

RoboCup Humanoid Soccer League (HSL) Rule Book

RoboCup Humanoid Soccer League Technical Committee

(DRAFT 2026 Working Rules Document, as of 2025-12-05)

Questions or comments on these rules should be submitted via the following channels:

- <https://github.com/RoboCup-SPL/Rules/issues>;
- Discord server: TBA, channel #rule-book;
- Email to tba@tba.com.

Contents

1	Purpose and Scope of the RoboCup Humanoid Soccer League	1
2	Environment	3
3	Teams and Players	9
4	Robot Players	10
5	Competition Structure	17
6	Game Process	20
7	Forbidden Actions and Penalties	25
8	Judgement	28
A	The Official RoboCup Competition Rules	29
B	Venue Setup	32
C	Field Technical Drawings	33

1 Purpose and Scope of the RoboCup Humanoid Soccer League

This document defines the purpose, scope, and rules of the RoboCup Humanoid Soccer League for the international RoboCup competition, at the forefront of research, innovation, and education in humanoid soccer across all forms.

1.1 Vision and Mission Statement

The RoboCup Humanoid Soccer League (HSL) will drive innovative research that advances the software and hardware of autonomous robots with a particular emphasis on robots deployed in real-time, dynamic, partially observable, and multi-agent environments. The HSL is well suited to advance *research, development, and education* in:

- Multi-robot systems (5+ robots) requiring decentralized coordination with limited communication over noisy channels.
- Robots that approach or approximate Human-like capabilities.
- A league that promotes research,
- Localization and state-estimation.
- Dynamic humanoid motor control.
- Real-time and on-board robot perception.
- Software engineering for autonomous robots.
- Hardware engineering for autonomous robots.
- Across topics, robot learning in all its forms.

In addition, the HSL aims to:

- Grow the community of humanoid soccer within RoboCup.
- Further education in robotics and is designed such that both teams with a primary focus in research and teams with a primary focus in education are able to participate.
- Encourage active sharing of software and hardware designs for league-wide collaboration.
- Measure the capabilities of the league against the 2050 vision of RoboCup.
- Drive the vision and direction of the rules to encourage good quality soccer between evenly matched teams.

1.2 Core Vision and Requirements for Legal Standard Robot Platforms

The HSL encourages and welcomes the use of standard humanoid robot platforms available within the market to advance the state of humanoid robot soccer and the vision of the HSL.

With the HSL vision in mind, the core requirements for standard humanoid platforms used within the HSL are platforms:

1. Capable of dynamic motions such as fast walking, kicking a ball off the ground, and getting up from the ground;
2. Capable of running state-of-the-art AI neural network models for perception, decision-making, and control;
3. Sufficiently small and affordable that teams can fund multiple robots and travel with them to competitions;
4. Able to be programmed at a low-level of control;
5. Well-Documented.

Community comment, to be discussed: They make sense as ideals, but not as strict requirements. Reward §1.2 so that it is clear that these are ideals and not to be confused for the technical requirements of platforms as in §4. Maybe replace mentions to "requirements"

1.3 Core Vision and Requirements for Constructed Robots

The HSL equally encourages and welcomes the use of fully custom built or modified humanoid robot platforms. To create a welcoming and fair environment for all robot platforms, the HSL ensures the following:

1. Both store-bought and custom-built robots can participate in a fair competition without risking damage to their robots.
2. The tournament is designed such that games are interesting for all participating teams and match-ups are fair.
3. The tournament is designed such that all currently existing teams are able to participate.
4. Details about hardware and software of the robots is made available to teams and organizers to ensure a fair competition and encourage scientific exchange.
5. League resources are distributed such that both store-bought and custom-built robots equally benefit from them.
6. Robots are designed with the goal of RoboCup in mind, thus restricting the allowed sensors where possible to humanoid sensors. Exceptions to this rule can be made if it benefits scientific progress.

3 and 5 are also hard to enforce, since terms like "sufficiently small and affordable" and "well-documented" are too subjective.

2 Environment

2.1 The Field of Play

The competition consists of three distinct divisions, categorized specifically by the maximum physical height and weight of the robotic platforms.

To ensure a fair and proportionate competitive environment, the field dimensions, number of players and ball size will vary to align with the specific requirements of each division¹.

2.1.1 Field surface

The matches are played on artificial turf with a height of approximately 30 mm, except for the small division, which has a height of approximately 8 mm.

to be de-
cided

The color of artificial turf must be green. No particular shade is required, but the green must contrast well with the field markings and the ball and should not be very dark.

2.1.2 Field markings

The field of play must be rectangular and marked with continuous lines. These lines belong to the areas of which they are boundaries.

The color of field markings should be white, whether applied by tape, paint, or made from white turf.

The two longer boundary lines are called touch lines. The two shorter lines are called goal lines.

The field of play is divided into two halves by a halfway line, which joins the midpoints of the two touch lines.

The center mark is at the midpoint of the halfway line. A circle is marked around it.

The goal area and penalty area are defined using lines drawn at right angles to the goal line.

All lines must be of the same width, which must be approximately 5 cm.

Figure 1 shows the field markings with the lines and its names.

