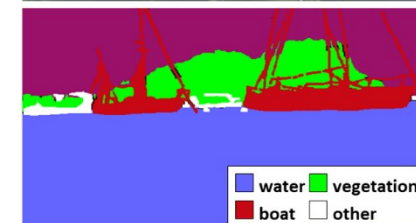
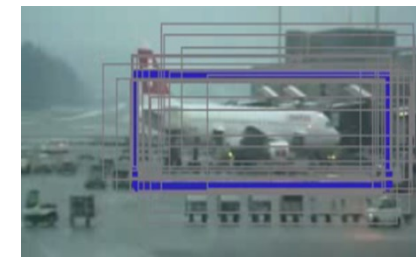
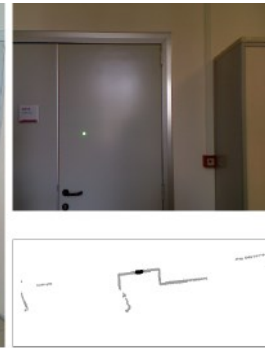
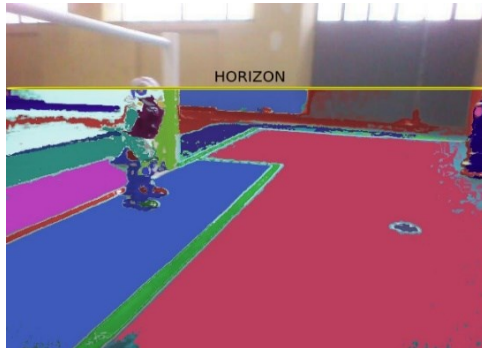




