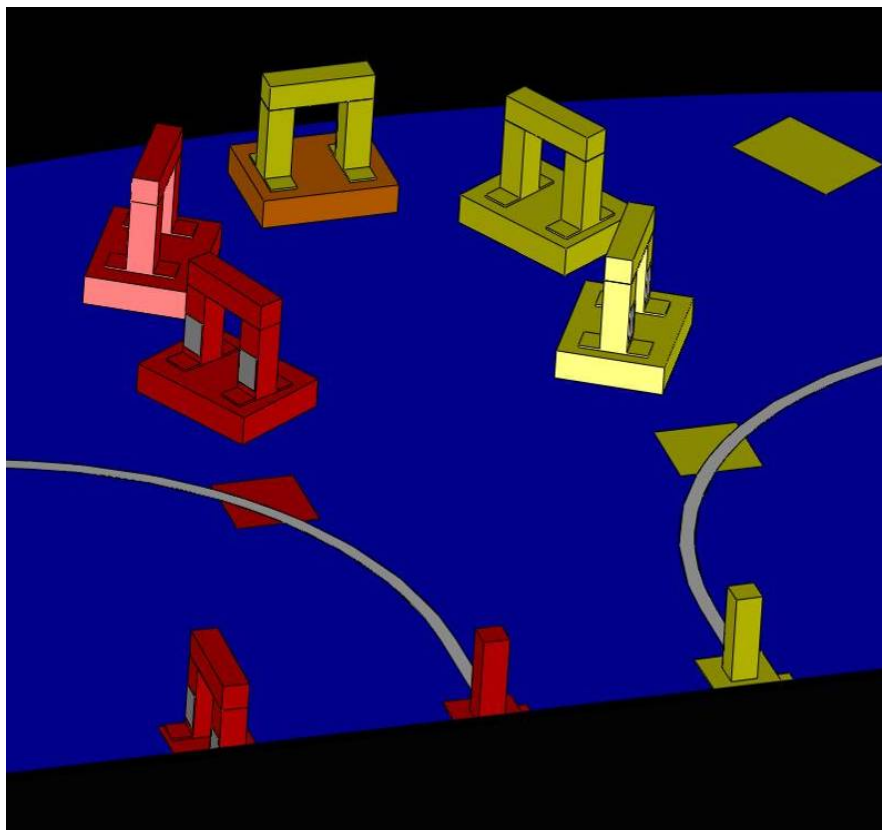


Figure 14 (Preview of rebuilt StoneHenge)



Constraints :

Arches and stones shall be placed arisen otherwise they won't be considered as valid.

One robot shall only move its own game elements. If it hits one of its challenger's elements, it must immediately arise it, or a penalty should be attributed to the team.

Only one of the additional arch shall be placed on the common site. The other team is not allowed to place its arch, or to act in order to take out its challenger's arch. A penalty will be attributed to any team who doesn't respect this rule, since this kind of behaviour isn't considered as fair play. (*please refer to paragraph 5.3*)

3.6. Observation's probes

From Earth, the observation isn't enough to have a thorough knowledge of the universe and its stars. To study more and more distant stars, planets and their natural satellites, the sending of probes, in space, is necessary.

a. Description of game elements and disposition at the beginning of game.

- Observation's probes are represented by ping-pong balls placed, from the beginning, in the robot or its AP. Each robot can load 4 ping-pong balls.



- The space, where the probes (balls) have to be launched, is delimited by a net placed above the sky (dimensions in appendix), at the bottom of the playing area, in front of the assistance (*figure 15*).



Figure 15

b. Actions et constraints

Action:

The robots can only launch their probes when they are completely in the blue zone. A ball launched from the black zone won't be counted at the end of the match (figure 16).

