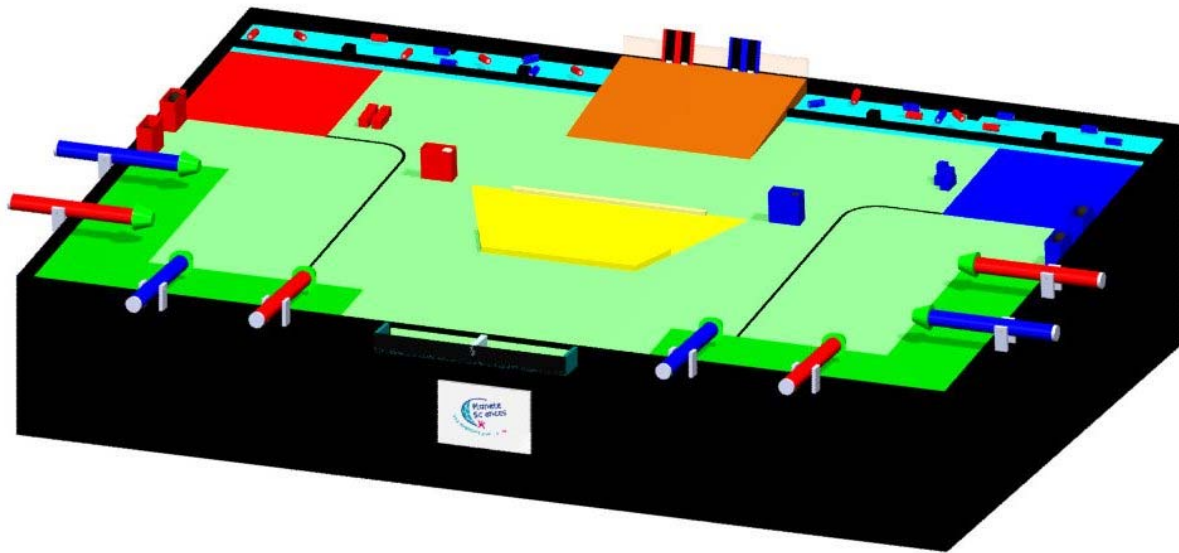


# 2010 RULES FOR EUROBOT JUNIOR

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

## The planet all worked up



This year robots are going again to work for the planet! Many animals and plant species disappear each year. Robots are going to help to renew and to maintain the biodiversity of the earth. For that, they will clean a river in order to improve the aquatic diversity, will replant trees in order to fight against the deforestation, will seed fields with different seeds, finally will contribute to the pollination and the reintroduction of animal species.



# THE PLANET ALL WORKED UP

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## 1. PRESENTATION

Eurobot Junior contest is opened to the young people from 7 to 18 years old (until A-level or equivalent) forming a club, a group of friends or in a school structure (pupils, schoolchildren or high school students). It aims at allowing young people to be the actors of their learning and to put into practice their knowledge and skills, by participating in a playful and friendly event.

A team is a group of young people who built 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 members of the team.

Please check the conditions of registration with the national organiser in your country.

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 lasts years!





## THE PLANET ALL WORKED UP

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## 2. GAME OBJECTIVES

Robots must contribute in preserving and developing biodiversity:

- **Rivers remediation: a fragile ecosystem but essential for life:** robots must clean up rivers by getting pollutants out which endanger ecosystem and throwing them into dedicated recycle bins.

**Cooperation: several pollutions may result in ecosystem's destruction:** robots must help each other to get out the maximum of pollutants from the river.

- **Reintroduction of wild animals: reintroducing disappeared animal species in their natural environment helps to maintain biodiversity:** robots must climb up mountains and free the animals to be reintroduced.
- **Plantation of seeds; diversified cultures contribute in renewing biodiversity:** robots must deposit seeds in the central field.
- **Fields pollination: bees help enhancing spread of vegetal species:** robots must bring bee hives to the central field and free bees, allowing them to realize pollination.
- **Fight against deforestation: forest is a part of global natural resource which is essential for life:** robots will help to transplant trees of various species to reconstitute the forest.





# THE PLANET ALL WORKED UP

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## 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 allowed. Any complaint concerning these margins shall not be considered. The eventual modifications of this information will be indicated in a complementary document (Frequently Asked Questions) sent 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 table's colour details 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 start zones are squares located against the edges on both sides (see §3.2).

Trees overtake the playing area and are fixed on the border edges. The complete details about the game elements disposition are shown in the figures in the appendix.



All dimensions of the playing area as well as the positioning of variable components are indicated in the sketches provided **in specifications of the playing area only**. In case of ambiguity between the illustrations in the rules and in the specification, those of the specification will be taken into account.

