Projects and Products Portal for Leonardo da Vinci

Environnement de formation en ligne en chirurgie minimale invasive en orthopédie

2008-1-BG1-LEO05-00454

http://www.adam-europe.eu/adam/project/view.htm?prj=5590

Information sur le projet

Titre:	Environnement de formation en ligne en chirurgie minimale invasive en orthopédie
Code Projet:	2008-1-BG1-LEO05-00454
Année:	2008
Type de Projet:	Projets de transfert d'innovation
Statut:	Accordé
Pays:	BG-Bulgarie
Accroche marketing:	L'objectif du projet est d'améliorer la qualité et l'attractivité des systèmes de formation médicale en adaptant et en intégrant l'approche d'entraînement basée sur la performance et des cours développés dans le projet EPICUROS du programme Leonardo da Vinci aux besoins des systèmes de formation médicale bulgare et irlandais avec des cours en orthopédie.
Résumé:	One of the main directions of the Bulgarian national strategy to implement the electronic Healthcare in Bulgaria responding to the European eHealth strategy is to continuous and sufficient education of healthcare specialists on ICT usage and to building working telemedical applications etc. This project focuses on transfer of innovative training approach and courses developed within the Leonardo da Vinci project for training and disseminating modern aspects of computer assisted surgery in the public health care sector. Its aim is to meet the training requirements of medical staff which have arisen due to developments in biomedical engineering and information and communications technology. In particular, new developments in applications ranging from image processing to robotics lead to new approaches to diagnosis (image processing and analysis) and minimally invasive surgery (arthroscopy). To this end, the project is setting up an integrated system for the dissemination of innovative techniques and training. A set of training courses developed by the Greek partners within the EPICUROS project for new technologies in minimally invasive surgery will be transferred and adapted to the new user needs, structured in a web-database and a communications network for video conferencing and live distance training on new procedures and operations. Through the system, training in new approaches, practices and techniques in the biomedical engineering field will be provided to doctors, medical staff and technicians. It will provide the users (orthopaedists, surgeons and anaesthetists) with instant and on-site access (at hospitals, clinics) to information about the techniques and methods used in diagnosis and computer assisted surgeries. The On-lineOrtho project features well-balanced partnerships in terms of organisations involved and expertise required. It involves training organisations and universities, hospitals and university clinics. The project partners from UIo and BioMed were the main developers of courses within the EPICUROS project, and they will transfer their results in Bulgaria and Ireland. The partners from PU developed the IPSS _EE system for physics, microelectronics, informatics university education, and they will transfer their results to the medical sector. Masho EOOD are experts in information technology experienced in development of e-learning materials. They developed the environment fro training micro- and nanoelectronics in two pilot projects from LdV programme. They will be responsible for the implementation of ICT and the on-line surgery demonstrations. The partners from the Bulgarian medical university clinic and VITA hospital and from the Irish university clinic wish to implement the innovations in their daily practice and to participate in the selection, adaptation and use of the intelligent medical learning environment and the development of new learning materials. The main outcomes will be the intelligent medical performance support environment for surgery training with regular life on-line arthroscopy demonstrations of specific cases and courses in computer assisted orthopaedics adapted to the needs of Bulgaria and Ireland. Besides the adapted old courses three new courses will be developed for anaesthetists, orthopaedic surgeons and medical students on completion of a needs analysis. These will be courses in selection of the content, adaptation and up-grade with new developed learning materials of a course in Hand Surgery, Knee/Shoulder Arthroscopy, Musculoskeletal Surgery and PNB (anaesthesia).

Information sur le projet

The expected impact is:
- Physicians, medical staff and technicians provided with on-the-job training in new approaches, practices and techniques in the biomedical engineering field and with information about the techniques and methods used in diagnosis and computer assisted surgeries, i.e. to the evidence based medicine.
- Increased European multidisciplinary research and training excellence in biomedical informatics and computer assisted medicine by fostering closer cooperation between ICT, medical device, medical imaging, physicians and training institutions.
- Broader benefits to the whole higher and vocational education sector: transferring the positive results and experiences from two Leonardo and Socrates projects to a new sector and new countries, the project will improve perceptions of the new task-oriented learning materials and the self-confidence in their use; inter-institutional and inter-disciplinary collaboration and knowledge sharing in university education will be fostered; community of learners with specific interests can serve as a model for future projects; the project will address the understanding of vocational learning processes and experiences in using performance-centred design and ICT in the hospital and higher medical education sector.
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Information sur le projet

