Welcome to our presentation

Aibo field localization

(http://www.science.uva.nl/~baslamet)

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January 20th, 2005

RoboCup

- International robot soccer World Championship

- July 2005 - Osaka
- 'By the year 2050, develop a team of fully autonomous humanoid robots that can win against the human world soccer champion team'
- Teams have to publish their code after each RoboCup

4-Legged League

RoboCup
4-Legged League
Code Overview

New Rules 2005
Playing Field 2004
Playing Field 2005

Movie

Project Outline
Project Status
Aibo Problems
What's Next?
Schedule

Demo

Questions?

- Played with Aibo's
- 4 vs 4:
  - Goalie
  - Defensive supporter
  - Offensive supporter
  - Striker

- The Dutch Aibo Team
  - Joint effort of various Dutch universities
  - First participated in 2004
  - Aims for victory in 2005

Code Overview

RoboCup
4-Legged League
Code Overview

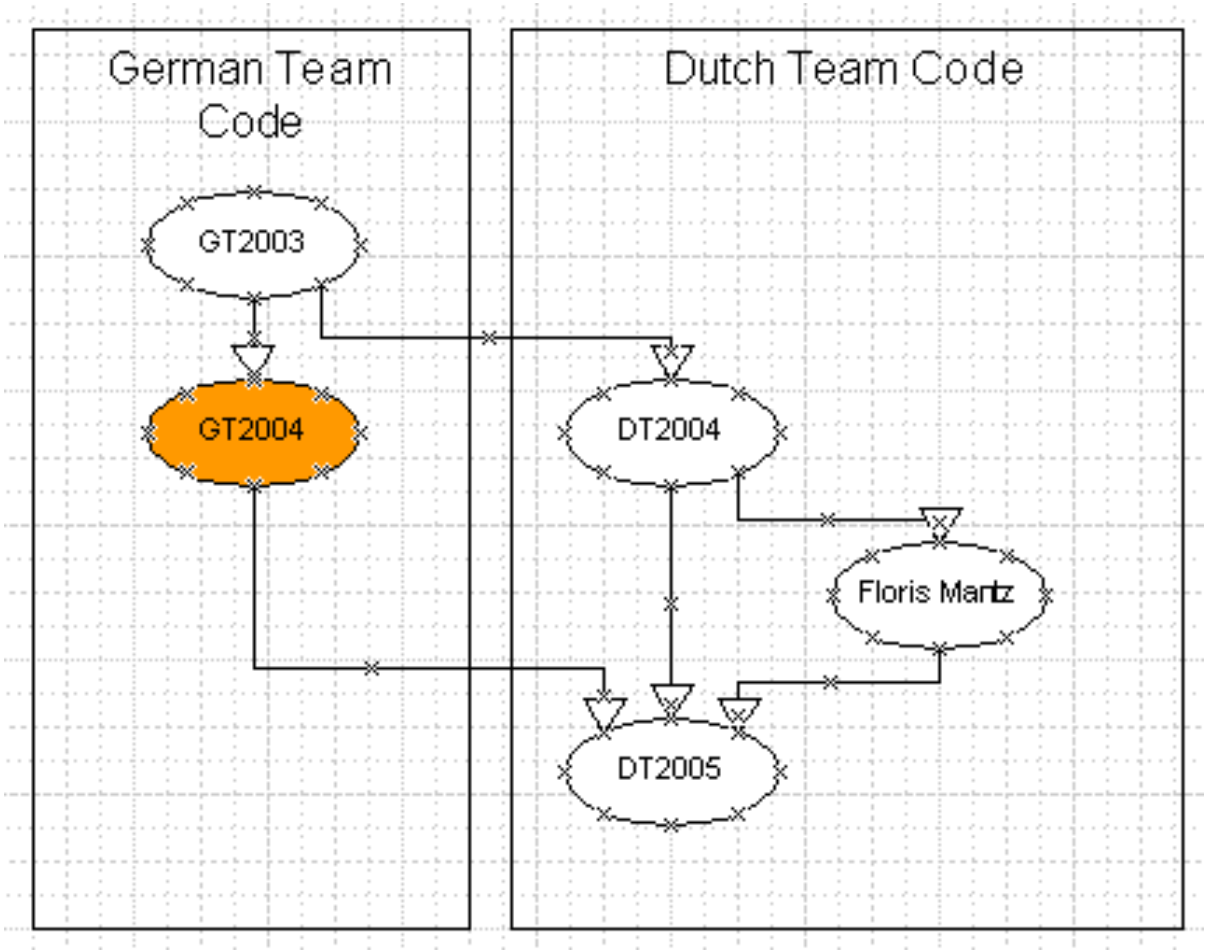
New Rules 2005
Playing Field 2004
Playing Field 2005

