Financial / Administrative co-ordinator

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Executive Summary

Main achievements

Progress in implementation of the "Descripted Work"

Highlights / anticipated problems for the next reporting period

1- Overview

Objectives

Objectives	*Progress towards achieving objectives*
UDUI	
Integration of Smart Devices into Java Applications	Development of a framework of integrating smart devices, a factory that allows to build classes for data exchange devices from XML files.
Robotics scenario	Development of the maze scenario with Lego Mindstorms and handhelds
Metadata generation, retrieval and download mechanism	Planning of a document metadata generation, retrieval and download mechanism for Cool Modes using LOM and a web frontend.
UCH	
Seismic scenario (Chile)	Development of the architecture for the network of seismographs: A requirement analysis is being done to determine which kind of client-server architecture is necessary for collecting data from the seismographs, making them public to all groups, exchanging data between the working groups, etc.: • define a communication architecture which will serve the different connection facilities the schools have • define the data format and structure which the server and clients will store resp. exchange

Objectives	*Progress towards achieving objectives*
Local scenarios: Learning software for blind people	Working on a model for developing learning software for the blind. The model includes the process for developing this kind of systems and the architecture resulting from applying this model.
Astronomical remote scenario (Chile)	• Decoding of the image sent by the telescope; working on calibration of the telescope to specified coordinates. • Design of a flexible server-client architecture for the telescope based on web protocols: receive observation requirements from the clients, forward it to the telescope server, retrieve the image(s) and have it handled to the client
VXU	
COLDEX server infrastructure and services	Development and modeling of Use Cases using UML. These ideas have been used as the foundation for the implementation of the COLDEX server infrastructure and services for the support of collaborative learning activities with regard to customizable user and group profiles.
Biodiversity environment	• Design and initial efforts with regards to the implementation of a local learning environment with the domain of biodiversity • Initial development of physical artifacts using construction kits
Pedagogical model and scenarios	Refining and implementation of the pedagogical model and scenarios for the definition of: • Challenge based learning (an educational pillar in the COLDEX project) • Model and scenarios • Type of experiments • Learning activities and educational workflow Specifically working with the Design of specific learning activities.
USB	
Toolbox documentation	Work on toolbox documentation
3D visualisation of planetary movements	Continued implementation of 3D vizualization of planetary movements (about to be finished)
Seismic scenario with Lego robots	Start working on this scenario, design of a system for seismic simulation, 2D&3D visualization, control of motion platform, data access over internet and from Lego seismograph, implementation started

Objectives	*Progress towards achieving objectives*
UNED	
AD (Active Documents) system compatibility	Continued to make the AD system more portable and configurable in order to be easily installed in other machines: • the AD system was ported to another server to detect potential problems with the installation • the system was tested with users to detect potential problems of use. Now, it is possible also to connect as a group, and the work produced is reflected in each student AD outcome, for all the students in the group. • problems were analysed and fixed • an installation tool has been implemented • documentation (technical, user manual) is being written
Integration of PDAs in the AD system	Now the AD system fully supports PDAs, the implementational aspects have dealt with problems of • security in the connections • visualisation • modification of the XSLT models • integration of applets; some libraries had to be modified • network configuration tests

Objectives	*Progress towards achieving objectives*
Conceptualisation of the learning object repository	A first period was dedicated to the conceptualisation of the LOR and to explore a possible distributed architecture based upon EJB technology. For this purpose two kind of activities have been carried out: • A LOR design. We have taken into account the IMS/LOM/SCORM standards for "learning objects" as well as content packaging. However, in our repository we extend the notion of "object" to include resources such as software tools as well as *learning designs* to specify collaborative activities. This has been described in the paper [*Including collaborative learning designs in a Learning Object Repository*. M. F. Verdejo, B. Barros, J. I. Mayorga, T. Read. To be published in U. Hoppe, F. Verdejo & J. Kay (eds.): Shaping the Future of Learning through Intelligent Technologies. Proceedings of the 11th Conference on Artificial Intelligence in Education. Amsterdam, IOS Press.]. An XML editor was implemented with XML-Schema. The software is ready, and the work has been described in the technical report [*Definición de herramientas para la gestión de recursos de un repositorio distribuido de objetos de enseñanza y aprendizaje en un contexto colaborativo*. TR n. 5, LTCS group, UNED 2003] • A first version of the system architecture, documented in [*Learning object repository (LOR) discussion Document*. TR n.4, LTCS group, UNED 2003]