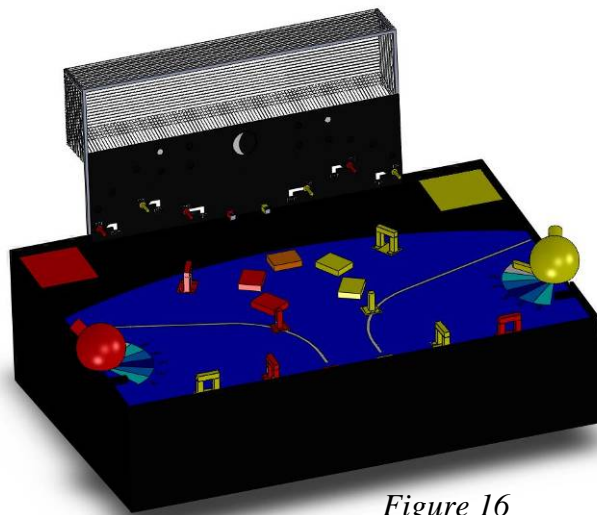


Figure 16

If the throw failed, but the ball falls again on the playing area, the robot will be allowed to retrieve this ball and try again.



PAGE 20 SUR 33

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At the end of the match, the ping-pong balls, only contained in the net will be counted. Each probe in the net, being launched from the blue zone, brings back 1 star.

If a ball went into the net, but get out by bounce, it will be put back, by the referee, in the net, at the end of the match, to be counted.

Constraints :

Each team will have to take 2 games of 4 ping-pong balls, one of white yellow balls and one of red balls.