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DELLA BASILICATA**

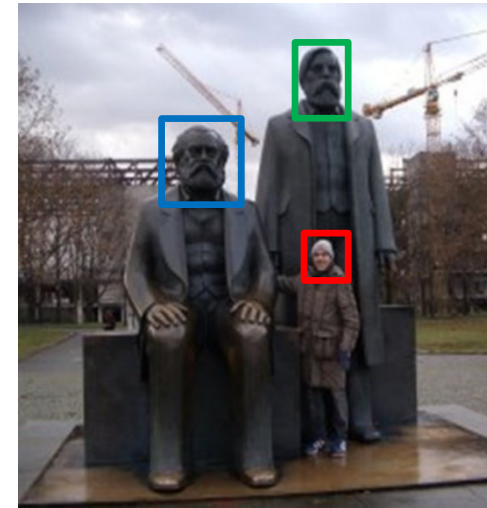
# RoboCup

## i mondiali della robotica



Domenico Daniele  
Bloisi

Dipartimento di  
Matematica, Informatica  
ed Economia



# RoboCup

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## **Che cos'è**

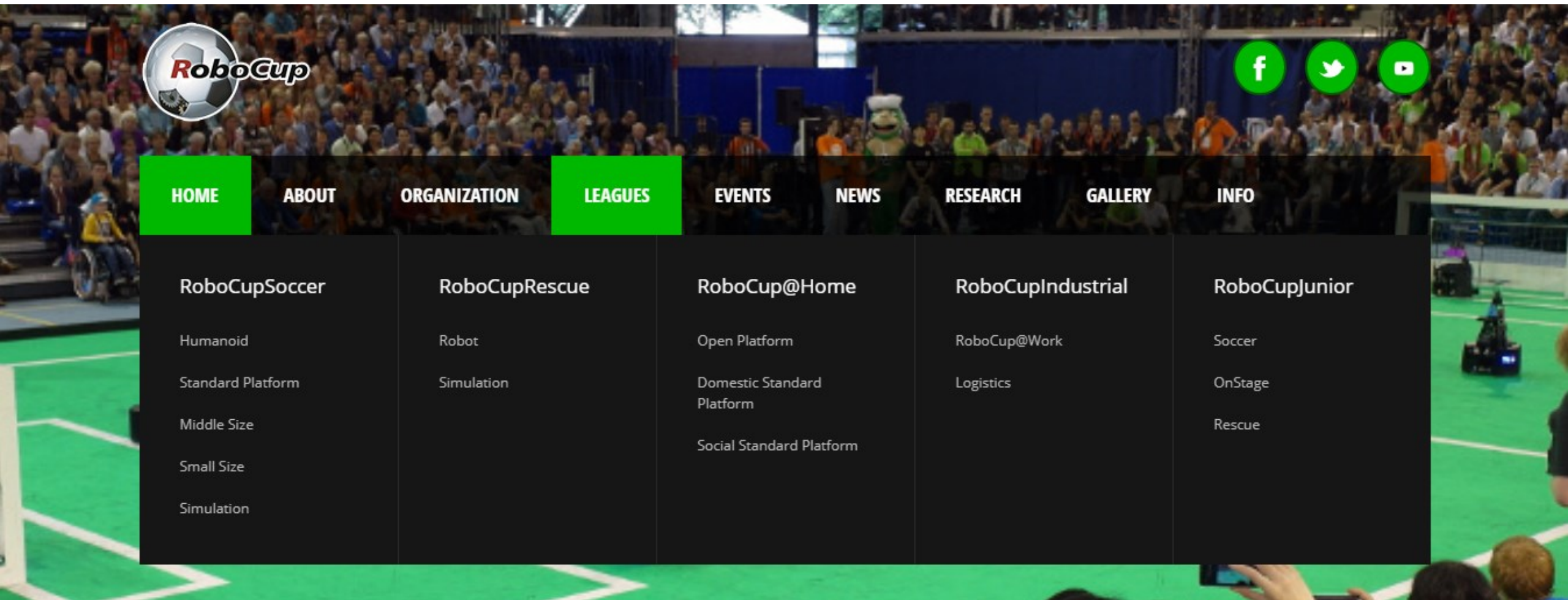
La RoboCup è una competizione internazionale che si tiene ogni anno con la partecipazione di oltre 5000 robot programmati da studenti e ricercatori provenienti da 35 nazioni differenti



## **Obiettivo**

Entro il 2050, costruire una squadra di robot umanoidi completamente autonomi in grado di battere la squadra campione del mondo FIFA