Objectives	*Progress towards achieving objectives*
Understanding of user requirements	After the project meeting in February we felt essential to discuss together with partners a relevant number of user cases to produce a specification with a common understanding of user requirements. We have proceed to a cycle of proposals and feedback, still going on. For this we are using UML notation. An extended version of the cases with sequence diagrams have been produced using Together. This second period is reflected in deliverable D6.1.1. As a result of the discussion a new version of the architecture has been designed. Meanwhile we have explored the idea of building a COLDEX community web portal based on the current technology for the semantic web. So far, a first Data model has been sketched using the KAON toolsuite. In parallel we have started a collaboration with UPM to study the protocol they propose for remote experiments.
Local scenarios: Analysis of technical requirements at different local experiment sites	After the data collected during the lab tests a reflection was needed and a redesign of the use of PDAs is planned for the near future. A new scenario, including a remote access to an instrument is planned. This will be developed in collaboration with the UPM COLDEX partner. The study has started, two meetings and a working seminar have taken place at the central chemistry lab of UNED, in the University area of Madrid, where the instrument is located.
Local scenarios: Set of applets for chemistry domain	This set has been adapted as well as a drawing tool
Local scenarios: Production of the AD instances	The AD instances for the tests have been produced. They are included in the technical report.
UPM	
Astronomical scenario (Spain)	Development of the astronomical experiments, i.e. moon observation, finding asteroids, solar planet observation, sun spots study, deep sky object observation (Messier objects); camera control via web
Chemical remote scenario	Development of an interface between a chemical machine and a computer

Objectives	*Progress towards achieving objectives*
INESC-ID	
Local scenarios: Biodiversity	• Study of the possibility of including a local scenario in the area of biodiversity. • Definition of a Local Scenario - the BeLife system, a virtual greenhouse, based on previous study. • Initial study of the greenhouse management domain. Contacts with experts in order to further inform our understanding of the domain. • Definition of a greenhouse model. • Development of the greenhouse model. The first working model is finished. • First attempts to validate the model. The referred to expert will validate the model, analysing the system's specifications and comparing the results of the simulation with real life results. These tasks will inform the BeLife model and contribute to further iterations. • Initial characterization of the system's general requirements: definition of the target groups and high level learning requirements. • Study of the system's architecture and its integration on the ION framework. • Integration of the BeLife system within the ION framework Decision to use, at start, the WildTangent as the platform.

1.1 Milestones

Milestone	*Planned date*	*Actual date*	*Comments*
M01 - Project review every six months	30 April 2003	2 July 2003, Luxembourg	The first review for COLDEX
M04 - Tool Prototypes ready	30 April 2003	M6-M12	see section 5 Main results
M05 - Network and interface specification	30 April 2003	2 July 2003 (draft)	D6.1.1

1.2 Deliverables

Deliverable Code & Name	*Planned delivery date*	*Actual delivery date*	*Comments*
D1.2.1 - Project Presentation	31 October 2002	2 July 2003	
D1.4.1 - Dissemination and Use Plan	31 October 2002	2 July 2003	
D2.2.1 - Learning Requirements	31 October 2002	2 July 2003	

1.3 Deviations from Plan

Causes and Description	*Corrective actions*
D1.3.1 - Quality Plan (to come)	Planned for 31 October 2002
D2.2.2 - Collaborative Scenarios (Draft 2 July 2003)	Planned for 30 April 2003; preparation for the first review (planned for 30 April 2003; actual date 2 July 2003)
D2.3.1 - Learning Activity Design (Draft 2 July 2003)	Planned for 30 April 2003; preparation for the first review (planned for 30 April 2003; actual date 2 July 2003)
D3.2.1 and D3.2.2 - TOOLBOX documentation (Draft 2 July 2003)	Planned for 30 April 2003; preparation for the first review (planned for 30 April 2003; actual date 2 July 2003)
D6.1.1 - Network Specification (Draft 2 July 2003)	Planned for 30 April 2003; preparation for the first review (planned for 30 April 2003; actual date 2 July 2003)

2 - Contractual Arrangements

Change of Annex 1 - "Description of Work"

- Addition of the idea of the Learning Object Repository
- Shift of person month:
  - WP 02: 5 pm instead of 2 pm for INESC-ID
  - WP 03: 7 pm instead of 10 pm for USB
  - WP 04: 6 pm instead of 5 pm for USB
  - WP 05: 7 pm instead of 5 pm for USB
  - WP 06: 3 pm instead of 6 pm for INESC-ID
- As decided in the meeting in Lisbon UPM sent a student scholar (Bechario) to UNED to help them out

3 - Project Meetings (held and foreseen)