Movie

Project Outline
Project Status
Aibo Problems
What's Next?
Schedule

Demo

Questions?



New Rules 2005

- Increasingly natural soccer playing
- Changes for 2005:
  - Bigger playing field
  - White borders are removed
  - Colored marker poles change location
  - Introduction of out-ball concept
  - Robot's should stay inside the field
- Our project:
  - Determine problems that arise
  - Analyze and document possible solutions
  - Implement solutions for DT2005 code

Playing Field 2004

RoboCup
4-Legged League
Code Overview

New Rules 2005
Playing Field 2004
Playing Field 2005

Movie

Project Outline
Project Status
Aibo Problems
What's Next?
Schedule

Demo

Questions?

Playing Field 2005

RoboCup
4-Legged League
Code Overview

New Rules 2005
Playing Field 2004
Playing Field 2005

Movie

Project Outline
Project Status
Aibo Problems
What's Next?
Schedule

Demo

Questions?

Movie

RoboCup
4-Legged League
Code Overview

New Rules 2005
Playing Field 2004
Playing Field 2005

Movie

Project Outline
Project Status
Aibo Problems
What's Next?
Schedule

Demo

Questions?

RoboCup Final 2004

- Germany vs Australia (5-3)

Project Outline

RoboCup
4-Legged League
Code Overview

New Rules 2005
Playing Field 2004
Playing Field 2005

Movie

Project Outline
Project Status
Aibo Problems
What's Next?
Schedule

Demo

Questions?

1. Initiation and start-up
   - Project start-up
   - Set-up soccerfield according to new rules
   - Read-in
   - Install GT2004/DT2004
2. Observation and analysis
3. Development and test
4. Round-up and paper

Project Status

RoboCup
4-Legged League
Code Overview

New Rules 2005
Playing Field 2004
Playing Field 2005

Movie

Project Outline
Project Status
Aibo Problems
What's Next?
Schedule

Demo

Questions?

- Could not get DT2004 to work (yet)
- We have GT2004 working

- Initial acquaintance with research field
- Hypothesized problems based on intuition and acquired insight
- Confirmed most of these with experienced Aibo programmers

Overall: we are half-way observation stage

Aibo Problems

- Localization becomes highly inaccurate
  - Old field size is hard-programmed in
  - Marker poles are moved
  - Extensive usage of white border
  - More visual distraction from audience
- Behavior is based on closed-border field
  - Bounce effect of borders is used
  - No awareness of out-ball situations
  - Robots don't know they should stay in the field

What's Next?

RoboCup
4-Legged League
Code Overview

New Rules 2005
Playing Field 2004
Playing Field 2005

Movie

Project Outline
Project Status
Aibo Problems
What's Next?
Schedule

Demo

Questions?

- Next Monday we will confirm our problem statements with an expert
- In-depth analysis of how the problems relate to various software modules
- Design solutions and verify these with experts
- Implement as much as possible

Schedule

RoboCup
4-Legged League
Code Overview

New Rules 2005
Playing Field 2004
Playing Field 2005

Movie

Project Outline
Project Status
Aibo Problems
What's Next?
Schedule

Demo

Questions?