¹Games are played in three divisions depending on weight and height of the robots. See 3.1 for more details.

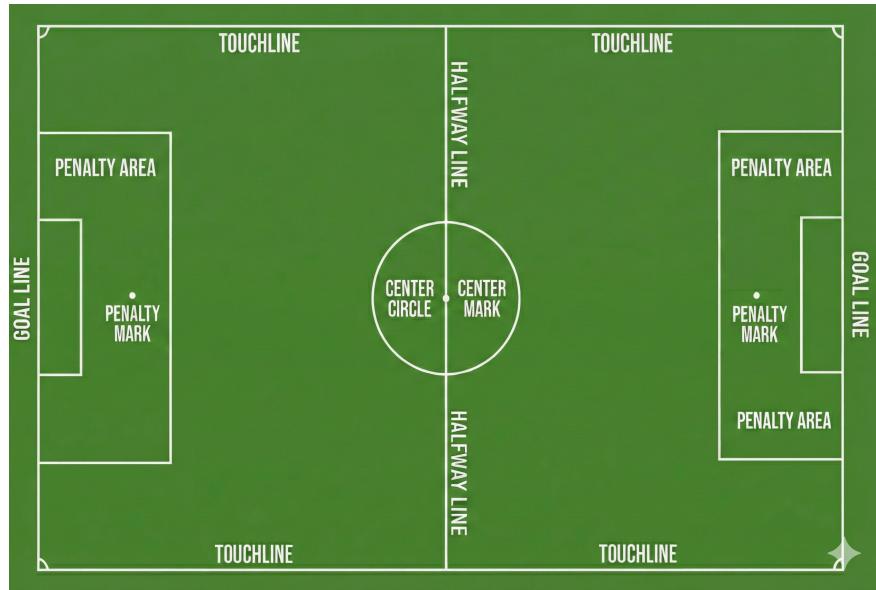


Figure 1: A labeled diagram illustrating the standard markings and key areas of a soccer field.

2.1.3 The goal area

Two lines are drawn at right angles to the goal line; the length and distance from the midpoint of the goal line depend on the division.

These lines extend into the field of play and are joined by a line drawn parallel with the goal line. The area bounded by these lines and the goal line is the goal area.

2.1.4 The penalty area

Two lines are drawn at right angles to the goal line; the length and distance from the midpoint of the goal line depend on the division.

These lines extend into the field of play and are joined by a line drawn parallel with the goal line. The area bounded by these lines and the goal line is the penalty area.

Within each penalty area, a penalty mark is made.

The distance from the midpoint between the goalposts depends on the division.

2.1.5 Dimensions

The touchline must be longer than the goal line.

Figure 2 shows the dimensions of the soccer fields and table 1 shows the dimensions depending on the division. More detailed technical drawings are provided in Section C.

Note that measurements on this diagram are made to the center of lines (SPL Rule) OR Measurements are from the outside of the lines as the lines are part of the area they enclose (HL and FIFA Rule).