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Description: From the preliminary need analysis the following needs of the target organisations and learners were analysed and summarised:
a) Priorities at European and National level and needs of the health sector:
One of the main directions of the Bulgarian national strategy to implement the electronic Healthcare in Bulgaria [3] responding to the European eHealth strategy is to continuous and sufficient education of healthcare specialists on ICT usage and to building working telemedical applications etc. “The expansion of the knowledge base is accompanied by an unprecedented speed in transformation of frontier scientific inventions into practical use and products…. As probably the most promising of the frontier technologies, life sciences and biotechnology can provide a major contribution to achieving the European Community’s Lisbon Summit’s objective of becoming a leading knowledge-based economy”[2]. The European Council reconfirmed the strategic goal for the European countries to become the most competitive and dynamic knowledge-based economies in the world and enforced the accelerated development of Information society and ICTs. The implementation of e-Health is an important component of the information society and was acknowledged as one of the main priorities in the European development plans. The new initiative of the European Commission i2010, place a significant role on the introduction of electronic health cards and unified information system as an integral part of the modern healthcare [4].
So, there is a need of new environments for predictive, individualised, evidence based, more effective and safer healthcare and the physicians and the other staff in health sector need to be trained to work with them.
b) Needs related to the target groups
In [3] the following data from the eEurope+ health survey are given: 1) The share of GPs with Internet access in Bulgaria is low. Between 14% and 19% form the GPs use Internet access in their offices. For comparison 78% of the GPs in EU -15 have such access; 2) According to NHIF 56.3% from GPs maintain electronic data for their patients in the reporting period by November 2004. In comparison only 8.5% of the medical specialists report electronically, and from the employed in hospitals only 3.7% report electronically; 3) The data show that only 2 % to 4 % from GPs exchange electronic data about their patients. One of the main directions of the Bulgarian

Information sur le projet

National strategy is to continuous and sufficient education of healthcare specialists on ICT usage and to building working telemedical applications etc [3].
So, there is a need of courses for continuous (lifelong) training healthcare staff on the use of ICT for their specific purposes, e.g. systems targeting specific clinical needs such as prediction of diseases, early diagnosis, disease quantification, surgery planning, treatment and training.
One of the main principles of the electronic healthcare is the Evidence-based medicine and the online education of physicians [3]. Evidence-based medicine de-emphasizes intuition, unsystematic clinical experience, and pathophysiologic rationale as sufficient grounds for clinical decision-making, and stresses the examination of evidence from clinical research.
Lack of access to information remains one of the major barriers to evidence based medicine. Limited access to computer facilities, to literature databases and to continuing medical education programmes are just some examples out of the full range causing disparities in universal access to health care information [1].
Physicians need training in the skills necessary for practicing evidence-based medicine. There is a need of e-learning courses with demonstrations, simulation of the cases for predictive, evidence based planning and intervention and they will be more useful for the doctors in remote regions.
In order to decrease the barrier to evidence based medical information and to train the higher order skills of medicine doctors this project will transfer the positive results from the use of Performance Support Systems for training informatics, microelectronics, mathematics, sciences to the sector of medicine as well as the outcomes of the from the EPICUROS project which developed e-learning courses in orthopaedics.
The project aim is to improve the quality and attractiveness of medical training systems by adapting and integrating innovative approach and results from previous Socrates/Minerva and Leonardo da Vinci projects to the needs of Bulgarian and Irish medical training systems with courses in orthopaedics to serve as a pilot in an improved system of learning using the approach of performance support systems.
To this overall aim, the project will work toward achieving the following specific objectives:
1. Identifying and analysing user requirements of orthopaedists, surgeons, medical and technical staff in Bulgaria, Ireland, Greece
2. Selecting and analysing innovative content to meet these requirements
3. Transferring the performance support system approach in medical training and developing an intelligent medical performance support environment for surgery training
4. Pilot test of the system with physicians, medicine students and students in medical electronics.
The preliminary need analysis showed that there is a need of training physicians and medical staff in using and developing eHealth. Within the project we will identify and analyse the specific requirements of orthopaedists, surgeons, medical staff with regard to the stage of development of eHealth systems in each partner country. Based on the requirement analysis, orthopaedics specialists will determine the training content and develop the presentation scenarios of the training courses with regard of development of evidence-based medicine.
The courses from the previous project will be up-graded and new learning materials on anaesthesia, knee and shoulder arthroscopy will be developed as well. The Intelligent Medical Performance Support Environment for Surgery Training will include a multilingual system of distance learning courses, which will be implemented using advanced virtual reality technologies for the representation and simulation of the human body and its movements in three-dimensional space. We will try to realise the idea of the virtual surgery, e.g. on Internet will be available the life video of a surgeon working in one hospital in Bulgaria and there is a videoconferencing with the other experts from Greece, Ireland and Bulgaria. It will be implemented not only for training purposes but to allow through videoconferencing the on-line collaboration of doctors from different European countries before, during or after the surgery in specific medical cases.
Target groups: Physicians – specialists in orthopaedics, anaesthetists, surgeons,

