

EXHOST-PIPE :

EXTENDED High-level Oriented & STANDARD Platform Independent Petri net Editor
for plan Petri nets and particle Petri nets

EXHOST-PIPE

An open-source design, analysis and animation software

- * enhances PIPE2 (<<http://pipe2.sourceforge.net>>)
- * coded with Java (multiplatform: tested on Solaris & Win XP)
- * PNML compliant
- * implements a socket client for real-time data exchange (event management)

EXHOST-PIPE handles:

- ☞ ordinary Petri nets
- ☞ interpreted Petri nets
- ☞ coloured Petri nets
- ☞ modular Petri nets
- ☞ P&T-time Petri nets
- ☞ hybrid Petri nets
- ☞ particle Petri nets



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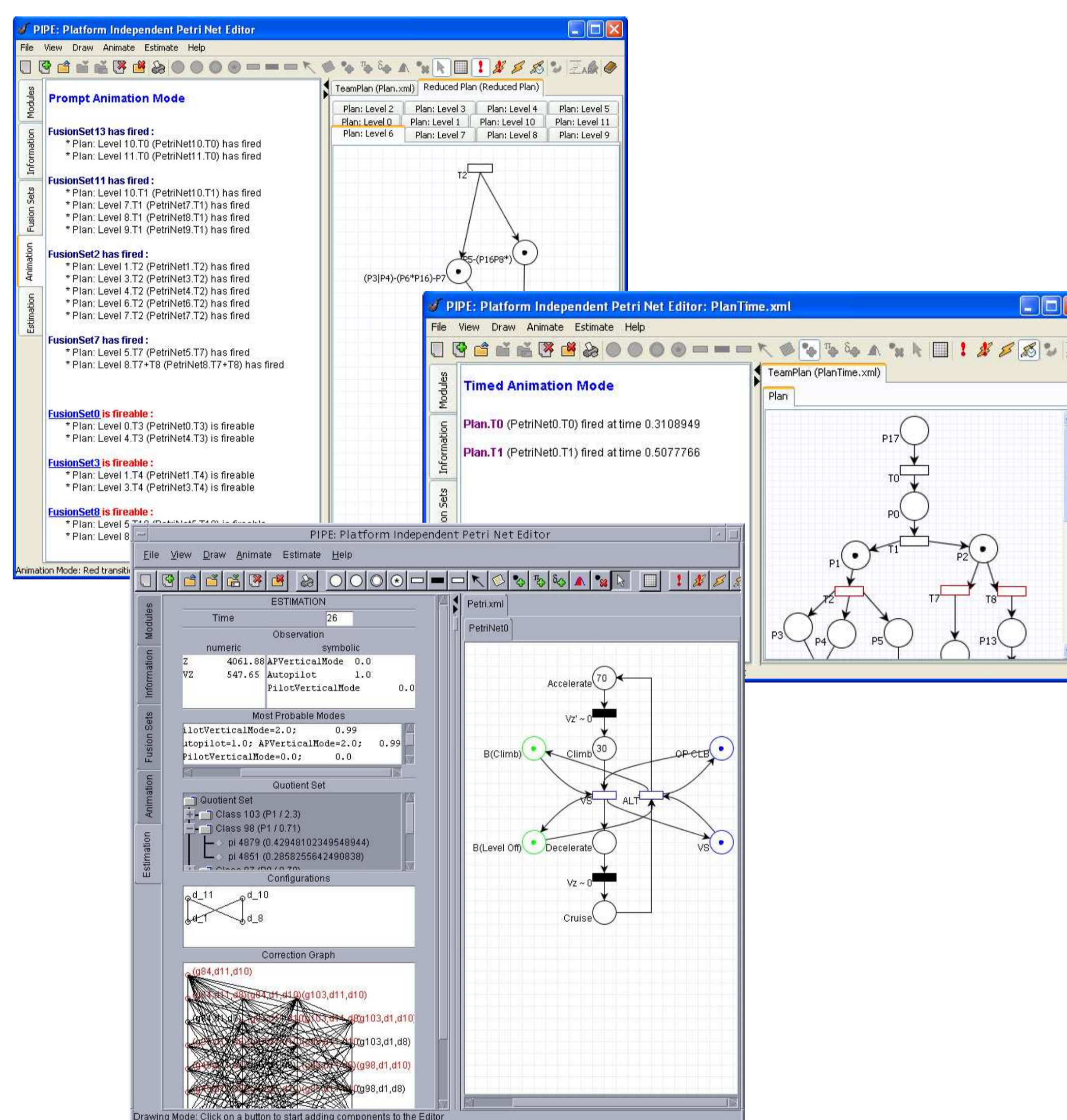
<<http://www.onera.fr/dcsd-en/exhost-pipe/>>