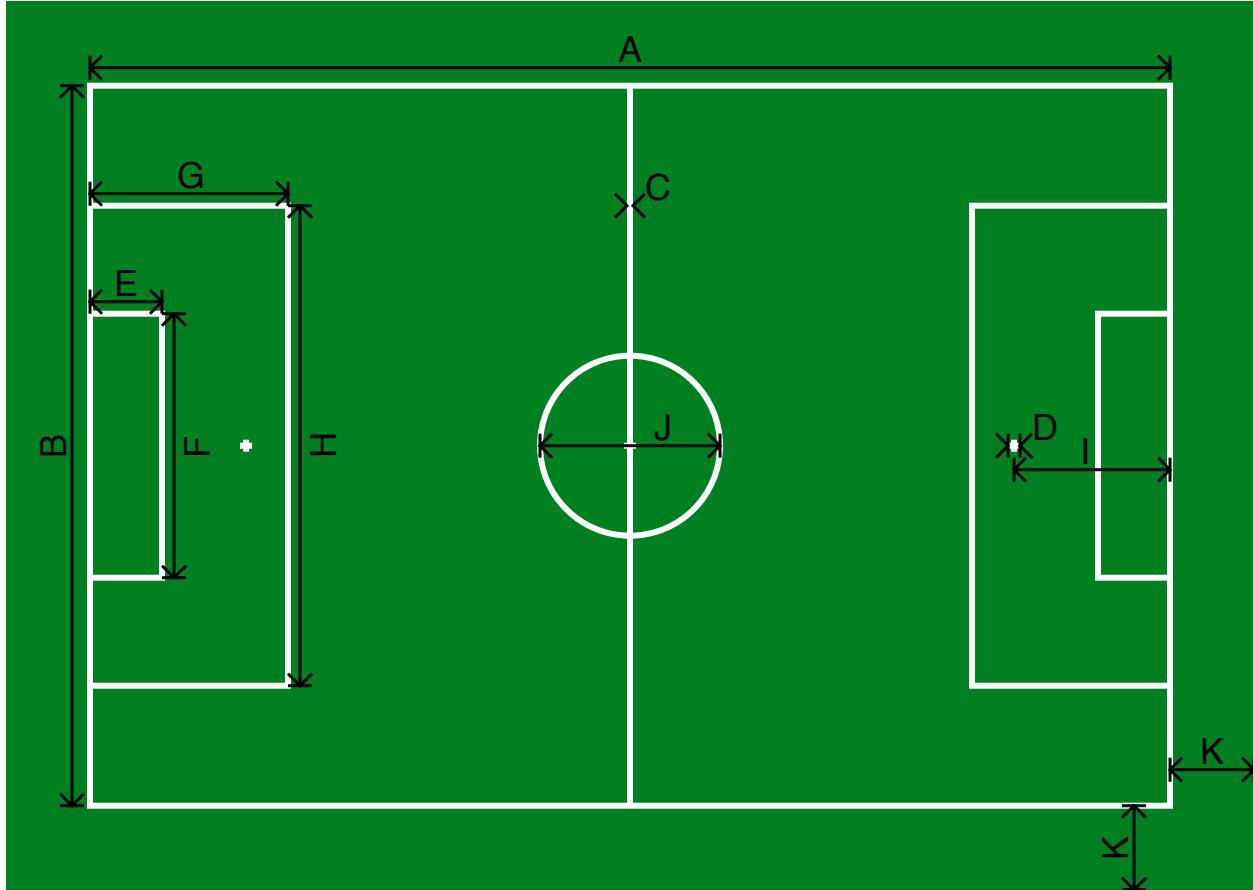


Figure 2: Schematic diagram of the soccer field (not to scale).

2.1.6 Goals

A goal must be placed on the center of each goal line. A goal consists of two vertical posts equidistant from the corner flagposts and joined at the top by a horizontal crossbar.

The goalposts and crossbar must be made of wood, metal, or other approved material and must not be dangerous.

ID	Description	S-Field	M-Field	L-Field (MSL)
A	Field length	9 m	14 m	22 m
B	Field width	6 m	9 m	14 m
C	Line width	5 cm		12 cm
D	Penalty mark size	10 cm		15 cm
E	Goal area length	0.6 m	1 m	0.75 m
F	Goal area width	2.2 m	4 m	3.9 m
G	Penalty area length	1.65 m	3 m	2.25 m
H	Penalty area width	4 m	6 m	6.9 m
I	Penalty mark distance	1.3 m	2.1 m	3.6 m
J	Center circle diameter	1.5 m	3 m	4 m
K	Border strip width (min.)	1 m		

Table 1: Field dimensions by field type, in meters.

The goalposts and crossbar of both goals must be of the same shape, which must be square, rectangular, round, elliptical, or a hybrid of these options.

The goalposts and crossbar must have the same width and depth, which is not less than 8 cm and does not exceed 12 cm.

The goalposts and the crossbar must be white. Goal nets and any net supports may be white, gray, or black.

Goals must be anchored securely to the ground. Portable goals may only be used if they satisfy this requirement.

need a figure how goalposts must be placed on the goal line

to be discussed - HL: must not be green or white

to be discussed

ID	Description	Small	Middle	Large
A	Goal width	1.8 m / 6 FT	2.4 m / 8 FT	3 m / 10 FT
B	Goal height	1.2 m / 4 FT	1.5-1.6 m / 5 FT	2 m / 6.5 FT
C	Goal depth	0.5 to 1 m	0.7 to 1.2 m	1 to 2 m

Table 2: Approximate dimensions of the goals.

2.1.7 Inside and Outside

2.1.7.1 Definition of Inside and Outside An object (such as a robot or the ball) is considered *inside* a region of the field if any part of it overlaps or touches the boundary lines that define that region, or if it is fully contained within the region. It is considered *outside* the region only when no part of it remains within or on the boundary lines of that region. This definition applies to any designated area of the field (See Figure 2).

This may be superfluous due to the FIFA wording above: "These lines belong to the areas of which they are boundaries."

2.1.7.2 Regions of the Field

The field is divided into several key regions. These regions include:

- **Center Circle:** The circular area at the center of the field, used for kick-offs and other specific plays.
- **Penalty Area:** The rectangular area in front of each goal, where specific rules apply regarding fouls and goalkeeping.
- **Goal Area:** The smaller rectangular area within the penalty area, from which goal kicks are taken.
- **Boundary Lines:** The lines marking the sides of the field, where the ball is considered out of play if it crosses these lines.
- **Goal Lines:** The lines marking the ends of the field, where goals are scored if the ball crosses these lines between the goalposts and beneath the crossbar.
- **A Team's Half:** The half of the field that is closest to a team's own goal, where they primarily defend against opposing attacks.

This may be superfluous due to the sections from the Fifa rules 2.1.2, 2.1.4, 2.1.5

2.1.8 Venue Setup

Fields may be located close to one another. Barriers will not necessarily be constructed between adjacent fields to block the robots from seeing other fields, goals, or balls. However, barriers will be constructed to block sight between any fields that are not located at least three meters apart. Hence, for each side of a field that is adjacent to another field, either barriers will separate the fields or at least 3 m will be between the carpet of adjacent fields.

To be decided: move venue setup and equipment requirement specific topics to an annex for local organizers?