# Leghe RoboCup





# RoboCup SPL

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The RoboCup **Standard Platform League** is a RoboCup robot soccer league, in which all teams compete with identical robots. The robots operate fully autonomously, i.e. there is no external control, neither by humans nor by computers. The current standard platform used is the humanoid NAO by [SoftBank Robotics](https://softbankrobotics.com/).



# Perché il calcio?

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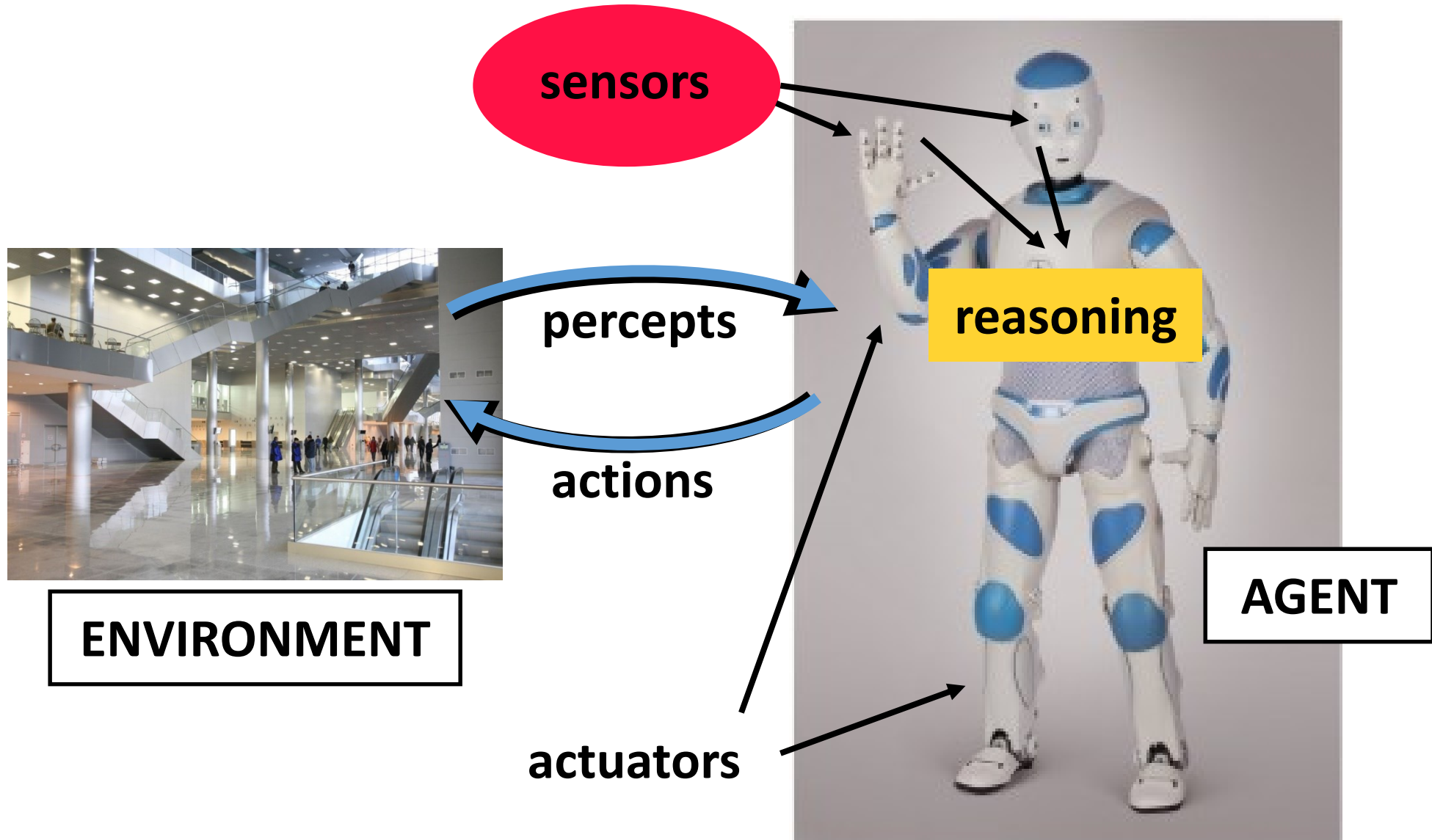
1. È un gioco dinamico che richiede **autonomia**
2. i robot della **stessa squadra** devono cooperare con i compagni per giocare
3. la presenza dell'**avversario** rende complesso l'obiettivo di vincere la partita