Features

Six animation modes for simulation and supervision:

- **Prompt mode**, to manually fire transitions
- **Prompt-on-conflict mode**, to skip straightforward firings
- **Random mode**, to randomly solve conflicts
- **Timed mode**, to play in simulated time (1 firing every half second)
- **Event mode**, to play in real-time with optional socket communications
- **Xara mode**, to play hybrid & particle Petri nets



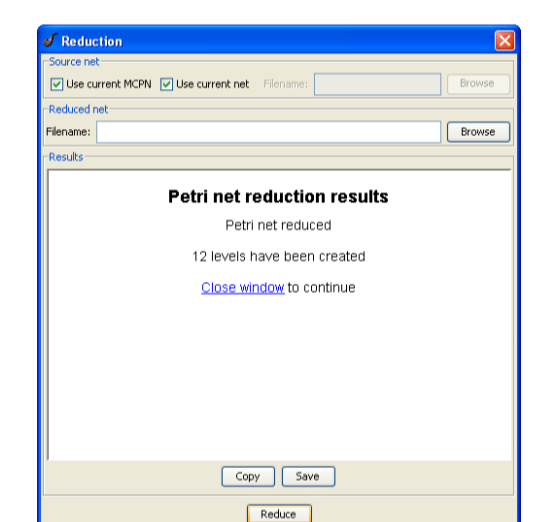
Plug-in modules for extensions and/or analysis:

PIPE modules:

- Invariant analysis
- State space analysis
- Basic GSPN analysis
- DNAmaca (GSPN analysis)

New EXHOST-PIPE modules:

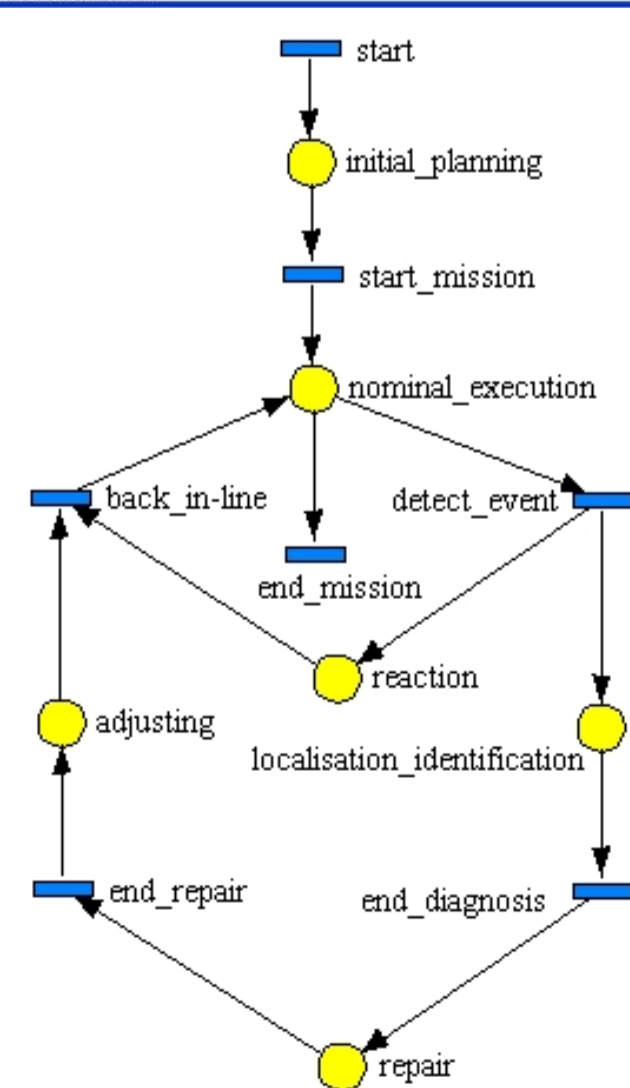
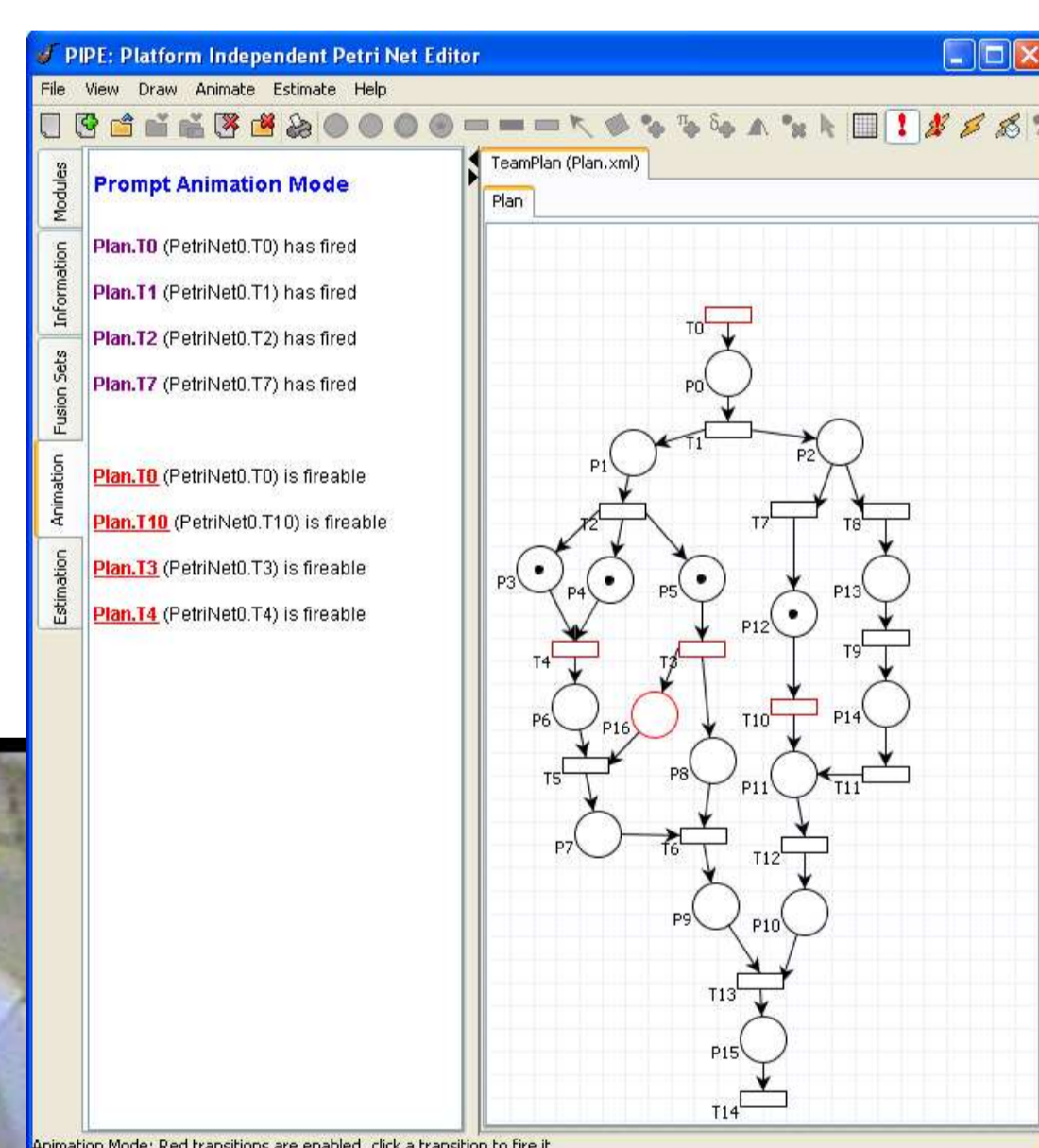