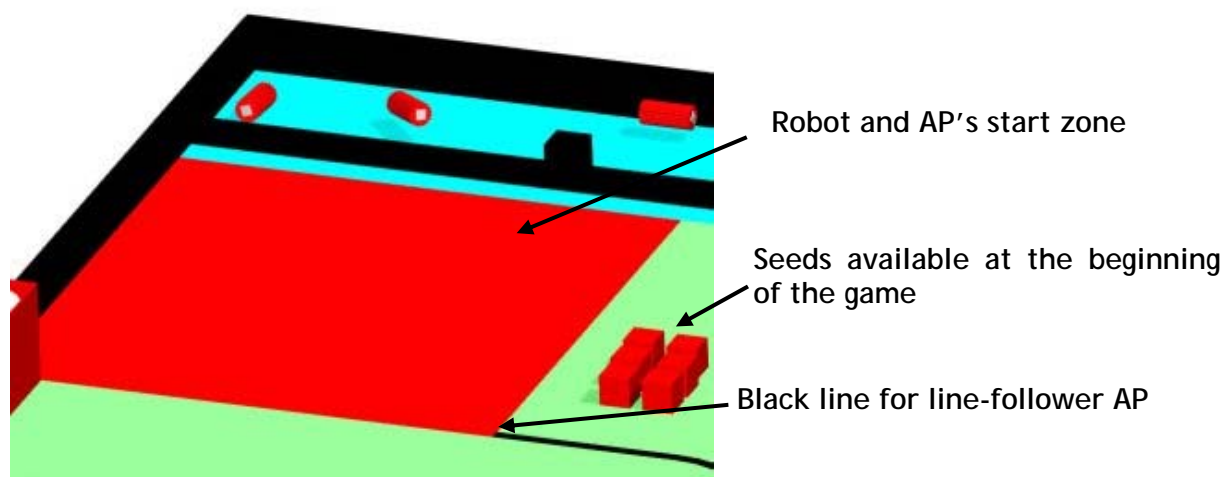


## 3.2. Start zones

They are located on the edges of the playing area and are represented by a painted square of the team's colour (blue at right, red at left, visible by the public).

Before starting, main robot and its Autonomous Part (see 5.1) shouldn't be out of the limits of the start zone.

In case of a line following AP (Autonomous Part), it is allowed to place the AP's sensors on the start of the black line drawn for that purpose, outside the starting zone. But the AP's rest must, according to the previous rule, stay in the start zone.



*Figure 1 Start zone*

A team will be declared withdrawal, if the robot does not completely leave the starting area and if its AP stayed motionless.

The walkover will be declared if either the robot or the AP has left the starting area (see 7.2).



## 3.3. Rivers remediation

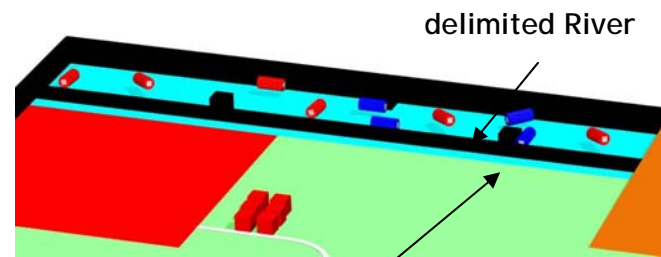
The rivers are a fragile and complex ecosystem. Getting water from anywhere (cities, fields), it collects several pollutions, so that fresh water organisms are part of the most endangered species. Robots will help this ecosystem by getting out from the water as many pollutants as possible to preserve life inside and outside the river.



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

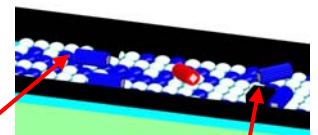
For this action, robots will find against the back border:

- A river, figured by two clear blue stripes bordered by a small black edge. Rocks, figured by small wooden brackets, are fixed on the river. A small zone of overflow of water (area where water balls are accepted) is located along the river on the outside.



Limit of the overflow of the water

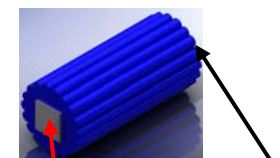
- The water is represented by flat glass balls, mobiles but staying in the river. At the beginning, all the water is in the river.



water = flat glass balls

Rocks

- Polluting elements are floating on the water (put on flat balls), represented by small pieces of wood fluted dowels painted in red and blue (dimensions in specification) having at the two ends a piece of velcro (hook side). You can find easily the fluted dowel in large dye store. 10 elements of each colour are speaded on the two zones of the river in the following way :



Velcro hook side

- 6 elements of the same colour are placed on the side of the start zone having the same colour (including two from located in between the table edge and the first rock).
- 4 elements mixed with the opposing team's colour.



# THE PLANET ALL WORKED UP

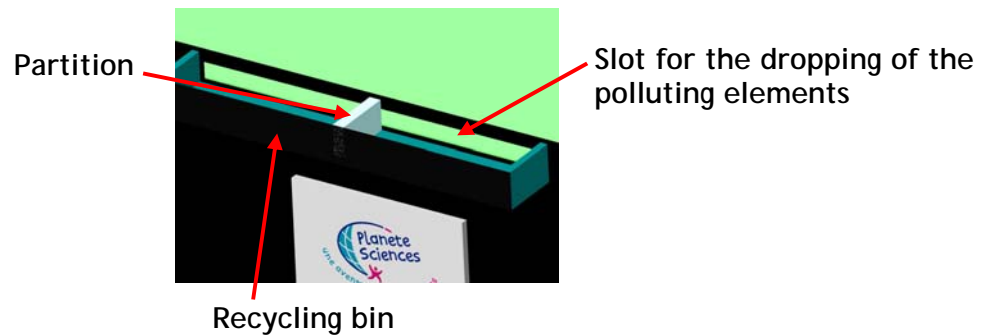
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The exact position of the elements in the river is not fixed. It may change from one match to another.

