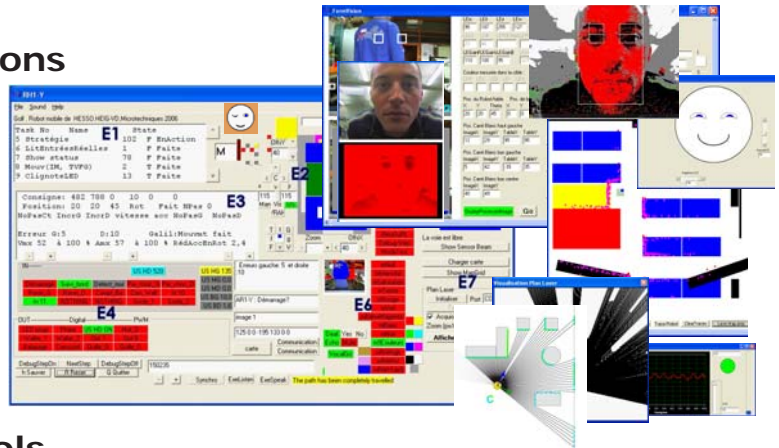




# RH5-Y

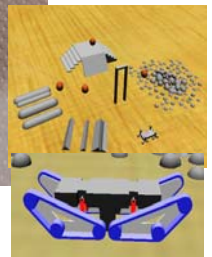
## Facts

- Fifth time at Robocup@Home
- Success in selected past competitions
  - 4th place for Robocup-at-Home in Atlanta
  - 100% Eurobot qualifications 1998-
  - 4th out of several hundred teams in Eurobot
  - 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; NAO as mediator; Gesture commands
  - Distributed low-level vision and joint control
  - Real-time interaction and multi-agent programming in Piaget
  - Laser scanners and 3D TOF ranger, 2 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; Robust joint coordination
  - Omnidirectional platform with frontal capability to overcome 5 cm high obstacles and more
  - Thorough capabilities for visual engineering, audio communication, general simulation and debugging
- Novel additional contributions for Robocup@Home application
  - S-Weighted IversusH color differences in ISH domain
  - WDiff-based correlation for robust face and objects recognition
  - Efficient 3D correlation in planar cartesian space for loc.
  - Notion of robot group with wifi-based coordination
  - NAO as a cultural mediator between humans and robots
- Concept for future developments



## Particular Goal for Singapore

- Success in four RAH tests and Open Challenge (group coordination and HR mediation)