Title	*Date and Place*	*Main conclusions*
COLDEX meeting	4 - 8 February 2003, Lisbon	• UPM sends a student scholar (Bechario) to UNED to help them out • Discussing of the workshop in Latin America Spring 2004
COLDEX meeting	29 June - 1 July 2003, Duisburg, Germany	Review preparation

Title	*Date and Place*	*Main conclusions*
COLDEX review	2 July 2003, Luxembourg	• Rebuilding timetable • Specification and implementation of DEXTs • Elaborate on European contacts and activities
Next COLDEX meeting	30 October - 1 November 2003, Växjö, Sweden	Planning of the workshop in Argentina (or Chile) Spring 2004

4 - Dissemination / Promotional Information

4.1 Conferences and / or Workshops organised / foreseen by the project

Date	*Title*	*Number of persons attended + other information*
4 - 9 May 2003	Dagstuhl Seminar 2003	"Conceptual and Technical Aspects of Electronic Learning": Presentation with the title "Collaborative Learning and Distributed Experimentation" - focussing on the seismic scenario with Lego robots, 1 person from USB
5 - 8 May 2003	International Symposium of Mathematics Education, Argentina	"The Collaborative Learning and Distributed Experimentation (COLDEX) Project: Making Complex Scientific Phenomena available to everyone", 1 person from VXU
12 - 14 May 2003	First National Workshop of Mathematics Education, Paraguay	"The Collaborative Learning and Distributed Experimentation (COLDEX) Project: Making Complex Scientific Phenomena available to everyone", 1 person from VXU
14 - 17 May 2003	WRTP 2003, Poland	27th IFAC/IFIP/IEEE Workshop on Real-Time Programming "A low cost laboratory for teaching embedded real-time systems" 1 person from UPM
14 - 18 June 2003	CSCL 2003	Participant of the program committee Ulrich Hoppe, UDUI

Date	*Title*	*Number of persons attended + other information*
20 - 24 July 2003	AI-ED 2003	International Conference on Artificial Intelligence in Education • Jansen, M (2003), MatchMaker - A Framework to Support Collaborative Java Applications, In U. Hoppe, F. Verdejo & J. Kay (eds.): Shaping the Future of Learning through Intelligent Technologies. Proceedings of the 11th Conference on Artificial Intelligence in Education. Amsterdam, IOS Press. • Pinkwart, N. (2003). A Plug-In Architecture for Graph Based Collaborative Modeling Systems. In U. Hoppe, F. Verdejo & J. Kay (eds.): Shaping the Future of Learning through Intelligent Technologies. Proceedings of the 11th Conference on Artificial Intelligence in Education. Amsterdam, IOS Press. • Hardings, J. (2003). An XML-based Query Mechanism to Augment Awareness in Computer integrated Classrooms. In U. Hoppe, F. Verdejo & J. Kay (eds.): Shaping the Future of Learning through Intelligent Technologies. Proceedings of the 11th Conference on Artificial Intelligence in Education. Amsterdam, IOS Press. Program Co-Chair Ulrich Hoppe, UDUI

4.2 Articles Published, Press coverage etc.

Date and Type	*Details*
since January 2003 COLDEX publishing	Further development and improvement of the COLDEX Logo and Website

5 - Main results

Description	*Details*
XML Querying Mechanism	XML-based Query Mechanism to Augment Awareness in Computer integrated Classrooms
Seismo Reference Frame for Cool Modes	Development fo the architecture for the network of seismographs in Chile
Maze environment for Lego Mindstorms and Handhelds	Implementation of the maze environment, development of the communication between RCX and PDA
Specification for a Framework of Smart Devices	A Framework to Support Collaborative Java Applications
Specification for Metadata generated by Applications for Cool Modes	Specification of Document Metadata Generation by Applications, including Retrieval and Download Mechanism

Description	*Details*
Specification for Astronomic remote scenarios	Decoding of the sent images and design of a flexible server-client architecture
Specification of the COLDEX infrastructure and services	Development of this structure using UML according to support collaborative learning activities
Pedagogical model and scenarios	Implementation according to the learning activities and educational workflow
AD system compatibility	Enable easy installation of the AD system in other machines and implementation of an installation tool
Integration of PDAs in the AD system	Implementation within the AD system which now fully supports PDAs
Specification of the Learning Object Repository	Development of the conceptualisation of the LOR, taken into account the IMS/LOM/SCORM standards. Detailed description in the technical report: *Definición de herramientas para la gestión de recursos de un repositorio distribuido de objetos de enseñanza y aprendizaje en un contexto colaborativo*. TR n. 5, LTCS group, UNED 2003
Specification of a local scenario: Biodiversity	Definition of the BeLife system, a virtual greenhouse
Architecture for Modeling Systems	A Plug-In Architecture for Graph Based Collaborative Modeling Systems

6 - Project Effort

The effort for the reporting period and the cumulative effort to-day is presented as an Excel sheet which is attached to this management report.