# Robot mobile autonomo

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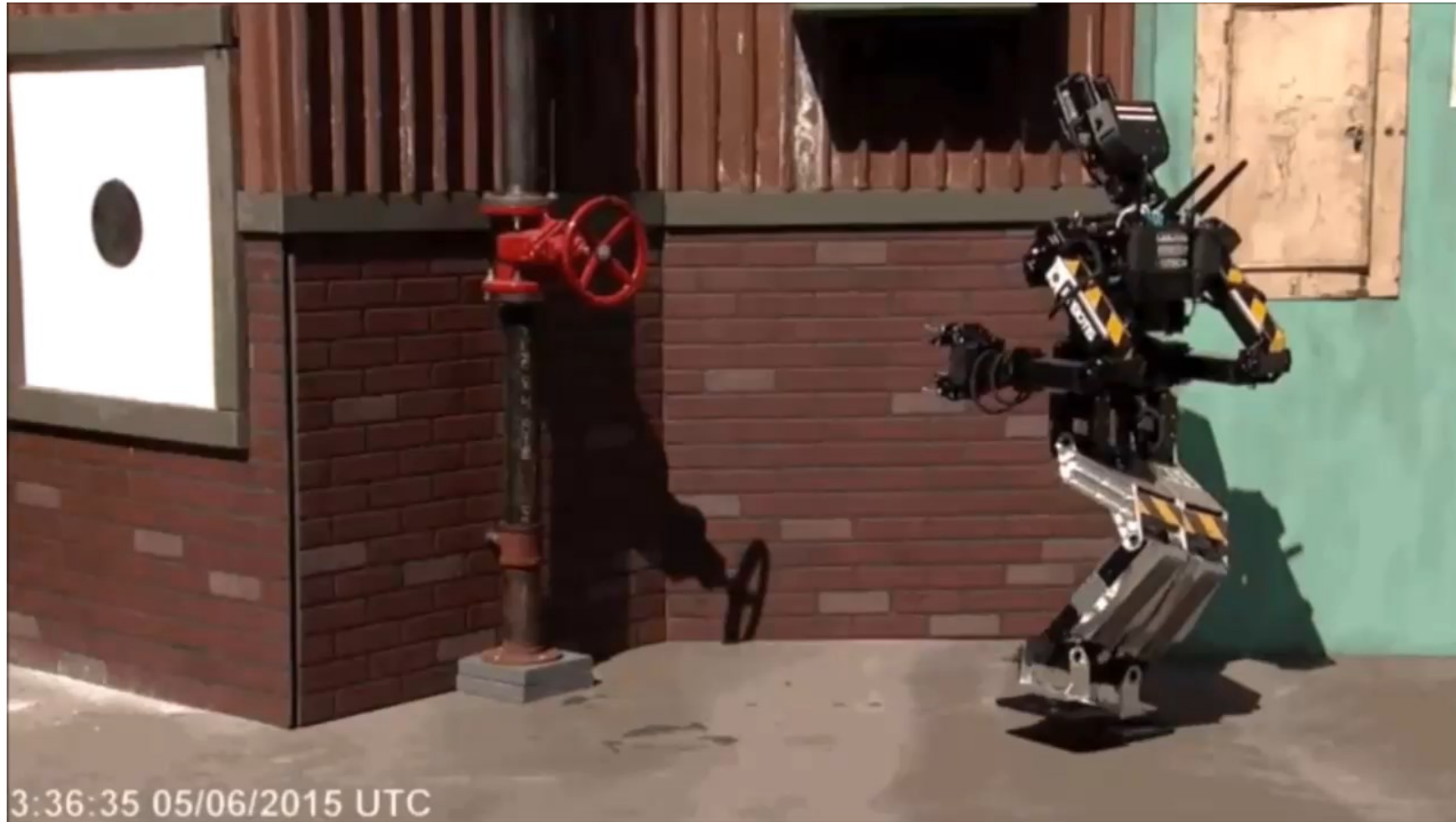
- **Autonomia:** capacità di portare a termine un compito basandosi sullo stato e sulle percezioni correnti, senza intervento umano.
- **Sistema autonomo:** un sistema che prende decisioni da solo, agendo senza la guida di un umano.
- **Robot mobile autonomo:** sistema robotico autonomo capace di muoversi nell'ambiente.

