

Overview of IST Project Ametist, Year 1

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Project Objective

The objective of Ametist is to explore timed automata as a preferred formalism for describing and solving timing-related problems.

To this end the consortium will extend the timed automaton framework (theory, methodology and tools) both in terms of expressivity and in terms of performance.

The consortium intends to move this framework from the current stage of an academic proof of concept to that of a methodologically sound prototype that provides a starting point for further industrial development.

Industrial Objectives

Eliminate obstacles for use of timed automata technology in industry:

- Scalability
- Convenience
- Accessibility

Consortium Productive research groups, shared mission, already much collaboration; industrial partners committed to contribute.

| <i>No</i> | <i>Name</i> | <i>Short name</i> | <i>Country</i> |
|-----------|--|-------------------|----------------|
| 1 | University of Nijmegen | KUN | NL |
| 2 | Robert Bosch GmbH | Bosch | D |
| 3 | Cybernetix Recherche | CYR | F |
| 4 | Axxom Software AG | Axxom | D |
| 5 | Terma A/S | Terma | DK |
| 6 | Aalborg University | AAU | DK |
| 7 | Universität Dortmund | Uni DO | D |
| 8 | VERIMAG | VERIMAG | F |
| 9 | Weizmann Institute of Science | WIS | IL |
| 10 | Laboratoire d'Informatique Fondamentale de Marseille | LIF | F |
| 11 | University of Twente | UT | NL |

Ametist Strategy

1. Treatment of real-life case studies from some candidate application domains.
2. For scalability, introduce better algorithms and data structures to model and manipulate large systems, in particular in the areas of real-time controller synthesis, planning and scheduling.
3. Work on tool interaction to improve usability/convenience.
4. Synthesize the accumulated results to assess applicability.

Project Status

One year after the start of Ametist:

- the project is in line with its objectives,
- all milestones have been reached, for analysis (WP2) and case studies (WP3) the project is “ahead of schedule” ,
- all (draft) deliverables have been produced (some a bit late).

Delays

- All partners are extremely busy doing research, collaborating with industry, attending and organizing meetings, dissemination of results, etc. Sometimes it is difficult to push administrative issues on the top of the priority list.
- Industrial end-user-panel still needs to be assembled.

Key Events

- Kick-off meeting Grenoble, April 4-5, 2002
- TPTS workshop, Grenoble, April 6-7, 2002
- Project meeting in Twente, September 19-20, 2002
- Project meeting in Dortmund, December 2-3, 2002
- Many visits between partners

Scientific and Technical Performance

- More than 100 publications, many in top international conferences/journals.
- Note that (a) more than half of these papers not directly supported by Ametist, (b) most of researchers paid via Ametist are junior researchers in first year of PhD project.
- Fifteen publications involve more than one Ametist partner; collaboration graph (papers, case studies) fully connected.
- Ametist directly led to several important research results.

Project Management and Coordination

- KUN with help of VERIMAG (scientific coordination) and UT (website).
- Thus far project workplan has been carried out as planned.
- No deviations from planned effort consumption.
- All partners provided complementary vital contributions.

Dissemination

- Timing problems addressed by Ametist are universal
- Methods, techniques and tools for solving them are scattered over many disciplines
- Ametist first needs to create a forum to spread its message:
TPTS, FORMATS
- In addition we plan to continue submitting lots of papers to relevant venues

- Set up collaboration with other related European and American projects (Hybridge, Omega, Artist, CC, Mobies, CHESS, ..)
- Organize end-use events and write tutorials for dissemination towards industry
- Use Ametist website

Exploitation

Ametist intends to use 3 main instruments for industrial exploitation:

1. Direct interaction with industrial partners
2. Integrating framework and tool interaction
3. End-user-panel

During year 1 we mainly concentrated on item 1, with positive results. Items 2 and 3 will become more important in years 2 and 3.