2.1.9 Lighting Conditions

The HSL does not mandate specific or controlled lighting conditions for a match venue. It is expected that the venue provides reasonable lighting suitable for general visibility (e.g. indoor with artificial lighting, outdoor with natural lighting, or a combination of both). The lighting conditions depend on the actual venue. Fields should be placed near or under windows where possible. Whether window lighting is used or not, ceiling lights should be provided as necessary so that most of the field is at least 300 lx (preferably 400 lx). This lighting may include variations such as glare, brightness, shadows, or mixed lighting conditions that can change throughout the match. However, the lighting must be predominantly white, and colored lighting that significantly changes the perceived color of the field or ball is not allowed. Teams participating in the HSL are encouraged to design their robots to handle a variety of typical lighting environments that may be encountered during a match. Natural and non-natural light must be free to reach the field. The technical committee can delimit a zone near the field where humans must not stand and where any items blocking the light sources are forbidden.

finding from Ro-
HOW:
Barriers and Nets should be required around every field

2.2 The Ball

2.2.1 Qualities and measurements

All balls must be:

- spherical
- made of a suitable material
- SPL ball (100mm in diameter) or FIFA Mini Ball for the Small division.²
- FIFA size 3 for the Middle division.³
- FIFA size 5 for the Large division.

to be de-
cided: re-
move SPL
ball?

2.2.2 Replacement of a defective ball

If the ball becomes defective:

- play is stopped and
- restarted with a dropped ball

If the ball becomes defective at a kick-off, goal kick, corner kick, free kick, penalty kick or throw-in, the restart is retaken.

If the ball becomes defective during a penalty kick or penalties (penalty shoot-out) as it moves forward and before it touches a player, crossbar or goalposts, the penalty kick is retaken.

The ball may not be changed during the match without the referee's permission.

2.2.3 Additional balls

Additional balls which meet the requirements of 2.2 may be placed around the field of play and their use is under the referee's control.

²The teams must agree during the pre-game meeting which type of ball will be used. Any small size team can request to play with the SPL ball.

³FIFA size 4 can be used as an alternative if FIFA size 3 balls are not easily available.

3 Teams and Players

3.1 Division and complexity level

A team belongs to one division, which is one of Small, Mid and Large. Main-competition matches only take place between members in the same division.

A team also has one complexity level, which is either Foundation or Advanced. Teams of different levels may play each other: if at least one team in the match is Foundation, then the match is Foundation, otherwise it is Advanced. (As of this draft version, the complexity level only affects the maximum team size.)

Both the division and the complexity level of a team are defined before the competition (precise modality TBD) and cannot change during the competition itself.

Maybe move some definitions from the beginning of Comp. Structure over here?

3.2 Number of Players

A match is played by two teams, each with a **maximum** number of players determined by the division the game takes place in and the complexity level of the playing teams, as illustrated by the following table:

Division	At least 1 Foundation team	2 Advanced teams
Small	4	7
Mid	3	5
Large	3	5

At most one player per team on the field may be designated as *goalkeeper*, the others are all *field players*. When playing at full strength, a team must have a *goalkeeper* on the field.

Each of the players has a unique jersey number from the set $\{1, 2, 3, \dots, 20\}$.

Goalie distinguishing feature TBD: Number? Color?

Will we have flexible numbers on the game controller? Otherwise, the numbers should be limited to the game controller numbers.

3.3 Number of Substitutes

In addition, each team may prepare *substitute players* outside the field. A *substitute player* may be substituted in to become a *field player* or *goalkeeper*.

Number of allowed substitutes, needs clarity - limited, unlimited?

Some more sections of the Humanoid rule book, like sub-

4 Robot Players

4.1 Approved Standard Platforms

The following commercially available robotic platforms are approved for participation in the HSL.

The following are the list of pre-approved standard platforms that require no modifications:

Manufacturer	Model	Restrictions
Aldebaran	Nao V5, and Nao V6	
Robotis	DARwIn-OP	
Booster	T1, and K1	
Fourier	GR1, GR1-Pro, and GR2	
Unitree	G1++, H1++	

Additional humanoid robot platforms can be approved upon request. Please send your request for approval to rc-spl-tc@lists.robocup.org.

Change to new mailing list when ready

4.2 The Design of the Robots

Robots participating in the HSL must have a human-like body shape with a torso, head, two arms, and two legs, as well as human-like symmetry and proportions regarding sizes of the body parts and weight distribution.

Definition of humanoid robot from Kajima et al, 2005

The robots must be able to stand upright on their feet, to walk on their legs and to be able to recover from a fall (get back to a standing position).

The only allowed modes of locomotion are bipedal walking, running, and jumping, .

as well as soccer-related movements such as dribbling, kicking, or other forms of ball handling

The design of the robot's arms, including their length and placement, shall permit arm use and behaviors that are reasonably comparable to those of humans. Examples of permitted uses include assisting in getting up after a fall or picking up and throwing the ball (where otherwise allowed by the rules).

Arm configurations that enable behaviors significantly different from those of humans are not permitted. In particular, robots must not use their arms to provide continuous support for locomotion, such as walking on arms or using arms as additional legs.

