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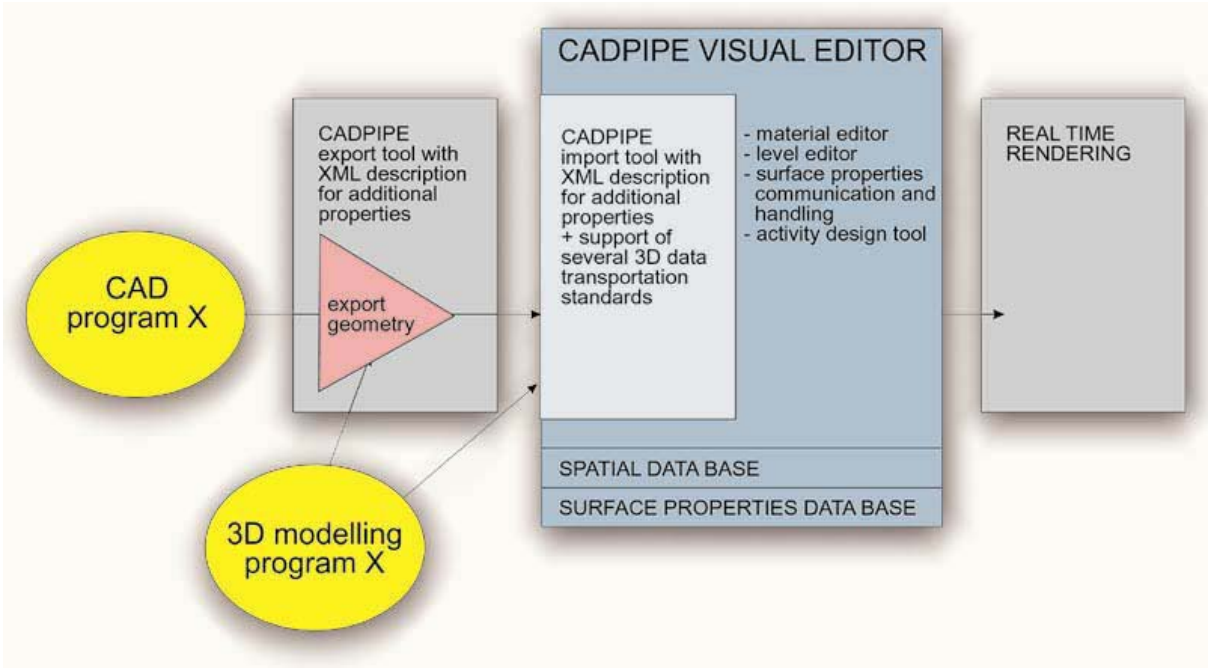
PUBLISHABLE EXECUTIVE SUMMARY FOR THE CADPIPE PROJECT



Cadpipe software product is actually a set of software wrapped behind the one user interface. This makes possible the easy further development and easy to learn usability.

The CADPIPE project aims to build solutions for:

- Decreasing the amount of different working environments to CAD, 3D visualisation and real-time rendering environment. There will be no longer need to use separate format conversion tools between CAD and 3D visualisation tool as well as visualisation tool and the real-time rendering system.
- Smoother data conversion pipeline that allows more accurate information preservation within the pipeline.
- The possibility to add basic interactive and physical behaviour properties to the models in the 3D visualisation phase.
- More efficient real-time rendering performance for the data as it can be prepared in the modelling or visualisation tool to suit the needs for real-time rendering.

Contractors

Partic. Role	Partic. Type	Partiv. No.	Participant name	Participant short name	Country
CR	SME	2	SenseTrix Oy	SENSE	FI
CR	SME	3	NIKI Information Technologies Ltd	NIKI	GR
CR	SME	4	DeltaCad	DELTA	FR
CR	SME	5	*InfoTRON A.S.*	*InfoTRON A.S.*	TR
CR	SME	6	DeskArtes	DESKA	FI
CR	SME	7	Ingeniería y Soluciones Informáticas del Sur S.L.	ISOIN	SP
CR	SME	8	SienaBioGraFiX s.r.l.	SienaBioGraFiX	I
CR	SME	9	Melon Technologies JSC	MELON	BG
CR	SME	10	Nemetschek	NEMET	BG
CR	SME	11	TESTALUNA srl	TL	I
CO	**RTD**	1	VTT Information Technology	VTT	FI
CR	**RTD**	12	Fraunhofer Institute IFF, Fraunhofer-Gesellschaft zur Foerderung der angewandten Forschung e.V.	FgH/IFF	G
CR	**RTD**	13	ICI International Computer Institute	ICI	TR
CR	**RTD**	14	MIRALab, Universite de Geneve	UNIGE	CH

A short History of the Project

The first three months of the project were not effective project time because of the risen problems in the kick-off-meeting leaded to the termination of the project. The starting date (1.10.2004) was not given until the 23rd of December when the project was rejected by the same letter.
Just some allocated research work in WP1 was made by two RTD partners (by their own risk: 12 FhG/IFF and 13 ICI) the actual full-time project started in the beginning of April 2005.
When having only two months time left of the allocated research, RTDs put all their available effort and resources to the project. This made possible the work to become done in decent time but could not be effecting to the actual submission dates of the deliverables. The gap has been caught till the end of the year 2005 and not any serious delays have occurred.

The project has been running fluently after the official start in 1st of April 2005. Four Technical board meetings and two personal live Technical meetings have been made during the first project year to ensure the software modules' compatibility and seamless work together under the common user interface. Several technical project meetings have been made between the members of separate project teams to ensure the product modules will fulfil the demands of the requirements specifications and follow the demands of the system architecture description.