- A recycling bin is located on the front edge (facing audience) separated in two parts by a partition, containing an empty part for each team. It is opened on the top and has a slot of a sufficient size for the passage of the polluting elements.



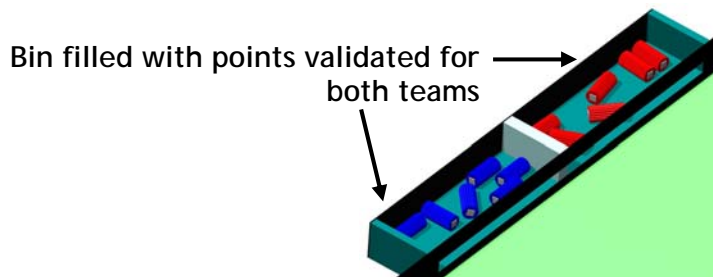
## b. Action and constraints

### Action:

The robots have to clean the river. In order to do that, each team has to take off a maximum of polluting elements of their team colour which are symbolised by small pieces of fluted dowels red or blue (there are 10 of each colour), and to drop them in the recycling bin, located at the front of the table. It is possible to put polluting elements in the bin:

- either by causing them to fall through the front slot
- either by dropping them directly through the open top

It is the number of polluting elements of the team that is in the team recycling bin part that will determine the number of points attributed for this action at the end of the match. Each polluting element put in the recycling bin gives 3 points.

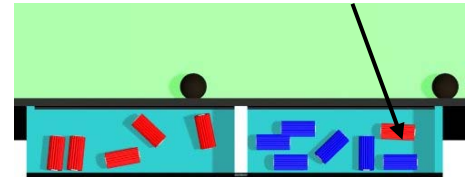




## Constraints:

The robots have to take the elements of their team colour only in the river and deliver them in their part of the recycling bin. The elements placed at the end of the match, in the wrong part of the bin will not be counted to the team who has made the mistake.

Polluting Element not counted for the red team

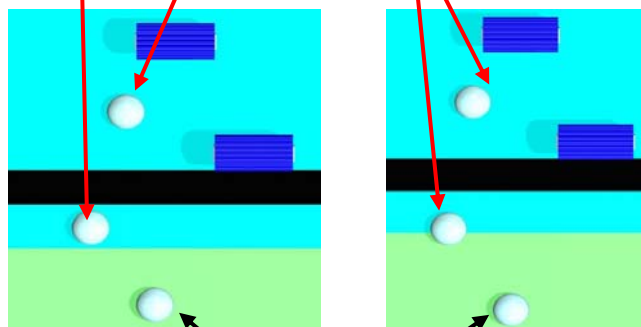


The robots are not allowed to enter and to come and move in the river. The robot is not allowed to block, intentionally, by itself or with the help of an object the opposite slot's part of the recycling bin.

The robots have to take only the polluting elements. The flat balls, representing the water, have to stay in the river. If balls are in the part of the recycling bin of the robot at the end of the match, the points gained thanks to the polluting elements do not count.

If several flat balls fall outside the river on the playing field, a penalty will be given because they are considered as embarrassing elements for the opposite robot except if the water outside is located in a limited area delimited along (outside side) of the border of the river.

Balls of water considered as not embarrassing because in the river zone



Balls of water considered as embarrassing



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### c. Action of cooperation



#### Action and constraints

The two robots have to deposit polluting elements each in their part of the bin. Once the both colours elements are presents, whatever the number of elements on each side, the action of cooperation will be considered as valid.

The action of cooperation is counted only if the two teams have discussed it together before the match and agreed to perform or not this action. The referee should also be informed to enable him to observe the action and validate.

A panel will be placed in front of the playing area (audience side) in order to mention that the cooperation is played or not during the match.



Cooperation not accomplished by the teams during the match



Cooperation accomplished by the teams during match

A bonus of 8 additional points is awarded to both teams, if each team has brought at least a polluting element of its colour, for having helped together, towards the preservation of the ecosystem of the river.

## 3.4. Reintroduction of animals

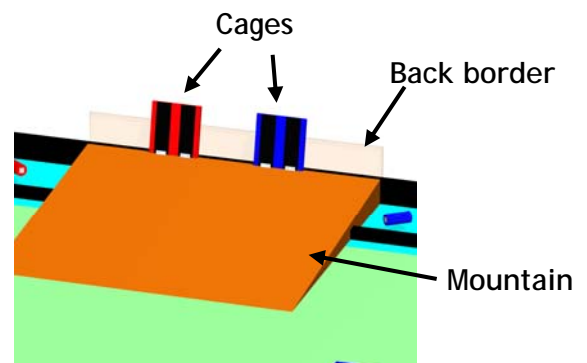
The reintroduction of animals and plants species in their natural environment is one of the strategies implemented by the biology of the conservation. It allows the rehabilitation of extinct species in their original environment. Robots will have to help to the reintroduction of animals by opening the cages in order to deliver the wolf and the bear.