- Next week
  - Confirm current findings with experts
  - Relate problems to code/software modules
  - Design and implement solutions
- Last week
  - Round-up software development
  - Paper and presentation
  - Communicate all findings and solutions back to Dutch Aibo Team

Demo RobotControl

RoboCup
4-Legged League
Code Overview

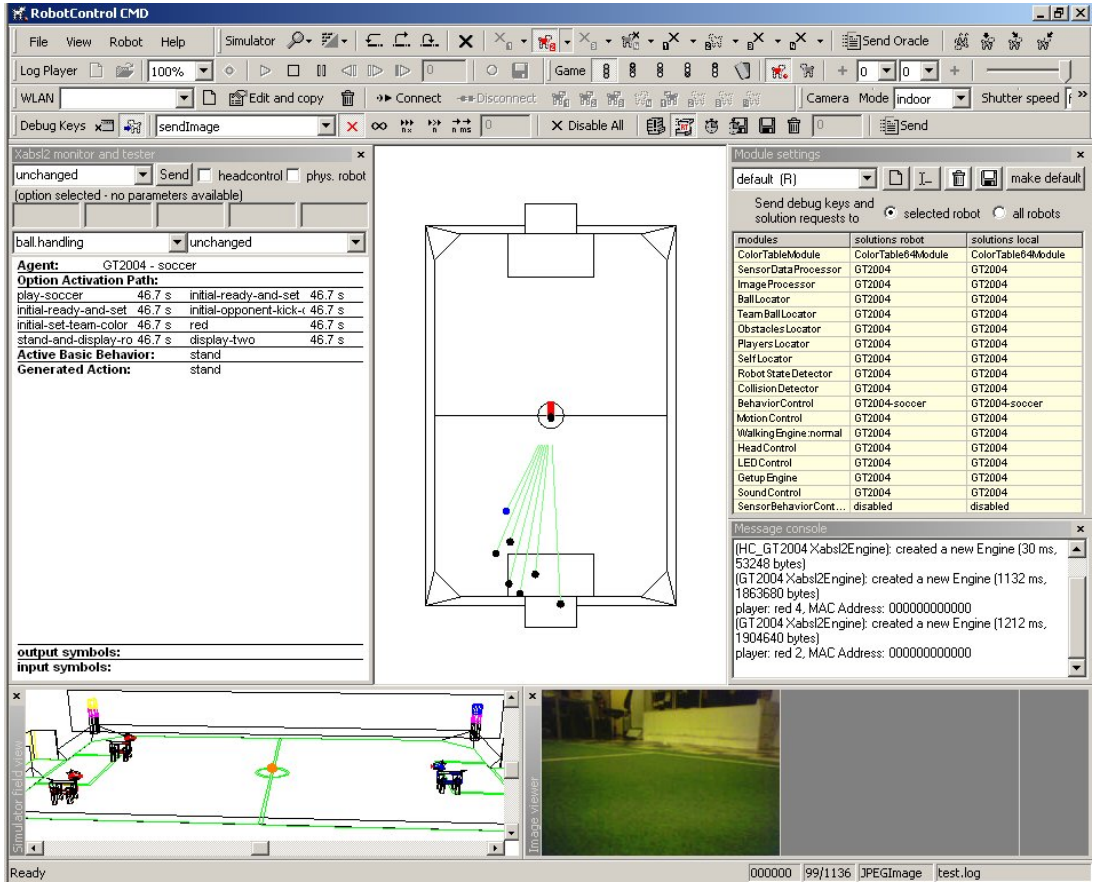
New Rules 2005
Playing Field 2004
Playing Field 2005

Movie

Project Outline
Project Status
Aibo Problems
What's Next?
Schedule

Demo

Questions?



Demo by Roberto Valenti

Questions

RoboCup
4-Legged League
Code Overview

New Rules 2005
Playing Field 2004
Playing Field 2005

Movie

Project Outline
Project Status
Aibo Problems
What's Next?
Schedule

Demo

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Do you have any questions?