Information sur le projet

teachers and students in medicine, medical managers. The doctors from remote regions particularly.
They all need courses for continuous (lifelong) training on the use of ICT for their specific purposes, e.g. systems targeting specific clinical needs such as prediction of diseases, early diagnosis, disease quantification, surgery planning, treatment and training.
With the new developments in biomedical engineering and information and communications technology raised the needs of training on modern aspects of computer assisted surgery in the public health care sector. In particular, new developments in applications ranging from image processing to robotics lead to new approaches to diagnosis (image processing and analysis) and minimally invasive surgery (arthroscopy).
The students in medical electronics and their teachers are also target group in this project. They need courses providing knowledge about the subject of the devices they are developing. They can not assist at real surgeries, so the virtual courses will correspond to their needs.
Potential users: Physicians in all specialities, medical managers, students in medical high school (colleges) who need to be prepared to use and work in the eHealth environment. They could benefit from the results of this project which courses in orthopaedics will serve as a pilot for developing an improved system of learning using the approach of performance support systems.
The experiences gained and the lessons learnt within the project would be useful for the ICT experts developing eHealth systems, e.g. the Bulgarian National Health Information Foundation.
The pilot test of the developed in the proposed project system will provide the physicians and surgeons as well the managers with data about the feasibility and effectiveness of the provision and use of an instant and on-site access (at hospitals, clinics) to information about the techniques and methods used in diagnosis and surgeries, being computer assisted or the best practices.
The indicator for the first objective will be need and requirements analyses of corresponding partner, feasibility analysis of the e-learning environment and the summarised report.
Indicators for the second objective are the syllabi, content selected and instructional design performed of three (new) courses in orthopaedics and computer assisted surgery.
The positive results of the functionality and usability tests of the IPSS and the adapted/upgraded e-learning materials for the courses will indicate that the third objective is attained.
The positive pilot test report and the evaluation report of the external evaluator will indicate the success of the whole project.
A plan for the implementation of the IPSS with the courses in the national and European eHealth systems will be indicator for the exploitation and sustainability of project outcomes.
New users of the system and the enlarged project partnership by the end of the project will be indicator of its impact and successful dissemination.
Although all members of the consortium speak English, our project respects the language diversities because the users will be doctors and students from each country for which the language should not be an impediment to access the performance support materials.

Thèmes:	*** TIC *** Formation tout au long de la vie *** Enseignement supérieur *** Formation ouverte et à distance *** Formation continue
Sectors:	*** Activités Spécialisées, Scientifiques Et Techniques *** Santé Humaine et Action Sociale *** Enseignement
Types de Produit:	Matériel d'apprentissage Site Internet

Information sur le projet

Enseignement à distance
Autres
Matériel pour l'enseignement
Modules

Information sur le produit: The preliminary need analysis showed that there is a need of training physicians and medical staff in using and developing eHealth. Within the project we will identify and analyse the specific requirements of orthopaedists, surgeons, medical staff with regard to the stage of development of eHealth systems in each partner country. Based on the requirement analysis, orthopaedics specialists will determine the training content and develop the presentation scenarios of the training courses with regard of development of evidence-based medicine. The courses from the previous project will be up-graded and new learning materials on anaesthesia, knee and shoulder arthroscopy will be developed as well. The Intelligent Medical Performance Support Environment for Surgery Training will include a multilingual system of distance learning courses, which will be implemented using advanced virtual reality technologies for the representation and simulation of the human body and its movements in three-dimensional space. We will try to realise the idea of the virtual surgery, e.g. on Internet will be available the life video of a surgeon working in one hospital in Bulgaria and there is a videoconferencing with the other experts from Greece, Ireland and Bulgaria. It will be implemented not only for training purposes but to allow through videoconferencing the on-line collaboration of doctors from different European countries before, during or after the surgery in specific medical cases.

Page Web du projet: http://onlineortho.dipseil.net

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Partenaire

Partner 1

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Pays:
Type d'organisation: Autres
Site Internet:

Partner 2

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Pays:
Type d'organisation: Autres
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Partner 3

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Pays/Région:
Pays:
Type d'organisation: Autres
Site Internet:

Partner 4

Nom: Multiprofile hospital “VITA”
Ville: Sofia
Pays/Région:
Pays:
Type d'organisation: Autres
Site Internet: http://www.art.bg/temp/vita.bg/ spec.php?sp=114&k=25

Partenaire

Partner 5

Nom:	Institute of Biomedical Research & Technology, (BIOMED)- Center for Research & Technology –Thessaly (CE.R.TE.TH)
Ville:	Larissa
Pays/Région:	
Pays:	
Type d'organisation:	Autres
Site Internet:	http://www.biomed.cereteth.gr