# Perceive-Reason-Act Cycle



# Esempio DARPA Challenge

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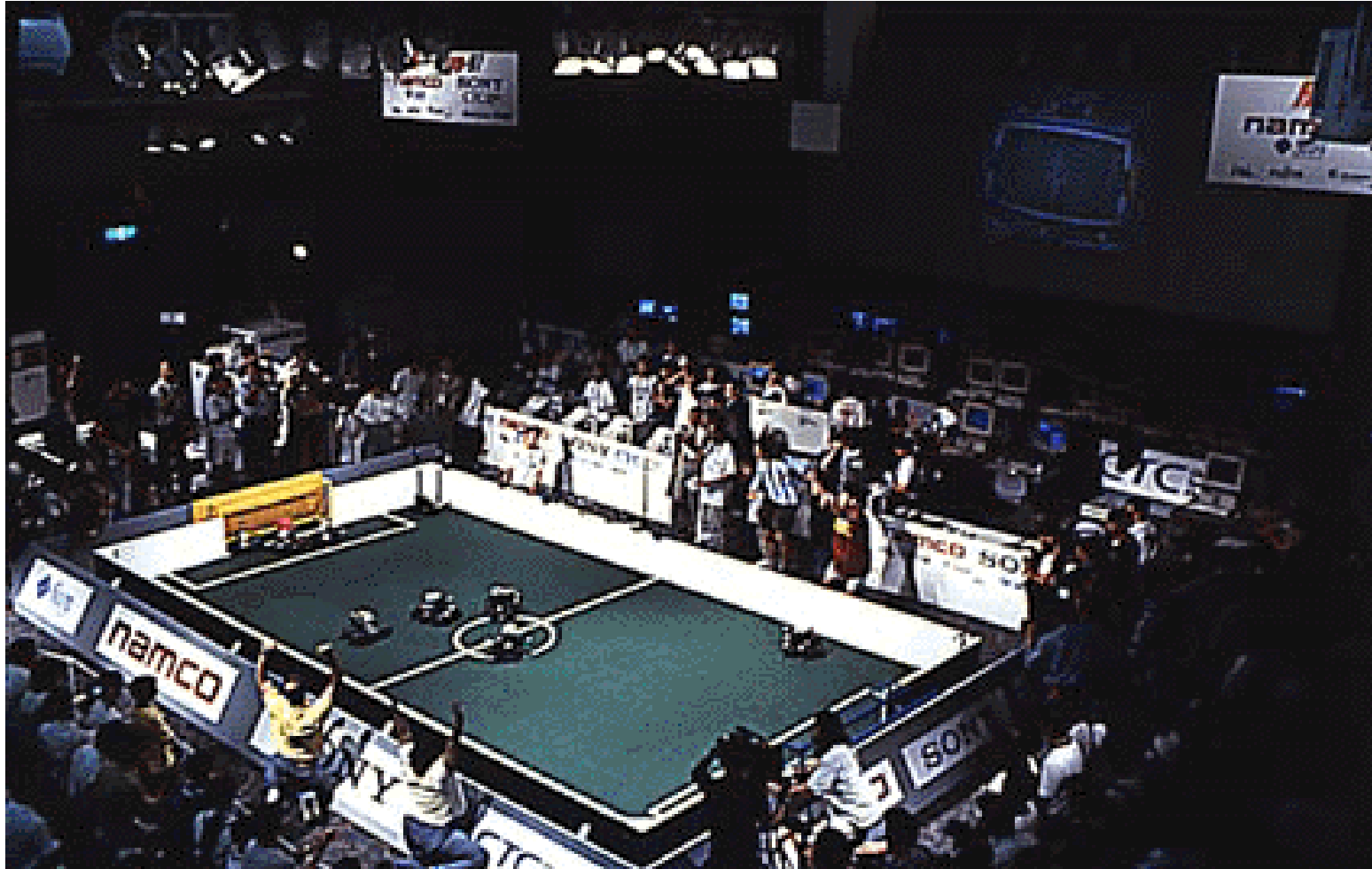


