RoboCup

By 2050, build a team of fully autonomous humanoid which win against human world champion under the official regulation of FIFA

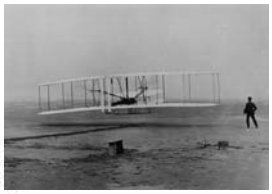
- Mid-size
- 4-Legged
- Small-Size
- Humanoid

RoboCup additional goals

- Rescue
- Junior

Can we accomplish the goal?

1903 → **1969**



© NASA

Computer Chess

ENIAC
1946

Deep Blue
1997

© IBM

RoboCup-97 Nagoya

35 teams from 12 countries

RoboCups

98 Paris
99 Stockholm
00 Melbourne
01 Seattle
02 Fukuoka
03 Padova
04 Lisbon
05 Osaka
06 Bremen

Mid-size

Information on the game acquired through on board sensors

Communication based coordination (but very unreliable)

Typically distributed

Cooperative localization

Task assignment (very dynamic)

4-Legged

Same assumptions as in Mid-size

•larger uncertainty on perception

•slower motion

Action synchronization: the “pass”

Small-size

Small and very fast robots

Global vision system

Typically controlled by a remote host (centralized)

Action synchronization

Learning the opponent model

Humanoid

Soccer Simulation

RoboCup Rescue

Up to now single robot

Cooperative localization and mapping

Action synchronization (resource sharing)

Task assignment (exploration)

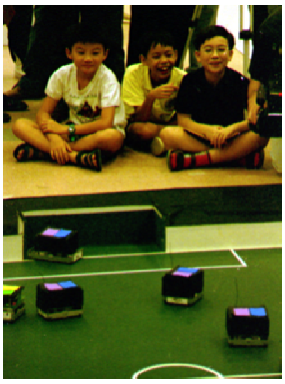
MRS in rescue robot requires autonomy

RoboCup Rescue Simulation

3D viewer by Shinjoh & Yoshida

2D log viewer by Kuwata

RoboCup Jr.



ART Azzurra Robot Team

SPQR Soccer Player Quadruped Robots