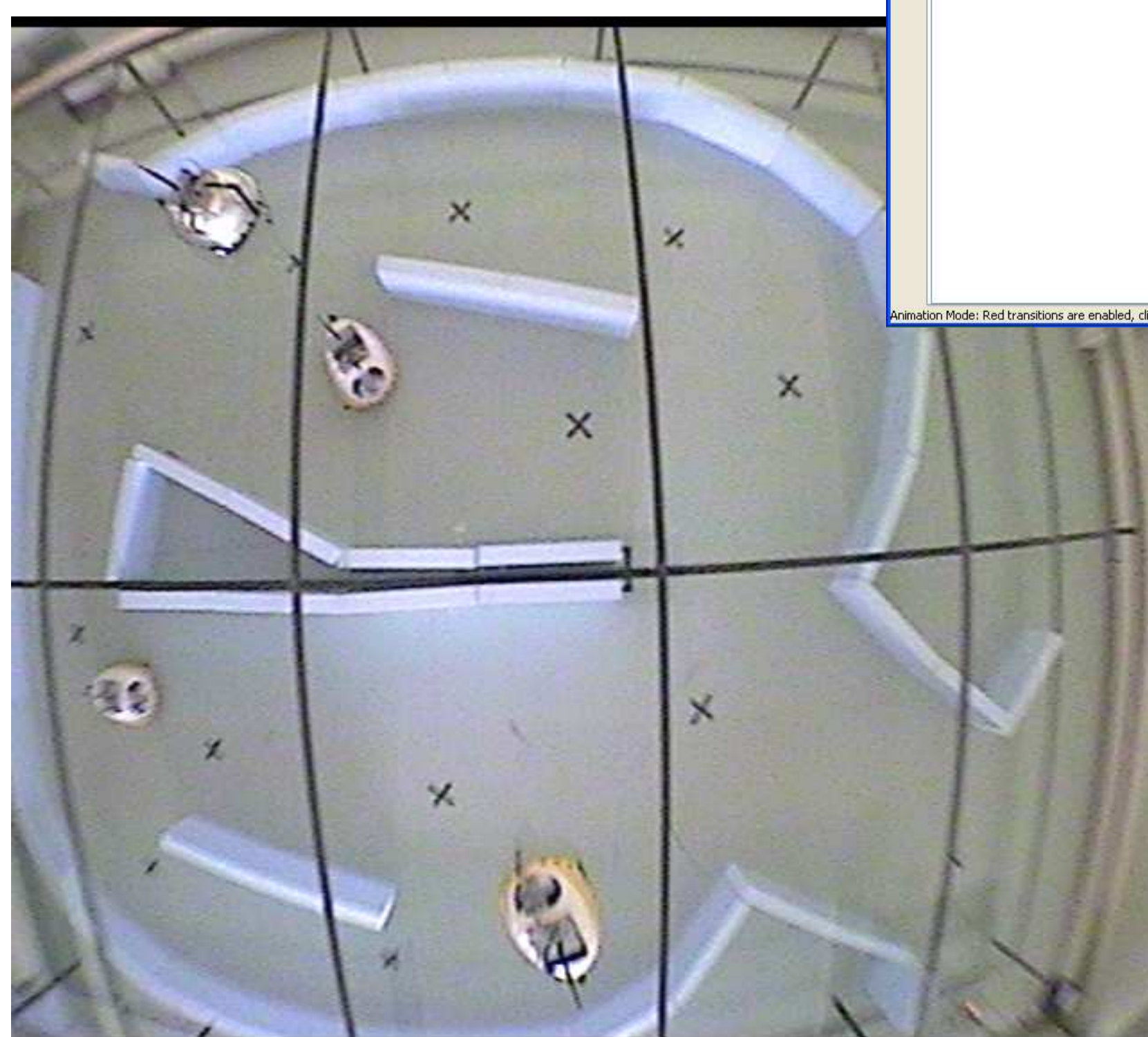
- Marking graph
- Reduction
- Projection
(being implemented)