Derived from Heinrichs suggestion

4.2.1 Size Restrictions

All robots participating in the HSL must comply with the following restrictions:

The length of the legs H_{leg} , including the feet, satisfies $0.35 \cdot H_{top} \leq H_{leg} \leq 0.7 \cdot H_{top}$, where H_{top} is the height of the top of the robot. The length of the leg is measured from the first rotating joint where its axis lies in the plane parallel to the standing ground to the tip of the foot.

A classic piece of human anatomy and art history, Leonardo da Vinci's "Vitruvian Man" famously depicts a man whose arm span is equal to his height, creating a 1:1 ratio. Therefore, the arm span, A_{span} , including the hands, should satisfy $0.8 \cdot H_{top} \leq A_{span} \leq 1.2 \cdot H_{top}$.

Based on H_{top} , the following size restrictions apply:

- xx cm $\leq H_{top} \leq$ xxx cm to play in the xy class,
- xxx cm $\leq H_{top} \leq$ xxx cm to play in the z class.

H_{top} is defined as the height of the robot when standing upright (with fully extended knees). H_{top} is measured with the head of the robot oriented in such a way that it is tilted to either its maximum upwards tilt angle or the horizon line, whichever is lower.

The height of the head H_{head} , including the neck, satisfies $0.1 \cdot H_{top} \leq H_{head} \leq 0.3 \cdot H_{top}$. H_{head} is defined as the vertical distance from the axis of the first arm joint at the shoulder to the top of the head.

4.2.2 Weight Restrictions

The robot's Body-Mass Index (BMI) is defined as follows: $BMI = \frac{M}{H_{top}^2}$, where M is the mass of the robot in kg and H_{top} its height in meters.

The Body Mass Index (BMI) of the robot should be: $5 \leq BMI \leq 30$.

4.2.3 Safety

A player must not use equipment or wear anything that is dangerous to himself or another player (including any kind of jewellery).

Robots competing in the physical competition must be equipped with an emergency stop button that makes the robot immediately desist with all motions, or ideally go limp and/or cut power to the actuators. In addition to the emergency stop button, robots may only have up to two additional

to be discussed - including height restrictions

to be discussed - define divisions

From the humanoid league rules, to be discussed

do we need to mention jewellery?

physical or virtual buttons: One to start the robot behaviour and one to stop the behaviour. The buttons must be clearly labeled. If the robot has more buttons that cannot be detached, they must be visibly masked during the games.

In ...tbd... size, robot handlers are allowed to carry an additional remote emergency stop button. This button must be worn either around the neck or on the belt of the robot handler and must be clearly marked. Each emergency stop button can only be connected to the robot of the robot handler that holds the button. The remote emergency button cannot perform any additional functions and does not replace the regular emergency button. Robot handlers must keep their hands clearly away from the button unless the button is being pressed. Robot handlers must not use the remote emergency button to intentionally incapacitate their robots.

to be discussed:
4.7.1 allows buttons, community also re-motes

to be discussed,
will there still be robot handlers?
the game can be restricted

4.3 Hardware

Modifications or additions to the robot hardware are allowed.

No additional hardware is permitted, including off-board sensing or processing systems. Additional sensors besides those originally installed on the robots are likewise not allowed.

to be discussed,
add other safety measures from our discussion?

to be discussed,
divisions, list of permitted robots, self-built robots, etc.

to be discussed

4.4 Sensors

Teams participating in the HSL competitions are encouraged to equip their robots with sensors that have an equivalent in human senses. These sensors must be placed at a position roughly equivalent to the location of the human's biological sensors. In particular, ...

to be discussed

The sensors and their placement shall be chosen such that they allow the robot a spatial perception similar to humans. The sensors are evaluated along the following two general guidelines:

1. *Foster and encourage research and development towards human-like perception capabilities.* Sensors aiming to directly emulate human senses, like a camera or a microphone. Use of such sensors is explicitly *encouraged*.

2. *Enable research and development under the constraints of the current state of the art in technology and research, as long as this does not undermine current research efforts as declared in point 1.*

Sensors that compensate for current shortcomings in technology and state of research, like one-dimensional distance sensors with limited range, or two vertically arranged cameras in the robot NAO.

Generally, *passive sensors* are preferred to *active* sensors that actively emit signals.

4.4.1 Intrinsic Perception and Proprioception

Any sensing capability aiming at measuring the internal state of the robot is permitted. This includes temperature, current consumed by the motors, joint positions, etc.

4.4.2 Visual Perception

The visual sensors, e.g., cameras of the robot shall be arranged such that the combined visual field is *contiguous* and limited to dimensions similar to a human, which corresponds to limitations in the opening angle: horizontal $\leq 180^\circ$ and vertical $\leq 140^\circ$.

The visual sensors shall be located in the head of the robot.

The combined dynamic visual field that can be observed by the robot solely by moving its cameras (similar to human eye movements) and the head is limited to horizontal $\leq 220^\circ$ and vertical $\leq 180^\circ$.

The cameras are restricted to visual information in the range of the light visible to humans.

The cameras can provide dense visual information, such as a rasterized image, or sparse information, such as visual events (event cameras).

4.4.3 Visual (dense) Depth Perception

Passive integrated devices that provide dense depth information, such as stereo cameras, are permitted and encouraged.