The second project year 2006 started by the Mid Term Review of the project 19.-20.1.2006 in Izmir, Turkey and the software demonstrations seen in this meeting ensured the SME partners that the CADPIPE product will have the needed properties and the project was expected to bring a good result. After the Mid Term Review, RTD partners had Technical meeting about the software development. The development server was decided to become established and the responsibilities of the software development were checked and appointed for the forward software development. The software development server ensured fluent communication between the software developer partners.

The Technical Board Meeting in 30.05.2006 accepted the deliverables till that date by majority of votes (by 75% or more votes each).
Exploitation Agreement draft was written and demonstrated. Exploitation Plan was demonstrated and new activities were written in the document.

In the beginning of the summer the software modules were ready for modules tests. Some problems with the SME partners were met by installations of the correct test surrounding.

Software integration started during the summer. Integration process was not so easy as it was planned to. First Integrated version of the CADPIPE was uploaded to the software server for partners just a week before the TB meeting and was demonstrated in the TB meeting 15.09.06. Some of the partner had still had time to test the CADPIPE before the meeting to tell their experiences.
CADPIPE Test Co-ordinator Ivan Orvieto (Testaluna) and Professor Aydin Ozturk guided the test period by the most professional way and kept track on the test report timing and prepared the report.

Second stage of the project was testing the integrated CADPIPE test prototype (final testing period was started). The reporting executed by e-mail every time any problem occurred so the RTD partners could do the most effective coding of the software by the response.
Third stage - CADPIPE Alpha was developed in the first half of December till the End Term TB meeting.

End Term Meeting demonstrated the final CADPIPE Beta-version product in 14.-15.12.06. in Geneva, Switzerland. Partners were pleased to the project results and accepted the CADPIPE Beta-version product by majority votes. Exploitation Agreement was signed between partners and a common software site owned by partners was established by the domain name CADCHAIN.net for further product development and IPR issues.

Summary of exploitable public result

The huge amount of time consuming and expensive handwork in Virtual reality and other virtual modelling content providing for real-time-rendering has lead to Cadpipe project.

1. Project PUBLIC web pages 31.5.2005. Address: http://cadpipe.vtt.fi Responsible person/RTD: Hannu Kuukkanen/VTT.
   Project web pages are open for all and describes the project and delivers the public information and documents as the project result. Web pages may be useful channel in later use with Cadpipe consortium after project. VTT established the project server for the product development and delivery of the project results.

2. Research report on State of the art of material rendering techniques. Published in 31.5.2005 Responsible person/RTD: Nadia Magnenat-Thalmann, In co-operation with: HyungSeok Kim, Stephane Garchery, G. Papagiannakis, Unige Miralab .
   State of the art of material rendering techniques report aims to provide a general classification of real physical material properties and their simulation using 3D computer graphics algorithms. Their physical properties are analyzed as well as the general equation that describes the simulation of the reflectance of light when interacts with their surface. Finally various analytical models are illustrated that are currently employed in real-time lighting and shading of such materials.
   This report has been published.

3. Research report on State of the art of hardware rendering, parametric surfaces and data reduction. Published in 31.5.2005 Responsible person/RTD: Aydin Ozturk, International Computer Institute, Ege University. In co-operation with Unige Miralab: HyungSeok Kim, Stephane Garchery, Nadia Magnenat-Thalmann.
   The objective of this report is to provide a survey of relevant topics and focus on the state-of-the art techniques on hardware based rendering. Lighting models based on Bidirectional Reflectance Distribution Functions were considered and algorithms and corresponding hardware implementations were reviewed.
   This report has been published.

4. Research report on current CAD conversion pipelines and standard 3d data formats. Published in 31.5.2005 Responsible person/RTD: Steffen Strassburger, Fraunhofer Institut für Fabrikbetrieb und -automatisierung IFF. In co-operation with Tina Haase.
   This report aims to provide an overview of standard 3d data formats. Furthermore it aims on evaluating current CAD conversion pipelines. First of all this text describes the most popular data formats. Afterwards important properties that need to be taken into account for examining the conversion pipeline will be identified and described. As a result this paper suggests an adequate data format that satisfies CADPIPEs demands.
   This report has been published.

5. (WP4 task 4.2) XML standard description. Demonstration in 31.12.2005. XML standard description to export properties not supported in transportation file standards. Person responsible: Jukka Rönkkö VTT. XML standard description will be useful only for the further product development of the CADPIPE system at the moment. XML standard description will be free to use for the CAD domain even though it has been designed specially for the use of this project. XML standard description is a document.
   CADPIPE software family requires a common data model for inside data handling and for data transmission. The CADPIPE data model bases on the Collada specification created and published by the Collada* Consortium**. COLLADA 1.0 specifications Aug 02, 2004
   This document is the description of the classified, constructed Cadpipe project specific 3D data model, easy to code and utilize by the XML technology (for CADPIPE purposes). In this project we have named it as "XML standard description" of the Modelling Data. This work has been assigned to the WP4 task 4.2. XML CAD format standard description can be developed further after the project by the guidance and control of the project consortium or it may be assigned to control of some other domain authority.
   This document IS PUBLIC.

6. (WP7 task 7.2) Technology transfer in partners report contains a short users manual of the CADPIPE software and short report about end user lectures and report of activities made to ensure software development partners to understand the structure of the code. PARTLY PUBLIC

7. (WP7 task 7.3) Seminars, Fairs is a list of public dissemination activities. This document IS PUBLIC.

8. (WP7 task7.4) Publishable Executive Summary of the Final Report (this document) IS PUBLIC.

Rest of the results will be published only by the permission of the partners.

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