Partner 6

Nom:	HSE Cork University Hospital
Ville:	Cork
Pays/Région:	
Pays:	
Type d'organisation:	Autres
Site Internet:	www.cuh.hse.ie (Currently under construction)

Données du projet

C_3_2.doc

http://www.adam-europe.eu/prj/5590/prj/C_3_2.doc

Needs analysis report

C.3.51.doc

http://www.adam-europe.eu/prj/5590/prj/C.3.51.doc

Evaluation plan

C.3.52.doc

http://www.adam-europe.eu/prj/5590/prj/C.3.52.doc

Measurement instruments

C_3_61.doc

http://www.adam-europe.eu/prj/5590/prj/C_3_61.doc

Evaluation reports from the pilot in MUP

C_3_62.doc

http://www.adam-europe.eu/prj/5590/prj/C_3_62.doc

Evaluation reports from the pilot in VITA

C_3_63.doc

http://www.adam-europe.eu/prj/5590/prj/C_3_63.doc

Evaluation reports from the pilot in BIOMED

C_3_64.doc

http://www.adam-europe.eu/prj/5590/prj/C_3_64.doc

Evaluation reports from the pilot in Cork University Hospital

D_2.doc

http://www.adam-europe.eu/prj/5590/prj/D_2.doc

Procedure-specific peripheral nerve blocks

Gabriella Iohom, Cork University Hospital, Ireland

Published in Proceedings of the 2nd International Meeting of the Society of Anaesthesiology and Reanimatology of the Republic of Moldova, Chisinau August 27-30 2009
Arta Medica 2009; 3 (Suppl): p 24-5

D_5.doc

http://www.adam-europe.eu/prj/5590/prj/D_5.doc

Tzanova S., Mileva N., Chankov Ch., Raikov V., On-Line Performance Support Environment for Minimally Invasive Orthopaedic Surgery, World Conference on Educational Multimedia, Hypermedia and Telecommunications ED-MEDIA 2009, June 22-26, 2009, Hawaii, pp. 110-114.

demo-bg-audio.avi

http://www.adam-europe.eu/prj/5590/prj/demo-bg-audio.avi

Demo movie

Produits

1 Performance-centred learning environment with OnLineOrtho courses

2 Project results

3 Dissemination

4 Presentations on Open Workshop

5 Demo movie

Produit 'Performance-centred learning environment with OnLineOrtho courses'

Titre:	Performance-centred learning environment with OnLineOrtho courses
Type de Produit:	Enseignement à distance
Texte marketing:	
Description:	Courses in ENDOSCOPIC CARPAL TUNNEL RELEASE, Treatment strategy in chondral lesions in ankle and knee joint, Fractures of the Distal Radius, Wrist & Hand: Minimally invasive fixation and Peripheral Nerve Blockade (PNB) developed and completed in DIPSEIL: http://env.dipseil.net Log in e-mail: onlineortho_learner@dipseil.net password: 454
Cible:	
Résultat:	
Domaine d'application:	
Adresse du site Internet:	http://env.dipseil.net
Langues de produit:	anglais

Produit 'Project results'

Titre:	Project results
Type de Produit:	
Texte marketing:	
Description:	All our results are published on this address
Cible:	
Résultat:	
Domaine d'application:	
Adresse du site Internet:	http://onlineortho.dipseil.net/index.php/component/remository/?func=select&id=9
Langues de produit:	

Produit 'Dissemination'

Titre:	Dissemination
Type de Produit:	
Texte marketing:	
Description:	All our publications, presentations, posters are published on this address
Cible:	
Résultat:	
Domaine d'application:	
Adresse du site Internet:	http://onlineortho.dipseil.net/index.php/component/remository/?func=select&id=10
Langues de produit:	

Produit 'Presentations on Open Workshop'

Titre:	Presentations on Open Workshop
Type de Produit:	
Texte marketing:	
Description:	Presentations of the partners from the Final Open Workshop could be viewed on this address
Cible:	
Résultat:	
Domaine d'application:	
Adresse du site Internet:	http://onlineortho.dipseil.net/
Langues de produit:	

Produit 'Demo movie'

Titre:	Demo movie
Type de Produit:	
Texte marketing:	
Description:	Demo movie of the project and the link for downloading the full version of the movie could be found on this address
Cible:	
Résultat:	
Domaine d'application:	
Adresse du site Internet:	http://onlineortho.dipseil.net/
Langues de produit:	

Project Tags

The project belongs to the following group(s):

Best Projects (http://www.adam-europe.eu/adam/thematicgroup/MMVII)