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

In this action, robots will find:

- The mountain, located at the centre, back in the playing area, is represented by a slope with a 20% angle compared to the horizontal (including the 10% tilt of the general playing area).
- The cage of the animals to deliver, located at the top of the mountain are represented by two wood panels (one blue and one red). On each of them, we can find two stripes of black Velcro hook side. Those panels are located, at the beginning, in raised position, resting against a raised border.

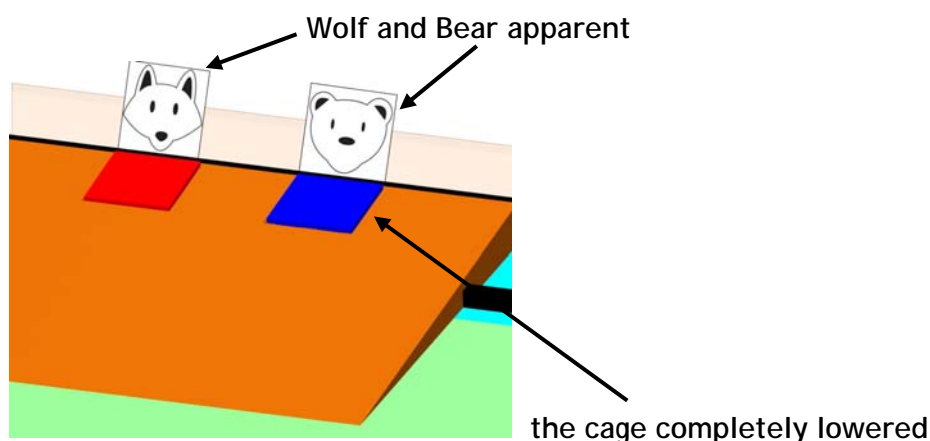


## b. Action and constraints

### Action:

Robots have to lower the panels representing the cages in order to liberate the animals by climbing on the mountain. There is one panel allocated to each team (the blue team frees a bear while the red team frees a wolf).

It is the panel completely lowered (resting on its own weight on the mountain) that will be counted as valid and will give the points attributed to this action. Each panel completely lowered give 10 points.



### Constraints:

The robots (points of contact with the ground) have to climb entirely on the mountain in order to open the cages. They are not allowed to lower the panels from the bottom of the mountain, nor from anywhere else of the playing area outside the mountain.

## 3.5. Plantation of the seeds

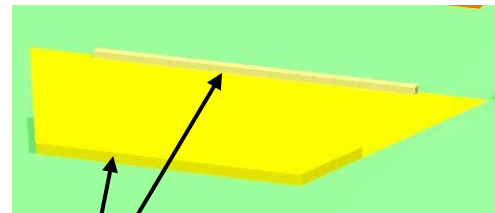
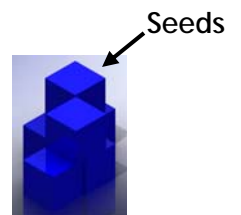
The plants provide us the food, the medical drugs, the wood and the energy that we need to live. The robots are going to diversify the cultures by depositing several seeds in the large central field.



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

For this action the elements game are:

- **The seeds**, 6 per team, are represented by small cubic sponges of the colour of the team. They are put in the start zone at the beginning of the game, which means that the teams can, if they wish, load the seeds in their robot or move them on the playing area during the match.
- **The field** is represented by a large central yellow trapeze. It is fixe and drawn on the playing area. The top and the bottom of the field are delimited by cleat of different sizes.



Cleats delimitating the top and the bottom

### b. Action and constraints

#### Action:

The seeds have to be deposited anywhere else in the field located in the centre of the playing area.

Before the match, the team can place the seeds anywhere else inside the start zone.

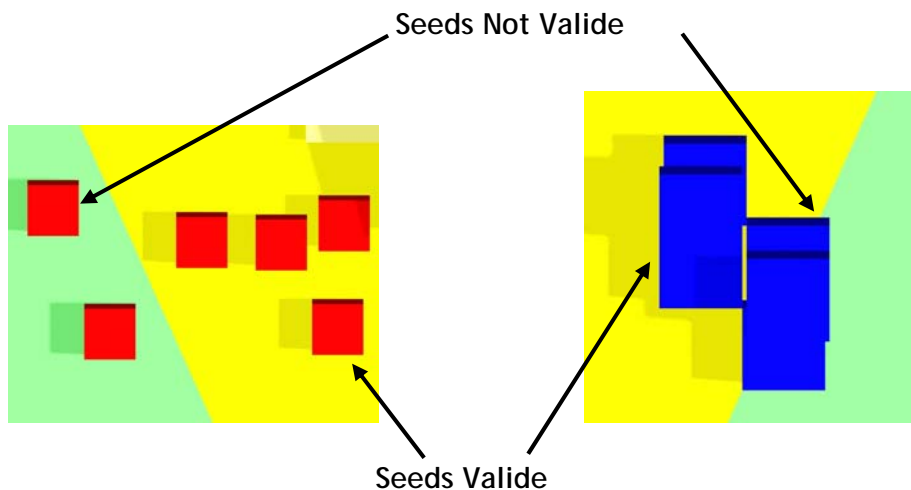
... Rules... Rules... Rules... Rules... Rules... Rules... Rules... Rules... Rules... Rules...