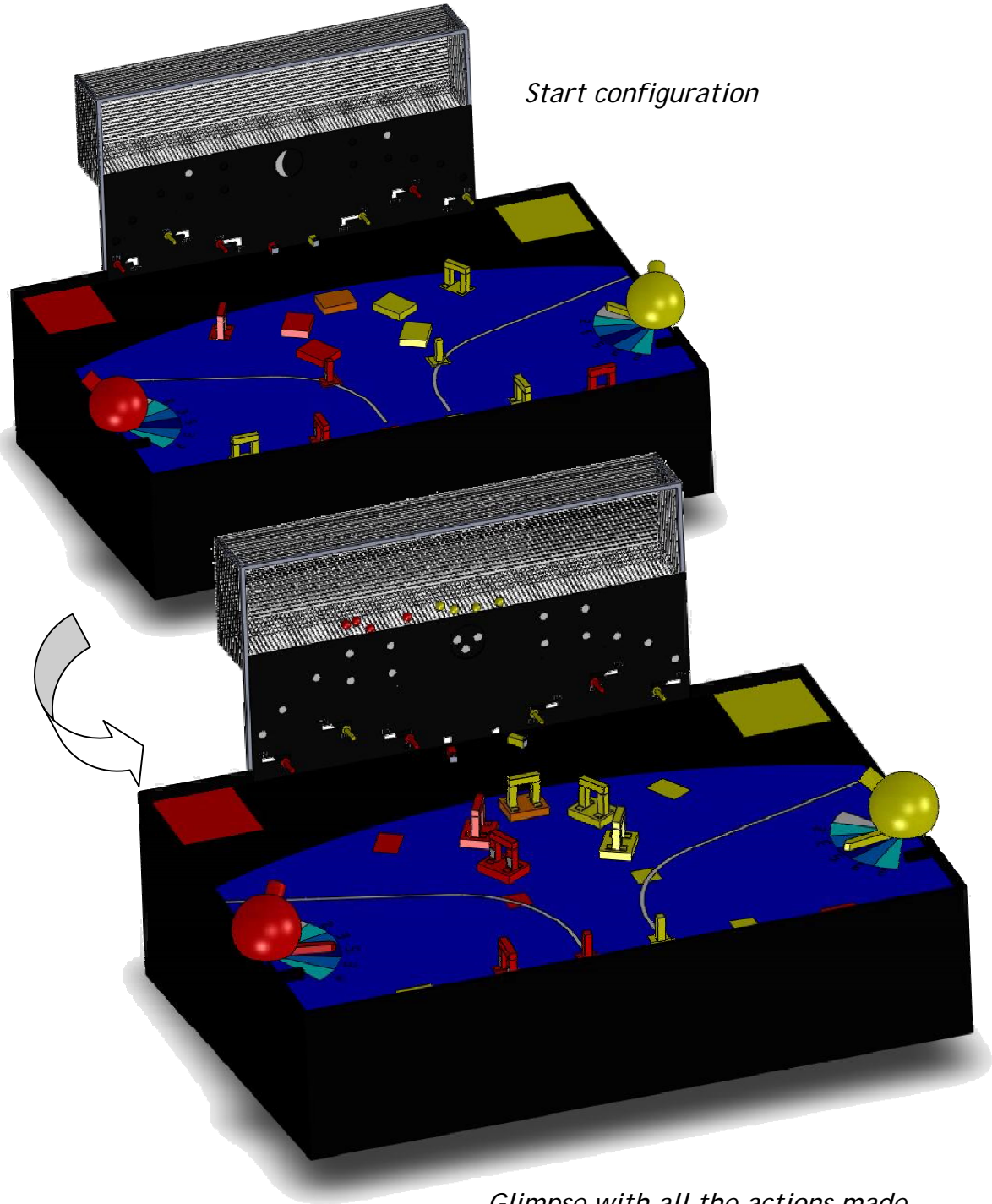


Attention, the technical painting balls is the responsibility of teams. This layout permits teams to do some adjustments with the same balls wich will be used at the contest.

Several probes can be launched at the same time.



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Start configuration

Glimpse with all the actions made



4. ROBOTS

Each team cannot homologate more than a single robot and a single autonomous part (AP).

An autonomous part can play only with the robot with which it was conceived and approved. We cannot re-homologate it with another robot.

Teams have to build the robot and its system of piloting (or of command). These two parts are connected by a cable which allows to supply the robot with electricity and to pilot it.

A robot or its autonomous part (cf. 4.1) does not have to block the opposite robot or the opposite autonomous part. In case of voluntary action of this type indicated by the referees, the team can be punished (cf. 5.4).

A robot does not have to cause voluntarily damage to the opposite robot, or to the playing area.

Any action aiming at preventing the good progress of the game will be sanctioned.

4.1. Autonomous Part (AP)

The robot has the possibility of releasing an autonomous part. Attention, this one does not have to remain voluntarily immovable in order to block the game, and its departure shall not require any human intervention once the match is started.

A robot containing in its dimensions its power supply (battery) and its intelligence (no remote control) is considered as autonomous.

The autonomous part can realize all the authorized actions of game as soon as it is separated from the robot. It has to have no connection between the robot and the AP there, except for the signal for departure.

The construction of an autonomous part is optional.