Active integrated devices that provide depth information, such as cameras with an active infrared projector or time-of-flight cameras, are permitted but discouraged. Their use might be prohibited in the future.

4.4.4 Orientation

Sensors providing information regarding the robot's orientation in space with relation to the ground are permitted. This includes sensors such as gyrometer, accelerometer, as well as integrated inertial measurement units (IMU), as long as they provide only relative measurements and no measurements of the absolute direction, such as a compass.

An IMU with an integrated compass can be used as long as the compass is disabled.

The sensors can be placed in the head and/or in the torso of the robot.

The number of the orientation sensors is limited to 4.

4.4.5 Sound Perception

The sound sensors, e.g., microphones, shall be placed in the head of the robot. The number of microphones is limited to ??

4.4.6 Haptic Sensing

Any passive sensor allowing haptic measurement is permitted, such as force sensors, touch sensors, buttons/bumpers, capacitative touch sensors.

Haptic sensors can be placed at any location of the robot's body and are not limited in number.

4.4.7 Distance Sensing

Active and passive sensors for one-dimensional distance sensing with a limited range are permitted if their use is limited to compensate for shortcomings in the spatial awareness of the robot in the close proximity.

The number of such distance sensors is limited to 4.

The use of distance sensors is discouraged and might be prohibited in the future.

4.4.8 Summary

The following table briefly summarizes pre-approved sensors. The use of listed sensors that are considered human-like is encouraged. The use of listed sensors that are not considered human-like is accepted, but discouraged and might be prohibited or limited in the future.

Sensor Type	Human-Like	Comments
RGB camera	yes	opening angle limit: horizontal $\leq 180^\circ$, vertical $\leq 140^\circ$
Stereo camera	yes	
Event camera	yes	
Active RGB-D based on infrared projection	no	conditionally, under discussion
Active RGB-D based on time of flight (TOF)	no	conditionally, under discussion
Microphone array	yes	
Gyro	yes	
Accelerometer	yes	
Integrated inertial measurement units (IMU)	yes	no compass or must be disabled and not used
Force sensors	yes	
Touch sensors	yes	
Buttons / Bumpers	yes	
Capacitative touch sensors	yes	
Near range infrared sensor	no	
Sonar / ultrasound sensors	no	
1D LIDAR and laser range sensor	no	with limited range
Intrinsic sensors	yes	temperature, current, joint positions, etc.

Clarity needed for manufacturers that do not provide IMU details, just access to data

to be discussed

4.5 Team Markers

4.6 Goalkeeper

The *goalkeeper* may use any of the allowed jersey numbers. The *goalkeeper* must wear a jersey with a primary color different from the primary colors used by the *field players* of both teams.

4.7 Communication and Control

Robots participating in the HSL competitions must act autonomously while a competition is running. No external power supply, teleoperation, remote control, or remote brain of any kind is allowed. Communication is only allowed among robots on the field, and between the robots and the GameController.

between the robots and the referees,

4.7.1 Non-wireless Communications

In general, there are no restrictions on communication between robots in play on the field using visual signaling (e. g., gestures) or the robot's built-in microphones, speakers, and infrared transceivers. However, communication that causes excessive discomfort to an audience, affects the safety of an audience, or violates normal playing rules is not permitted.

4.7.2 Wireless Communications

...

The use of remote processing/sensing is prohibited.

To be discussed.
Take this section from the SPL rules?

5 Competition Structure

The general aims of the structure are:

1. *Encourage* overall progress towards the long-term goal – final game 2050;
2. *Support* fair competition, development of the new teams, and novel approaches in research and technology;

The competition within the RoboCup Humanoid Soccer League is structured in three levels:

1. Main Competition
2. Mixed / Cross Competition
3. Technical and Scientific Challenges

Basic definitions:

Team – a team of robots playing in a single division - can have several institutions working on it (joint team) - can have different types of robots (all need to fit the division)

Super-Team – a team composed of robots from different teams (can cross divisions) - robots from different teams play as a single super team - these play with more robots or a larger field

Mixed-Team – a team of robots with robots belonging to different divisions

5.1 Main Competition – Divisions

The main competition is structured into three divisions. The robots and teams must fulfill the following criteria to compete in the games in a particular division:

Division	Max Robot Height	Max Robot Weight
small	110 cm	15 kg
mid	125 cm	25 kg
large	any size	any weight

NOTE: The human team must be able to handle their robots safely. Robots that cannot be safely handled by the human team, for instance, because of their weight, size, or strength, are not permitted to compete. .

set a reference to appropriate sections in robot players and safety sections

NOTE: Robots from smaller divisions are permitted to participate in larger divisions, provided reasonable technical feasibility and safety are ensured.