The robots can load, from the beginning, from 1 to 6 seeds at the same time and/or can come back to look for those that are not taken at the beginning, during the match.

It is the number of seeds completely placed inside the field that is counted at the end of the match. Each seed deposited in the field gives 2 points.

### Constraints:

The robots are not allowed to enter inside the field, which means that the wheel of the robot cannot touch the yellow area in order to deposit seeds.



The seeds have to stay on the playing area as soon as the match begins. No interaction or intervention on the seeds, during the match, from the pilot or the co-pilot is allowed. However, it is possible that the team members ask the referees to remove all the seeds before the match if the team decides not to play the action. On the other side, if the action is realized by the team, all the seeds stay on the playing field from the beginning whatever the number of seeds used during the match.

If the base of the stack of the seeds is not validated, those that are put above are not validated too.



## 3.6. Pollination of the field

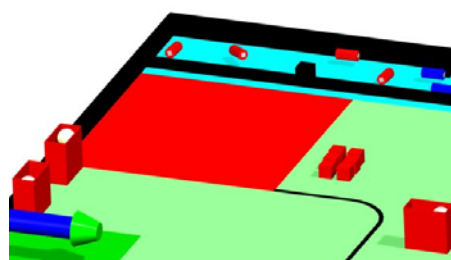
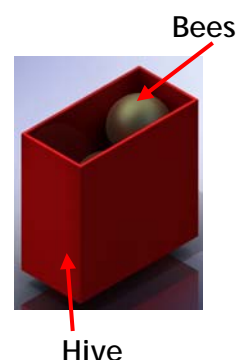
The majority of the plants rely on the animals in order to ensure their pollination, especially the bees which keep the pollen and carry it from flower to flower. But bees are more and more threatened by pollution. Robots are going to help the pollination of the field by bringing more of hives as possible near the field and in liberating the bees contained inside.



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

For this action, robots have :

- The hives, represented by small rectangular boxes open at the top up of the beginning's colour. There are three per team. They are placed, at the beginning in the following way: 2 between the starting area and the forest and 1 near the field. They contain bees.
- The bees, represented by tennis table balls. There are 4 per hive.



Positions of hives and bees at the start

### b. Action and constraints

#### Action:

Robots have to bring the hives closer to the top of the field and to liberate the bees in order they can get on the pollination of the field.

The hive is validated if at least one of its sides touches the cleat located at the top of the field and inside the field.



## THE PLANET ALL WORKED UP

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The hives, completely empty, reversed at the top of the field and validated are counted at the end of the match. Each empty hive gives 6 points.

### Constraints :

Robots have to release the bees contained in the hive, in the upper field by reversing the hives.

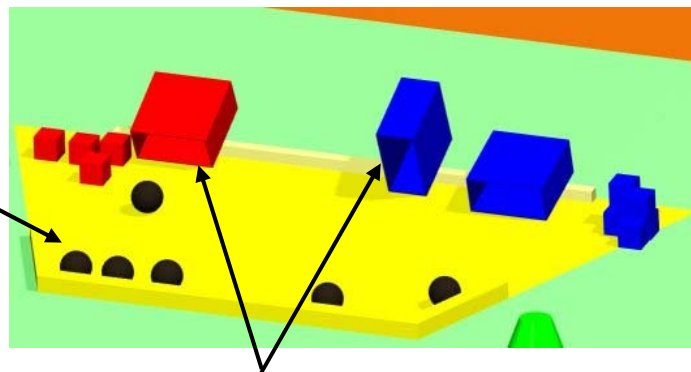
Robots are not allowed to empty the hives directly down the field or against the cleat of the sides in order to liberate the bees.

The robot is not allowed to move the hives of the other team which are already placed at the top of the field.

It is not possible to stack several hives on each other.

The hives do not have to be placed directly in the field. They have to be put only at the top edge of the field.

Bees at the end of the match



Hives in validated position at the end of the match

## 3.7. Fight against deforestation

Forest is one of those natural resources called global renewable.

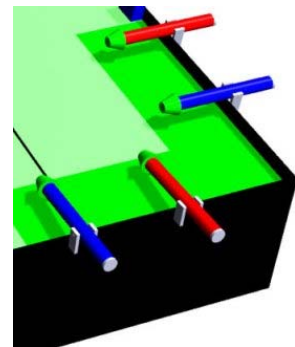
However, the current rate of its operating endangers the survival of all the planet. Robots are therefore going to help to renew the forest disappeared by planting new trees.



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

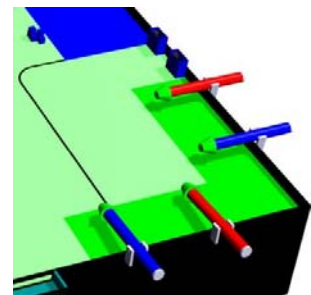
Robots have, as elements game, in order to complete this action:

- The trees, represented by PVC tube, of the departure colour swivelling (between horizontal and vertical position). Each team has 4 trees (2 at each side of the playing area) surmounted of a pointed tip.