<https://www.youtube.com/watch?v=g0TaYhjpOfo>



# RoboCup97 Nagoya

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35 teams from 12 countries

# Robot quadrupedi



## To feel

Temperature Sensor  
Acceleration Sensor  
Electric Static Sensor: head, back  
Pressure Sensor: chin, paws (4)  
Vibration Sensor



back touch sensor/LED

on/off switch

head touch sensor/LED

ear LED

head LED

vision camera



## To See

camera:  
CMOS Image Sensor 350,000 pixels  
Infrared Distance Sensor:  
head, body

# NAO Humanoid Robot

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Dal 2009 la Standard Platform League ha adottato i robot umanoidi NAO



<https://youtu.be/3thVsBnAJMo>

# RoboCup2016

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<https://www.youtube.com/watch?v=lqGMN1nbNCM>



# RoboCup2018

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<https://youtu.be/ji0OmkaWh20>



# UNIBAS WOLVES

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UNIBAS WOLVES

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Team

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## WELCOME TO THE HOME OF THE WOLVES

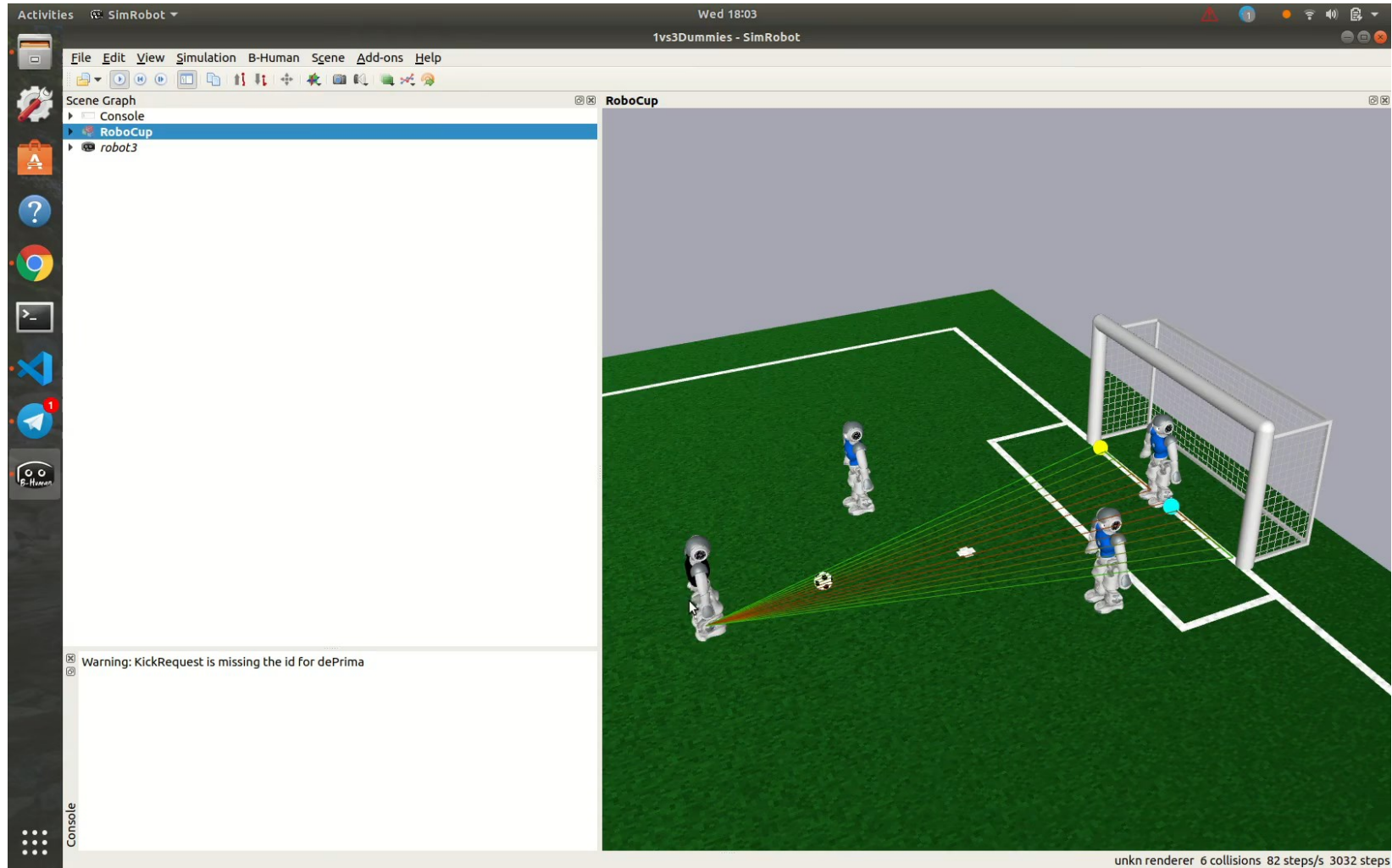


UNIBAS WOLVES is the robot soccer team of the [University of Basilicata](#). Established in 2019, it is focussed on developing software for NAO soccer robots participating in RoboCup competitions.

UNIBAS WOLVES team is twinned with [SPQR Team](#) at Sapienza University of Rome.

<https://sites.google.com/unibas.it/wolves>

# SimRobot

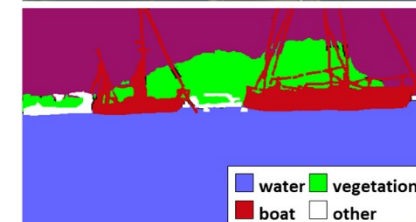
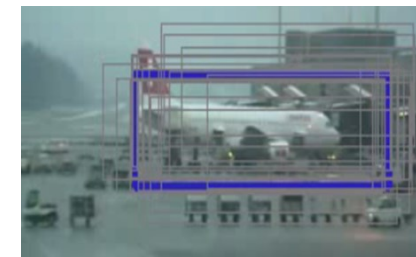
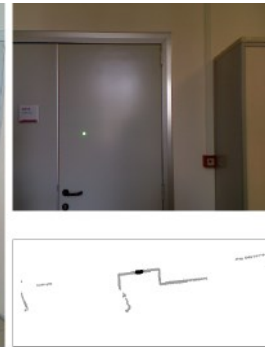
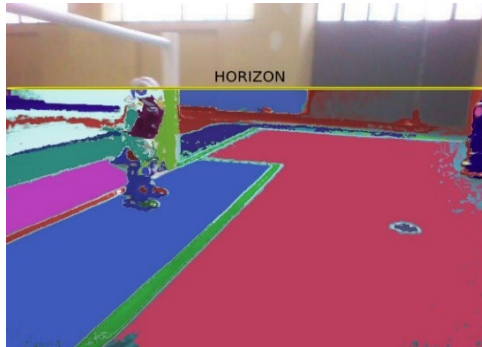




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