Examples of robots in each division:

Division	Permitted Robots
small	NAO, Robotis OP3
mid	Booster K1, Hightorque Hi, Hightorque Pi+
large	Unitree, Booster T1, Alice 4

The games *within* each division are structured in two complexity levels:

Foundation – fundamental games with minimal requirements and complexity to allow teams to develop, and to study technical and scientific foundations;

Advanced – game with higher complexity, pushing the boundaries of the state-of-the-art;

The following limits apply to foundation and advanced games in each division:

Division	Foundation Players per Team	Advanced Players per Team
small	4	7
mid	3	5
large	3	5

Field sizes:

Division	Min Field Size in m	Max Field Size in m
small		6 x 9
mid	6 x 9	9 x 14
large	9 x 14	14 x 22

NOTE: The concrete field size for the large division will be determined by the organizing committee and the local organizing committee, depending on the availability of space and resources. **NOTE:** large field

Ball types and sizes:

Division	Allowed ball types and size
small	SPL ball (10 cm), FIFA mini ball size 1(14 cm)
mid	FIFA size 3 (preferred), FIFA size 4
large	FIFA size 5

5.2 [In Discussion] Mixed Competition – Cross Division

With the future progress of the HSL, the robot players are expected to grow in size and weight, the team sizes get larger, and the games become more complex.

The mixed competitions aim to explore soccer games with a larger number of players on larger fields and to foster collaboration between different teams.

In the mixed competition, Super-Teams consisting of two or more teams compete in the following three categories:

Mixed Competition	Participating Division	Players per Super-Team	Min Players by Team	Field Size
mixed-small	small	11	3	mid
mixed-mid	mid + large	7	3	large
mixed-large	large	5	2	large

5.3 Technical and Scientific Challenges

Technical and scientific challenges aim to explore beyond the boundaries of regular competitions and do not need to follow the rules of main or mixed competitions. The rules for technical and scientific challenges are formulated in a separate document.

6 Game Process

6.1 Structure of the Game

6.2 Game Periods and Robot States

6.2.1 Game Periods

6.2.2 Robot States

6.3 Kick-off

6.3.1 Field-Side Selection and Initial Kick-off

6.3.2 Initial Kick-off

6.3.3 Kick-off

6.3.4 Ball in play

6.4 Goals

6.4.1 Goal Scored

A goal, including own goal, is achieved when the entire ball (not only the center of the ball) goes over the goal-side edge of the goal line, i. e. the ball is completely inside the goal.⁴

The head referee signals a goal by a single whistle blow, followed by the call “Goal <color>”. The head referee should point with one arm towards the center of the field. To assist robots listening for whistles, the referee should blow the whistle from on the carpet at the end of the fields where the goal was scored.

After a team scores a goal, the game proceeds with a kick-off (see Section 6.3.3) for their opponents. The GameController signal (to the robots) of a goal being scored, will be delayed by 15 s.

⁴The goal line is part of the field.

6.4.2 Invalid Goal

6.4.3 Competition Rules

6.5 Kick-in / Throw-in

6.6 Goal-Kick

6.7 Corner-Kick

6.8 Free Kick

6.8.1 Direct Free Kick

6.8.2 Indirect Free Kick

6.8.3 Visual gesture

6.8.4 Execution

6.9 Indirect Kick

6.9.1 Fallback mode

6.10 Penalty Kick

6.11 Game Stuck

6.11.1 Local Game Stuck

6.11.2 Global Game Stuck

6.12 Request for Pick-up

6.13 Timeout

6.13.1 Request for Timeout

Each team can call a **maximum of 1 timeout per game** with a total time of no more than **5 minutes**.
During this time, both teams may change robots, change programs, or anything else that can be

done within the time allotted. During normal game time, a team may call a timeout at any stoppage of play (after a goal, stuck game, before a half, etc.). Alternatively, a team may call a timeout before a penalty shootout if they have not used their timeout yet (see ??).

The timeout ends when the team that called the timeout says they are finished, at which time they must be ready to play. The other team must be ready to play at the time the timeout runs out, or **2 minutes** after a prematurely called end of the timeout, whichever is earlier. If the other team is not ready to play in time, it has to call a timeout of its own.

The clock stops during timeouts, even during the preliminaries, and is reset to the time when the current stoppage of play began.

After the completion of the timeout, the game resumes with a kick-off for the team which did not call the timeout.

If a team is not ready to play at the assigned time for a game, the referee will call the timeout for that team. After the expiration of such a timeout, if the team is still not ready to play then the referee shall start the game with only one team on the field. The team that was not ready can return its robots to the field as per the rules for “Request for Pick-up”. If both teams are not ready, the referee will call timeouts for both teams. This “double timeout” expires after 10 minutes.

6.13.2 Referee Timeout

6.14 Extra Time

6.15 Mercy Rule

A game will conclude once the game score shows a goal difference of 10. Ending the game is mandatory once a goal difference of 10 is reached.

6.16 Drop Ball Rule

6.17 Ball Stop Rule

6.18 Determine the Winner of a Match

6.18.1 Winning Team

6.18.2 Winner after Drawn

6.19 Penalty Kick Shoot-Out

6.19.1 Penalty Kick

6.19.2 Sudden Death Shoot-Out

7 Forbidden Actions and Penalties

7.1 Penalty Procedure

7.2 Standard Removal Penalty

7.3 Forbidden Actions

7.3.1 Manual Interaction by Team Members

7.3.2 Damage to the Field

A robot that damages the field, or poses a threat to spectator safety, will be removed from the field for the remainder of the game.