Trees in the starting position

- A black line from the start zone until the second tree is proposed for potential line following Autonomous Parts. The use of an Autonomous Part is optional !



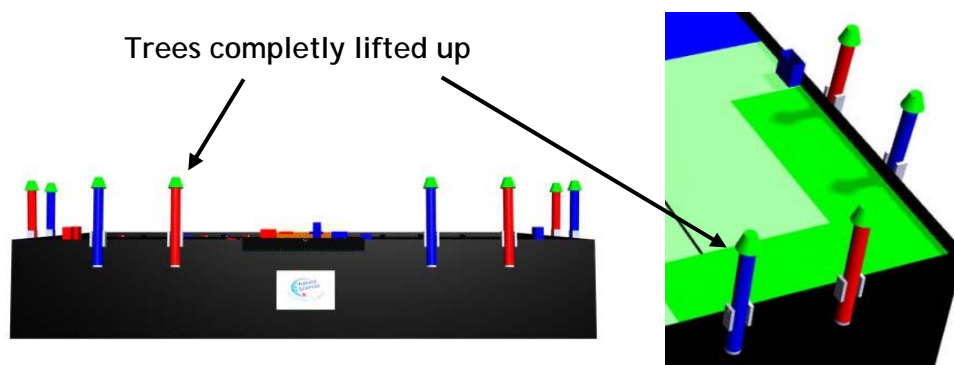
Black line for AP

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

## b. Actions and constraints

### Action:

Robots have to lift up the trees of their colour in order to plant them in the zone of the forest.



It is the number of trees of its colour completely lifted up (in vertical position) that will be counted. Each tree completely lifted up gives 3 points.

### Constraints :

A robot cannot lift up a tree of the wrong colour. If it is the case, the points of this tree will be attributed to the opposite team at the end of the match.



## THE PLANET ALL WORKED UP

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### 4. PROJECT PRESENTATION



**Beware new feature!**



This year, the presentation of Eurobot Junior project of the team (work throughout the duration of the project, distribution of the tasks ...), of the robot (done systems, strategies discussed) of the Autonomous Part is re-established!! It will be done by presenting a poster which will be made visible by all the participating teams and the audience.

#### Constraints:

This presentation will be realised on a A1 format poster (594x841mm) minimum. For the other points, we give free to all team's imagination in order to report on the designed project.

#### Evaluation:

During the meeting, a jury will come to examine each poster, discuss with the team members in order to award a special prize to the best presentation.





## THE PLANET ALL WORKED UP

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### 5. 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. 5.1) 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. 6.3).

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.

#### 5.1. 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.

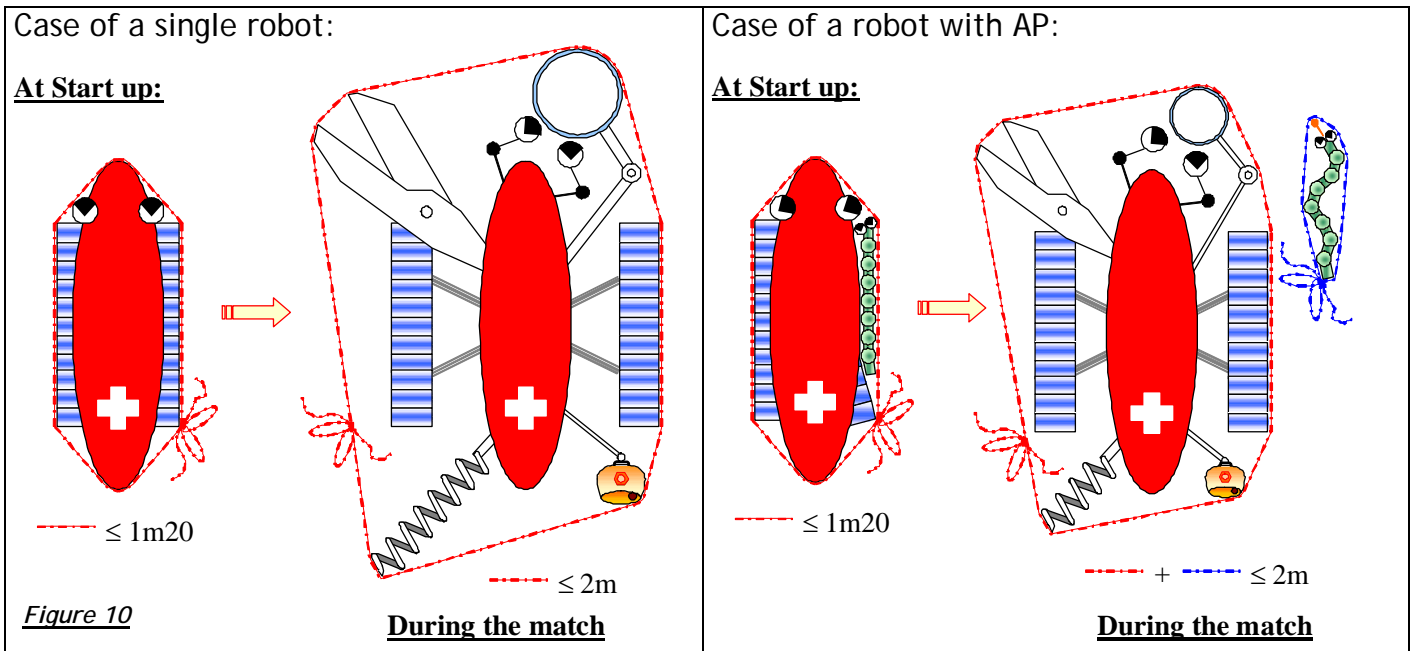
The construction of an autonomous part is optional.