Summary

List of technical, business and administrative highlights, including:

Overall assessment of the main milestones achieved, or results delivered

Several specifications and software prototypes as well as scenarios and environments

Problems encountered and decisions taken

The project needs an adjustment of the timetable, e.g. DEXTs will be specified and implemented and the European contacts and activities will be elaborated. The workshop in Latin America Spring 2004 will take place either in Argentina or in Chile with a collection of DEXTs, LOR support and portal and written material as Input.

Conclusive statement on correspondence between planned project progress (as detailed in the Project Programme) and actual accomplishments

Specific learning activities are designed. Several scenarios are developed. The scenario for seismic measurements is specificied and implemented by now, namely the seismic reference frame for Cool Modes is available. The visualisation of planetary movements is about to be finished. For the integration of smart devices a framework to integrate smart devices in Java applications has been planned and furthermore an integration for PDAs within the AD system was implemented. Concerning the remote scenarios, the telescope in Chile can be used as data source for images, for the chemical remote scenario an interface between a chemical machine and a computer has been developed. Several local scenarios have been specified, namely within the AD system some scenarios are designed, tested and applets as well as a drawing tool has been adapted.
There is a delay in coordination and management, since the Quality Plan is still missing. The reporting will be restructured to avoid further delays in this.

Work progress overview

Specific objectives (for the reporting period)

Integration of smart devices; metadata and retrieval mechanism concerning the learning object repository; local and remote scenarios as described; understanding of user requirements

Achievements

Framework of integrating smart devices; development of seismic network architecture; foundation for the implementation of the COLDEX server infrastructure and services with regard to customizable user and group profiles; implementation of the pedagogical model (challenge based learning); conceptualisation of the LOR; dissemination of the COLDEX project at different conferences and workshops.

Project reviews

Follow-up of recommendations from previous review and / or preparation of inputs to upcoming review

So far no review has taken place. The preparation of inputs to the review in July can be seen from the tables above, namely 1.2, 1.3 and 3.

Work planned for the next reporting period

(UDUI)

Framework for the integration of smart devices:

- Implementation of the framework
- Implementation of a proxy to use different protocols transparently
- Documentation of the framework
- Elaborate on the work to get the communication between different protocols for smart devices running

Meta information mechanism for Cool Modes:

- Structuring (using LOM) and flexible storing of Cool Modes documents to allow an easy retrieval independent of the used platform
- Document metadata generation (automatically generated metadata)
- Retrieval of the stored documents (web client)
- Download mechanism (web client)

Testing and evaluation of the robotics scenario with Lego Mindstorms and handhelds.

(INESC)

a) Aims

- Validation of the BeLife model by an expert.
- Definition of the user interface and learning requirements and corresponding specifications. This issue involves the study of the needs of two distinct groups of learners: non-blind and blind people. We will involve teachers, domain experts and students in our team to inform the design.

b) Potential Issues

We do envision some challenges concerning the development of a user interface for blind learners. We need to contact teachers of this group of learners and understand what are their difficulties concerning the understanding of this particular domain (the management of greenhouses).

Project Management

Contractual issues

There has been a need for a shift of person-months in several workpackages (see section 2 - Contractual Arrangements); UPM sends a student scholar (Bechario) to UNED to help them out. The technical annex has been updated.

Co-operation within the consortium, including project meetings

Two project meetings February 2003 in Lisbon and June/July 2003 in Duisburg and a review took place in July 2003.

Contribution to clustering, concertation and standardisation

Concertation meeting 29. January 2003 in Luxembourg

Participation in workshops and / or conferences, publications, etc.

Participation in workshops or conferences from various partners sum up to six, nine publications are available.

Effort breakdown

- Not only in Europe but also in Latin America information society will play the leading role. Thus the COLDEX project supports collaborative learning processes by creating the educational and technical framework to become aware of the need of scientific progress - and more, the project enables students not only to enhance pure information, but to see it in a wider context by connecting people from different continents working on the same topic.
- As the importance of knowledge increases more and more in society, the COLDEX project aims at deeply required foreseeable demands. The intercultural aspect of the project as well as the low-cost DEXTs cover the postulated social aspect.