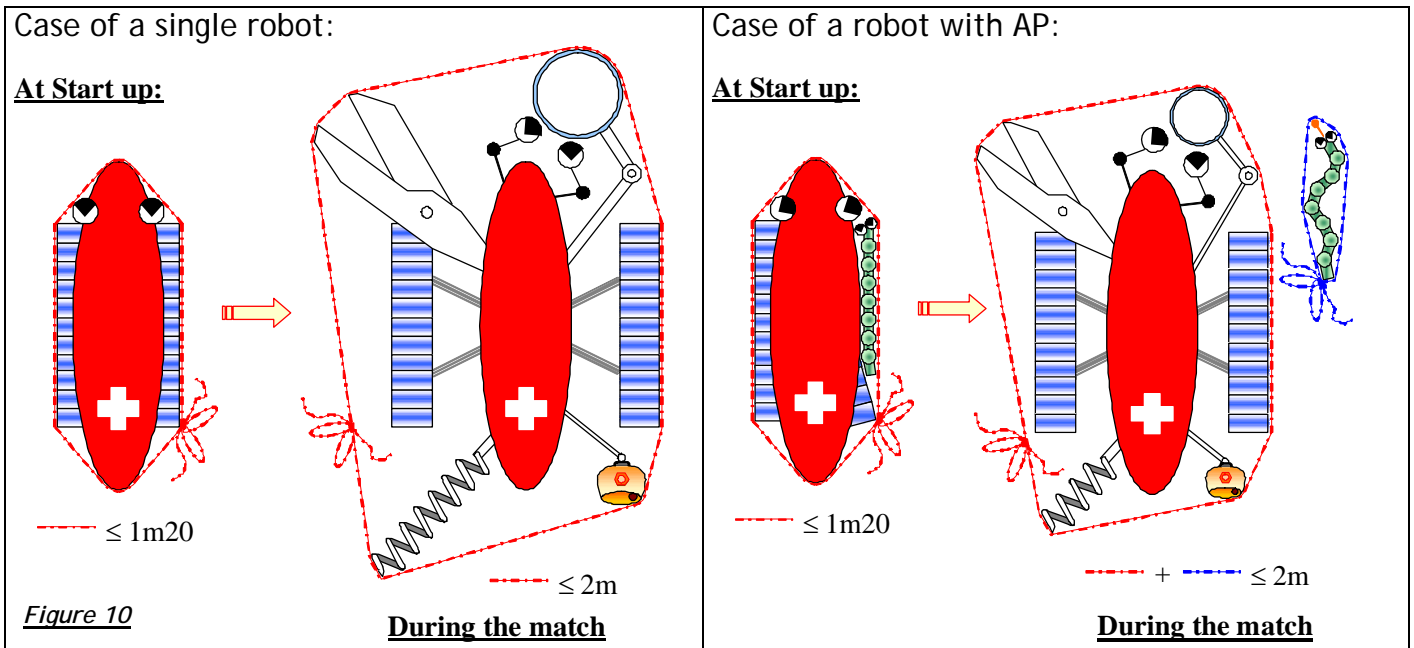


Once its action achieved, the autonomous part shall not be in its challengers' way or be voluntarily immovable next to a game element.



4.2. Robot and AP Dimensions

Perimeter of the robot is measured as shown on this bitmap:



The perimeter of the whole robot and its AP does not have to exceed 1200 mm at the start of the match. The sum of the perimeter of the group robot + AP totally spread does not have to exceed 2000 mm during the match.



If the autonomous part is a line follower, which would start outside the starting area (against the border, in front of the line), the start perimeter will be verified as previously described (AP against the robot).

The height of the robot and the AP does not have to exceed 400 mm at first and during the matches.

The robot and the AP have to consist of united elements some with the others (and cannot contain and put down parts or elements on the playing area, except 4 ping-pong balls).



4.3. Power supply

The source of energy passed on in the robot by the cable is only electric. The authorized maximal voltage is 13,8 V (measured between 2 wires of the cable and the robot).

This power supply is not supplied in the daytime with the competition. On the other hand, the teams have access to the sector (E.D.F. 220V/50Hz, French plug in France need adapter!) and can use batteries (they must be waterproof and with a maximal tension of 13,8V).

Attention! The supply systems must be easily transportable.

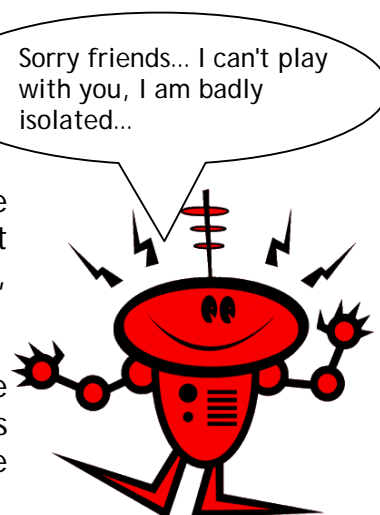
Teams can go up / lower walking/stairs by going towards the stage where take place the matches.

All the potential power supplies stored in the robot are authorized (batteries, springs, compressed air, gravitational energy...), except sources of energy operating with chemical reactions as combustions or pyrotechnic processes, which are forbidden for safety reasons. Furthermore, the use of corrosive products is forbidden and the projections of liquids are not admitted.

Systems with compressed air (pneumatic systems) do not have to exceed a pressure of 4 Bars and a product Pressure x Volume of 80 Bars x Liter, according to the current law.

In a general way, all systems aboard robots has to respect the current laws; in particular, the elaborated systems have to put in danger neither the team, nor the organizers, nor the public, as well on the stands as during the matches.