## 5.2. 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.

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



In both configurations of the departure, the whole do not have to exceed the start zone. An exception is given for the parts of the robots able to follow a line (see chapter 3.2 for the conditions and the definition of the start zone).

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).



## THE PLANET ALL WORKED UP

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### 5.3. 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!).

Sorry friends... I can't play with you, I am badly isolated...





## THE PLANET ALL WORKED UP

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### 5.4. 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.

### 5.5. 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 2 meters between the electrical outlet and the alimentation and 5 meters (minimum) 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.





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### 6. 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.

#### 6.1. 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 7.2)

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.





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### 6.2. The match

**Attention:** for the final phases, also read the part 7.3 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 match, nobody, except the referee is allowed to touch the robots and the elements of the playing field. The referees count the points. They give the result of the match, included the points to the teams. If both of them agree, they can take their robot and join their pit. If they do not agree, they clarify. The robots stay in place until the dispute is not resolved. The decisions of the referees are irrevocable.

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

If neither team has marked any point during the 90 s of the 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.





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### 6.3. Counting points

This year, at the end of the match, the referees will count the points of each team in the following way (for more details of the actions giving points see sections 3.3 to 3.7)

- 3 points by pollutant element in the part of the recycling bin of the team
- 10 points by cage completely opened
- 2 points by seed put down in the field
- 6 points by reversed hive
- 3 points by tree completely lifted up
- 8 points bonus for cooperation validated

#### Penalties

A penalty is a subtraction of 8 points 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).







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### 7. MEETINGS

- National Final: the French final will be organised at the end of March 2010 - beginning of April, 2010. Between 3 and 5 teams will qualify for the European final "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:

#### 7.1. Approval

- **Pre-Approval :**

Before the beginning of the meetings, robots and autonomous parts are examined by a referee who verifies their correspondence to the rules. The robot and the AP must be able to easily complete all of their actions.

- **Approval :**

The robot and/or the AP have to, in 90 seconds, mark at least one point (by putting a pollutant element of the right colour in the recycling bin, by lifting up a tree, by reintroducing animals, by putting a seed in the field, by delivering the bees). The robot and the potential AP are put in a real match situation except for the presence of any opponent.

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

#### 7.2. Qualifications

During the qualification phase, the approved teams will have the opportunity to play at least 3 matches.

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

- For **victory**: total points on the field + 8 Bonus points
- For a **draw**: total points on the field + 5 Bonus points
- For **defeat**: total points on the field + 2 Bonus points
- For **fail**: no Points





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The ranking is established based on the number of points to select the teams qualified for the final phase.

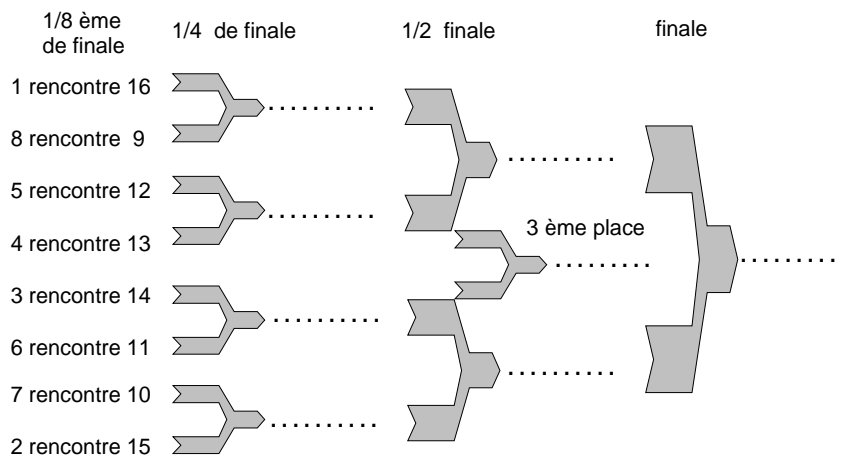
This ranking is also used to select the qualified teams for the national and European finals.

In case of a tie in the points at the end of the qualification rounds, the winning teams will be decided based on the following criteria:

- The team which has cooperated more
- The team which has more match victories
- The team which has lifted up most trees
- The team which has reversed most hives

### 7.3. Final phases

At the conclusion of the qualifying phase, the best 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 shown aside.



The meetings of the final phase result in direct knockout.

