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Haute Ecole d'Ingénierie et de Gestion
du Canton de Vaud



Hes·SO

Haute Ecole Spécialisée
de Suisse occidentale

Facts

- Fourth time at Robocup@Home
- Success in past competitions
 - 4th place for Robocup-at-Home in Atlanta
 - 100% Eurobot qualifications 1998-2007
 - 4th European out of several hundred teams
 - Winner of Per'Ac robot competition
 - Numerous publications
- Ten previous robots and more

Methods

• Architecture, Methodology and Tools

- Star network with TCP-IP/Ethernet and USB hubs
- Compact TabletPC for supervisory control and MMI
- PLC for I/O's
- Distributed low-level vision and joint control
- Real-time interaction and multi-agent programming in Piaget
- Laser scanners and ranger, arms and "hands"
- Quantitative approach for cognitics (up to 1.2MLin, 200KLin/s)

• Special aspects

- Extremely fine-grained multi-threading
- VAL-style instructions for high-level specifications of compound transforms, motions, and trajectories
- Thorough capabilities for visual engineering, audio communication, general simulation and debugging

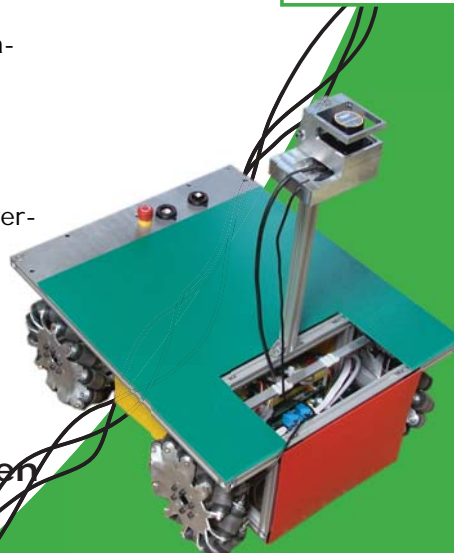
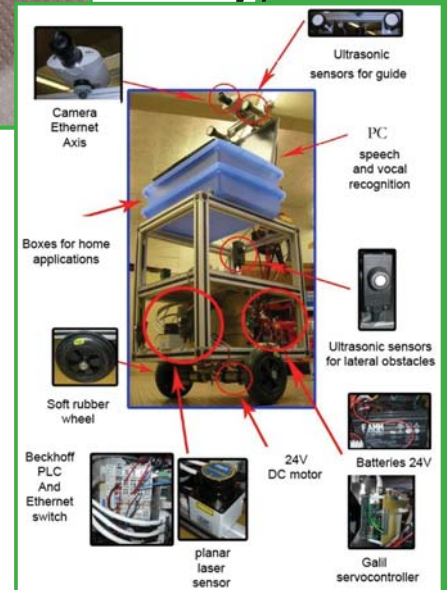
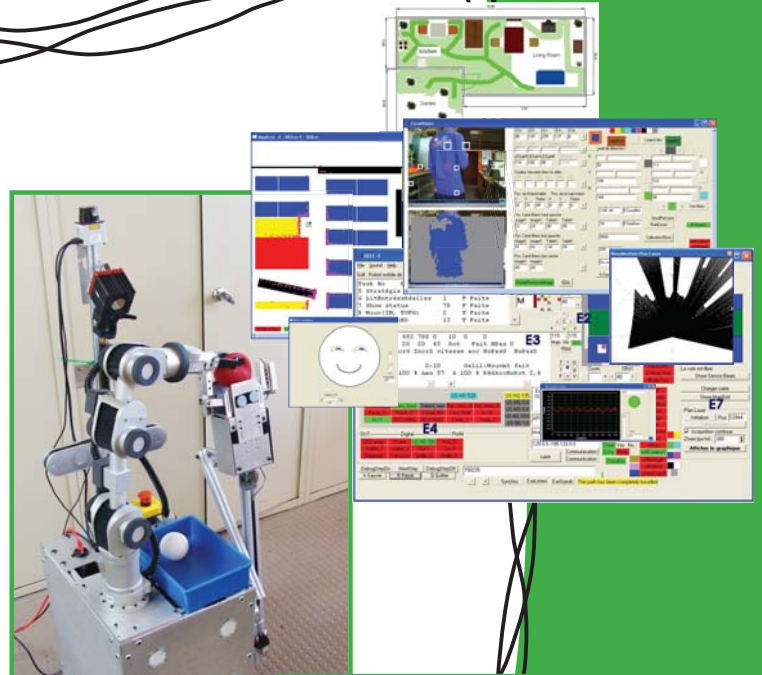
• Novel additional contributions for Robocup@Home application

- Robust joint coordination for error recovery along trajectories
- Gesture commands for guiding control
- "3D" TOF ranger
- Color vision and ranger data fusion
- Omnidirectional platform with frontal capability to overcome 4 cm high obstacles and more
- Two arm (6ddl, 8m) cooperation

• Concept for future developments

Particular Goal for Graz

- Success in four specific tests and Open Challenge (two arm coordination)



RoboCup 2009