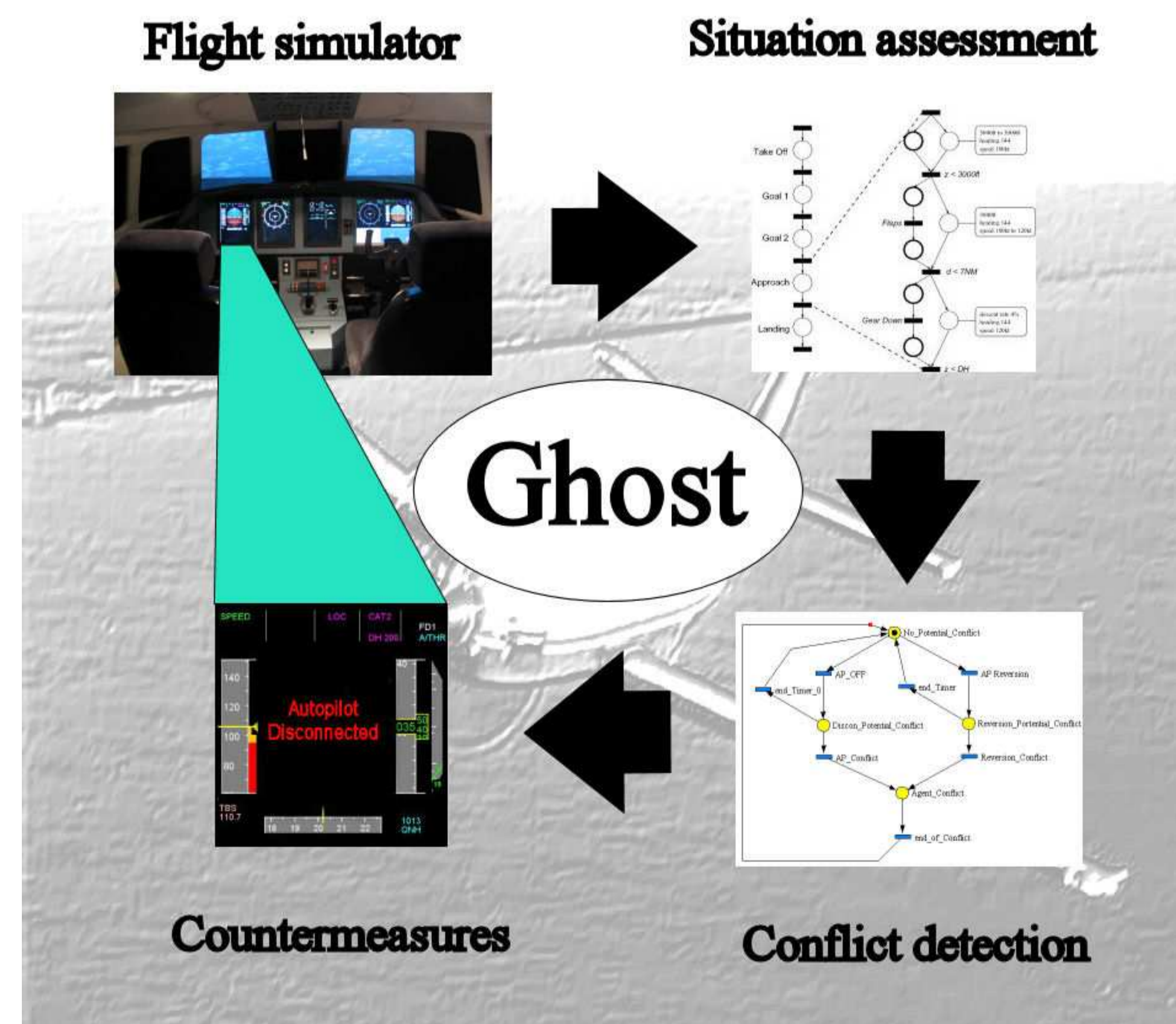
Two main applications

E/AIA: PeKee robot team control architecture

- Team of PeKee robots
- Team plan represented with EXHOST-PIPE
- Disruptive events managed with ProCoSA



Ghost: an aircraft/crew monitoring system



Current & future work

- ☞ Clean up and verify the code for colours and events
- ☞ Complete the projection module
- ☞ Experiment EXHOST-PIPE based architectures for robot team control and aircraft/crew system monitoring
- ☞ Deliver the code to the community

Related work

- 📄 Bloom, Clark, Clifford, Duncan, Khan & Papantoniou, 2003
- 📄 Bonnet-Torrès, Domenech, Lesire & Tessier, ATPN'06
- 📄 Bonnet-Torrès & Tessier, AAMAS'05
- 📄 Lesire & Tessier, ATPN'05.