In case of a tie at the end of a match of final phase, the first team to have lifted up his four trees will be declared the winner.

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

**Reminder:** in final phases, cooperation does not exist anymore





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### 7.4. Qualification for Eurobot Junior Final

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

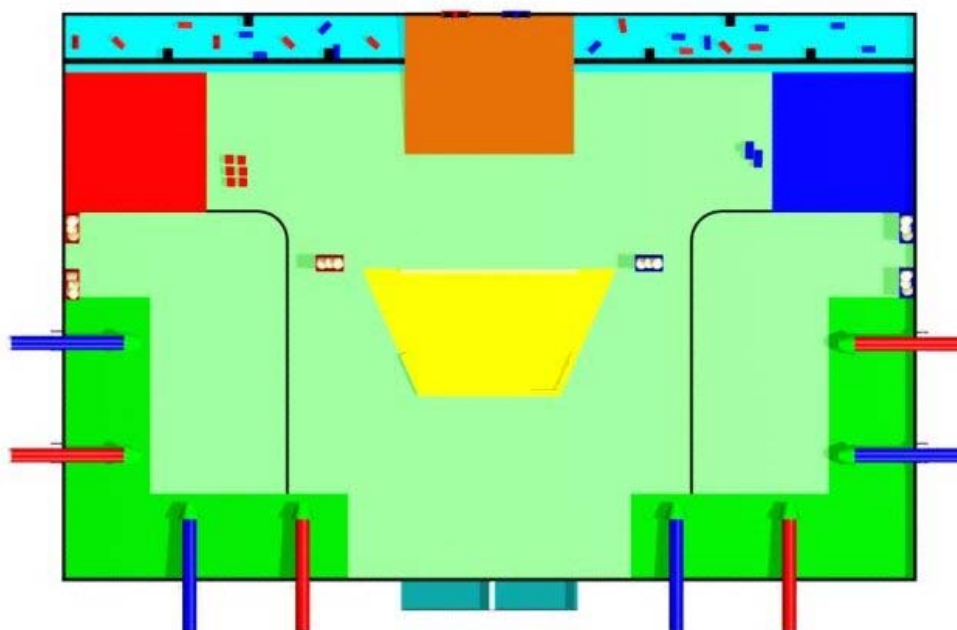
The first 3 teams at the conclusion of the finals (and not at the conclusion of the qualifying phases) will be qualified for Eurobot Junior final.

If the organization allows it, one or two extra teams, chosen amongst the teams having received a Special award, may qualify for the European final.

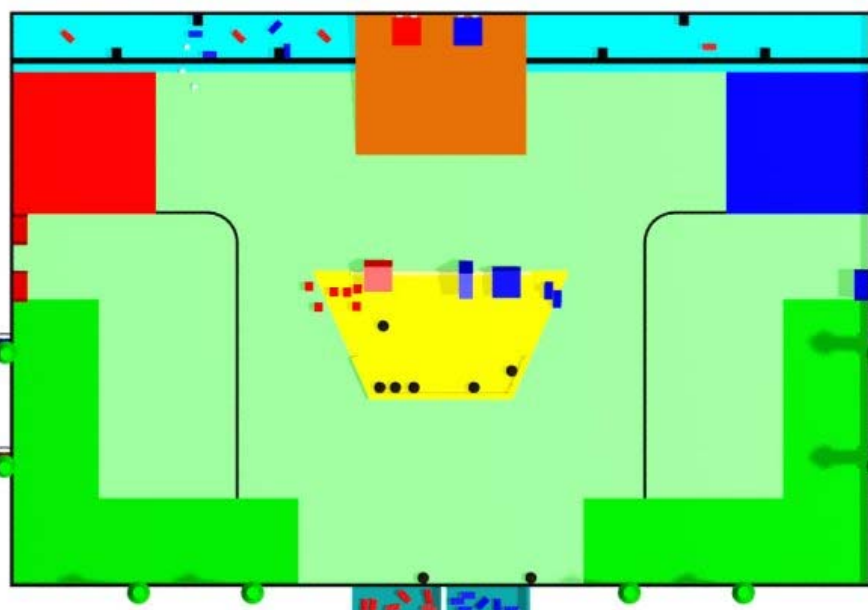


## Appendix

### Playing area see from over



Elements game in starting position



Position of elements game at the end of the match



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## 1. References of paint

	Colour	Type of paint	Reference
Part Forest	Green mint	Satin-finished	RAL 6029
Border, river, line and rock	Deep black	Satin-finished	RAL 9005
Central field and cleat of the field	Cadmium Yellow	Satin-finished	RAL 1021
Red elements game	Fire red	Satin-finished	RAL 3000
Area of game (important for robots following lines)	Green Yellow	Satin-finished	RAL 6018
Blue elements game	blue	Satin-finished	RAL 5005
river	blue	Satin-finished	RAL 5012

## 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.





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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:

- 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 2010 section

<http://www.planete-sciences.org/forums/>  
and [eurobot-junior@planete-sciences.org](mailto: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 for the planet in all its statements !

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\\_T2009.pdf](http://www.planete-sciences.org/robot/trophees/docs/Reglement_T2009.pdf)