7.3.3 Disciplinary Sanctions

7.3.4 Cautionable Offences

7.3.5 Sending-off Offences

7.4 Illegal Positioning

7.4.1 Before and During Kick-off

7.4.2 Own Goal Area

7.4.3 Defender Encroachment During Free Kick

7.4.4 Penalty Area During Penalty Kick

7.5 Forbidden Motion

7.5.1 Motion in Standby

7.5.2 Motion in Set

7.6 Fallen or Inactive Robot

7.7 Local Game Stuck

7.8 Ball Holding

7.9 Player Stance

7.10 Player Pushing

7.11 Playing with Arms/Hands

7.12 Leaving the Field

Robots must remain inside the field (see Section 2.1) during play, except as permitted by specific rules (e.g., during specific set-plays that allow leaving the field, or returning from a penalized state).

If a robot is outside the field but is actively and clearly attempting to return, temporary lenience may be granted. However, if there is no clear intent to return, the robot is considered to be *leaving the field* and may be penalized accordingly. Illegal positioning also occurs when a robot is not in its designated area during set plays.

Should this be stricter for larger robot divisions as they pose a greater threat if leaving the field

7.13 Jamming

7.14 Aborting a Penalty

Further clarify illegal positioning and consequences. Will refer to SPL/HL rules for inspiration.

8 Judgement

The referees are the only persons permitted on the carpeted area (i. e. the field and the border area).

8.1 Head Referee

8.2 Assistant Referee

8.2.1 The Stationary Assistant

8.3 GameController Operator

8.4 Game Process

8.4.1 Pre-game Referee Meeting and Task Delegation

8.4.2 Referee–Team Communication

8.4.3 Referees during the Match

8.4.4 Visual Signal

8.4.5 Additional Assistant Referee

8.5 Referee List for Friendly Games

A The Official RoboCup Competition Rules

This section contains rules that are not directly relevant for games and that may not apply at local opens. However, these rules will be upheld at the yearly international RoboCup competition.

A.1 Qualification Procedure and Code Usage

A.2 Announcement of code and hardware usage

A.3 Game Structure

A.4 Competition Mode

A.5 Setup and Inspection

A.6 Competitions

A.7 Referee Duty and Selection

A.8 Rules for Forfeiting

Teams who do not make a good faith effort to participate in a scheduled game are considered to forfeit the game.

If a team notifies the technical committee that they wish to forfeit less than two hours before their scheduled game time, simply fails to show up for their game, or decides during their game that they wish to forfeit, then the opposing team will play the match against an empty field. However, any own goals will not be scored. Hence, after an opponent forfeits, the team playing against an empty field cannot do worse than they were doing at the time the opponent decided to forfeit. Teams may choose to forfeit at any stoppage of play. However, once a forfeit is announced, they may not reverse this decision.

If a team notifies the technical committee that they wish to forfeit at least two hours before their schedule game time, the following procedure will be followed.

- If a team chooses to forfeit a match in the round robin games the other team plays the match against an empty field. However, any own goals will not be scored.

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- If a team chooses to forfeit in a knock-out game it gets replaced by the next best qualified team, i. e. the team it kicked out or left behind in the round robins.

Note that there are a few unlikely cases that are not covered by these rules. If a situation is not covered by these rules, the technical committee and the organizing committee will work together to make a decision.

Any forfeit will result in a qualification penalty being recorded (see ??) but the circumstances of the forfeit will affect the severity of the offense and the impact on future qualification.

A.9 Source Code Releases

All teams that have participated in RoboCup must subsequently release code from that year's codebase. The code must be licensed such that other RoboCup participants can use it, although the license may place conditions on its use. The preferred type of release is the full source code of the software that was running in the team's last game at RoboCup. In case this is not possible (e. g. due to legal reasons), it is required that at least the source code related to the novel contributions (as given during the qualification process) is published. Participation in technical challenges may come with additional requirements on the amount of components to be released.

The source code must be published and its availability announced on the league mailing list (PlaceholderforLeagueEmail) by 2026-10-15. Failing to publish source code by the deadline will result in a qualification penalty being recorded (see ??).

A.10 Subsequent Year Pre-qualification Procedure

A.11 Qualification Penalties

A.12 Disqualification During Competition

A team may be disqualified during the RoboCup competition for:

- A serious violation of the terms of a team's qualification
- Gaining a Qualification Penalty during the course of the competition (see ??)
- A serious breach of ethics, or serious behavior unbecoming of participants of RoboCup.

Example. A team promises to use their novel contribution in RoboCup games, but fails to do so. Alternatively, a team deliberately misleads the technical committee about the novelty of their work and/or their contribution to the league, such that they are deemed to have copied another team.

A team can *only* be disqualified by a decision of the *Board of Trustees of the RoboCup Federation*. The RoboCup Soccer League executive must petition the board in writing at their soonest possible availability. The executive must simultaneously inform the relevant team of the petition in writing.

A disqualified team automatically forfeits all games (see Section A.8). For practicality, the disqualification should not apply *retroactively*. However, by majority vote of the team leaders, provisions for retroactive disqualification may be made in the fairness of the affected teams.

A.13 Awards

A.13.1 Best Referee Voting

A.13.2 Best Humanoid Award

A.14 Trophies

B Venue Setup

C Field Technical Drawings