Generally, any system considered dangerous for the audience shall be refused. It is notably forbidden to use power supplies having bare details under voltage (battery clips must be covered!).





4.4. Command system for the robot

Every team has to have a command desk, activated by a single pilot.

The system of command is a case allowing controlling the electric devices of the robot. It is connected with the robot only by electric cable. Quite other system of communication of the robot with the outside during the matches is forbidden.

4.5. Cable

The electric cable connecting the robot with its system of command is not supplied;

It must be conceived and realized by every team, according to its needs.

The cable has to have a minimal length of 5 meters for reasons of mobility of the robot on the playground. It is maintained in the air by the co-pilot by means of a pole supplied by the organizers.

During the match, the co-pilot does not have to interact in the piloting nor in the regulations of the robot (voltage of power supply for example).

The cable must not be used to drive the robot, or help it to set up right in case of reversal at the risk of penalty.



Because of the vertical plank representing the sky, the pilot and the copilot placement will have to be in consequence, presented in the following picture (*figure 16*).

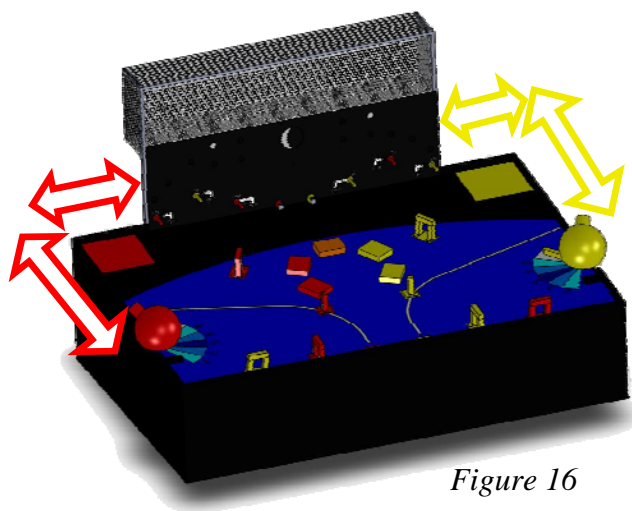


Figure 16



5. MATCHES

The matches have duration of 90 seconds.

Only 2 persons by team are authorized to go on scene (and behind scene) to compete for the matches: The driver and the co-pilot for the match.

5.1. Implementation

At Start-up of the meeting, the elements of the playing area and the playing area itself are settled according to the indications given onto the plans of the appendix (see bottom).

At the arrival on the playing area, each team has 3 minutes to proceed to the implementation of its robot and the possible autonomous part. The system of command is placed near the playground.

It is asked to reduce at least the whole necessary equipment for the implementation of the robot (a single power socket can be supplied for each robot).

A robot which is not ready at the expiration of this delay is declared failed for the match. Attention, the opponent robot will have to play its match alone on the playground and need to mark points to be declared victorious. (see 6.2)

When 2 robots are in place, the referee asks the participants if they are ready. No contesting can be made on the arrangement of the elements of game after the beginning of the match.



5.2. The match

Attention: for the final phases, also read the part 6.3 too.

At the signal of the referee, each robot is started up and then evolves under the control of the pilot.

On no account it is allowed to touch robots, AP, elements and playground during the match.

In case of absolved requirement, the referee can however authorize an action. Any manual intervention on a robot, an AP, an element or the playground, without explicit authorization of the referee, provokes the elimination of the team for this match (failed).

No element taken out accidentally of the playing area can be there put back before the end of 90 seconds. At the end of the meeting, the pilots stop robots and AP, which are then removed from the playing area by the referee. The referee gives then the result of the match. The winner is the one who has most stars. The other team is declared losing (see left 5.3). Before leaving the playing area, both teams have to validate the result of the match. This last one is then irrevocable.

In case of situation with difficulty arbitration, the referees save themselves the decision to replay or not the match.

If both teams marked 0 star during the 90 seconds of game, the result of the match will be a double defeat.

We consider as being failed a robot and an AP not going completely out of the starting zone during the match (see left 3.2) or further to a decision of refereeing.




5.3. Counting points

This year, this is not points but Stars which will be counted. Winning team will be the one which will have the most stars.

At the end of the match, referees will count the Stars of each team in the following way (details on actions giving stars in sections 3.3 to 3.5):

- 2, 3 ou 5 Stars by lever placed
- 2 Stars by switch placed on position « OFF »
- 3 Stars by arch well placed
- 3 Stars by stone well placed
- 1 Star by ping-pong ball into the net
- 3 Stars for cooperation validated

Which units in reality ?



The astronomers count on :

- ▶ **Astronomical Unit (AU)** corresponding to the distance between Earth and Sun (1AU=150 millions km approximately)
- ▶ **Light-year (LY)** corresponding to the distance covered by the light in one year (1LY=9000 billions km approximately)

Penalties

A penalty is a **subtraction of 3 Stars** from the result of the match and the general classification. A negative score will be rounded off in 0.



Reminder:

The penalties have for objective to compensate for damage after a possible incident during the progress of the game. A situation with penalty is considered as the non compliance with rules of the game, **this type of situation has to remain exceptional !!!** In case of repeat offence, by a team, of actions carrying in penalties or not allowed, the referees beware the right to declare the team fails. The committee of refereeing will be also attentive to the penalties distributed between several levels of meeting (region-nation-Europe).



6. MEETINGS

- National Final: in France, it will append at the end of March - beginning of April, 2007. It will allow considering 3 to 5 teams for European finale of Eurobot Junior.
- Eurobot junior is the last stage which gathers, always in the same friendly spirit, teams coming from various European countries.

For each of the meetings the progress follows the following phases:

6.1. Approval

- **Pre-Approval :**

Before the beginning of the meetings, robots and autonomous parts are subjected to the control of a referee who verifies their correspondence to the rules. The robot and the AP must be capable of showing easily the totality of their actions.

- **Approval :**

The robot and/or the AP have to, in 90 seconds, mark at least one Star (by swivelling the lever in the counting area, turning off a switch, placing an arch or a stone, launching a probe in the net). The robot, and the possible AP, are put in situation of match but without the presence of any opponent.

If the set constituted by the robot and the AP fills these conditions, it is declared approved.

6.2. Qualifications

During the phase of qualification, the approved teams will have the possibility of playing at least 3 matches.

On every meeting, each team wins Stars in the following way:

- For **victory**: number of Stars + 3 Stars of Bonus
- For **equality**: number of Stars + 2 Stars of Bonus
- For **Defeat**: number of Stars + 1 Star of Bonus
- For **Fail**: no Stars





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A classification is established according to stars accumulated to select the teams qualified for the final phase.

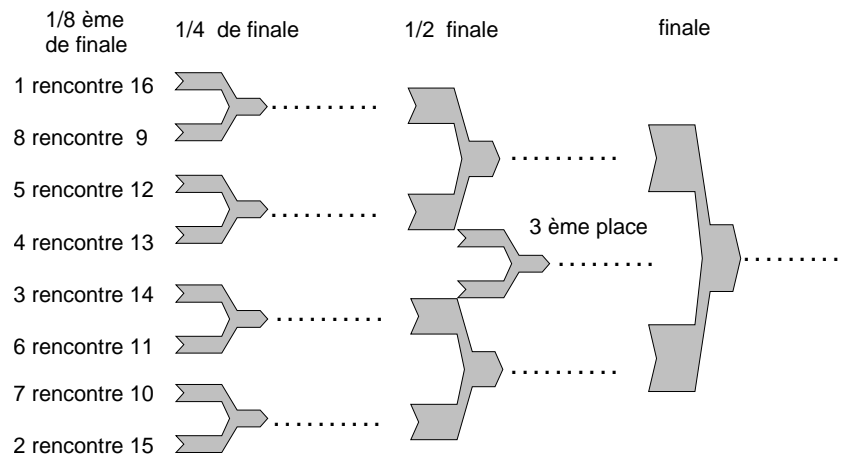
It is also this classification which allows the selection of the teams admitted to participate in national finale.

In case of ex-aequo at the end of this classification, the teams which win, will be decided according to the order of the following criteria:

- The team who will have more often cooperated
- The team who will have more victories
- The team who will have tuned off more lights
- The team who will have placed more arches or/and stones

6.3. Final phases

At the conclusion of the qualifying phase, the first 8 or 16 teams (According to the number of approved teams) establish the order of the matches of the final phase according to the plan opposite.



The meetings of the final phase are done with direct elimination.

In case of equality at the end of a match of final phase, it is the first team to have placed its stone which will be declared victorious.

Finale will deceive in two winning matches, as well during the regional meetings as during the national finales (France, Belgium, etc.) and Eurobot Junior.

Reminder: in final phases, cooperation doesn't exist anymore, the retreat of its block gives 3 stars to its team.





6.4. Qualification for Eurobot Junior Final

Each country participating in Eurobot Junior organizes a national meeting to determine the teams qualified for the European meeting.

The first 3 teams at the conclusion of the finales (and not at the conclusion of the qualifying phases) will be qualified for Eurobot Junior finale.

If the organization allows it, one or two supplementary teams, chosen among the teams having received a Special Prize, will be considered in finale European.



1. Technical appendix

The technic annexes composing of playing area and game elements dimensions and the painting references will be in an other document already published. You'll find it at the following link : www.planete-sciences.org/robot/ in Trophées.

2. Security rules

You will find below a list of safety rules to be taken into account.
This list is not exhaustive and may evolve according to the current legislations.

As a general rule, you have to elaborate systems which answer criteria of manufacturing which do not put in danger your team as well as the public as well on the stands as during the matches.

That is why we ask you to make sure that your systems are in accordance with the current legislation.

General precautions:

The road leading to gaming tables can contain staircases, notably during the access to the scene. The driver and the co-pilot are the only persons of a team authorized to enter on the scene and the back stage. The systems of supply and command must be easily transportable.

Embedded Voltage:

Every robot will have to correspond to the legal standards concerning the low voltage. The internal tension of the robots will not have to exceed 13,8 V.
To avoid any risk of fire, it is asked to pay a particular attention on the choice of supply leads, according to the intensity of the currents crossing them.

It is also strongly advised to protect the electric installation with a fuse, cabled in the closest to batteries.

If the team chooses a supply by batteries, we remind that only waterproof batteries can be used. The batteries of car, truck are thus forbidden.

Systems with compressed air (pneumatic)

Any system under pressure will have to respect the current law according to the French General Council of Mines.

Reminder of the decree 63 of January 18th, 1943 and Order of July 25th, 1943:





PAGE 33 SUR 33

... Rules... Rules... Rules... Rules... Rules... Rules... Rules... Rules... Rules... Rules...

- Maximal working pressure: 4 bars
- Tank maximum pressure x volume product: 80 bars x maximum liter.

Further information on:

<http://www.industrie.gouv.fr/sdsi/dgap/textes/1498-2.html>

Laser source

The usage of laser source is allowed on the condition of being able to justify its membership in the class 1. A laser of class 2 is tolerated if the laser spotlight can never cross the face of anybody in its normal functioning. The lasers of class 3 and 4 are totally forbidden.

Attention! Some low-cost laser pointing devices generate powers close to the laser of class 3. This is the reason why it is asked the corresponding documentary evidence indicating the membership in a class.



For all your questions and remarks, a referent of the refereeing committee will answer your questions on the forum of Planete Sciences in the Trophées 2009 section
<http://www.planete-sciences.org/forums/>
and eurobot-junior@planete-sciences.org

All the organization team of the Trophies of robotics wishes you a lot of fun and success in your realizations and gives you meeting quickly around a gaming table to activate the forces of the nature !

Robotically,

The refereeing committee of the Trophies of robotics and Eurobot Jr.

This file is a translation of the official Eurobot junior rules, you can find the original file there (in french):

http://www.planete-sciences.org/robot/trophees/docs/Reglement_T2008.pdf

