



Contract no. 016817

SmartHEALTH

Smart Integrated Biodiagnostic Systems for Healthcare

INSTRUMENT: Integrated Project

PRIORITY: FP6-2004-IST-NMP-2

D11.13 Delivery of SmartHEALTH Project to School Pupils

Due Date of Deliverable: 31st March 2009

Completion Date of Deliverable: 21st July 2009

Start date of project: 1st December 2005 Duration: 48 months

Lead partner for deliverable: iXscient

Revision: v1.1

Project co-funded by the European Commission within the 6th Framework Programme (2002-2006)		
Dissemination Level		
PU	Public	✓
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including Commission Services)	
CO	Confidential, only for members of the consortium (including Commission Services)	

Document History

Issue Date	Version	Changes Made / Reason for this Issue
19 th June 2009	v0.1	First draft
10 th July 2009	v0.2	URV details added
15 th July 2009	v0.3	MFCS details added
21 st July 2009	v1.1	Final version

Copyright

© Copyright 2009 iXscient, UNEW, MiniFAB, URV, MFCS.

This document has been produced within the scope of the SmartHEALTH Project and is confidential to the Project's participants.

The utilisation and release of this document is subject to the conditions of the contract within the 6th Framework Programme, project reference FP6-2004-IST-NMP-2-016817.

Table of Contents

1. Introduction.....	4
2. Junior Café Scientifique (UNEW) – 15/3/07.....	4
3. Encouraging students to undertake third level education in areas of science and engineering (URV).....	5
4. Open Day & Girls’ Day (MFCS).....	5
5. Introducing a Nanotechnology Resource for Teachers (MiniFAB) – 27/5/09.....	6

1. Introduction

This short report describes the delivery of the SmartHEALTH project to schools and school pupils. A number of SmartHEALTH partners have participated in various dissemination events at local schools and this will continue until the end of the project. It is not possible within the scope of the project to address a large number of schools. However, we have tried to cover a broad geographical spread to reflect the European dimension of the project. A brief summary report for each main event is given below. Recent dissemination events have made extensive use of the presentation material for schools provided in deliverable D11.6.

2. Junior Café Scientifique (UNEW) – 15/3/07

Café Scientifique is an opportunity for students to meet working scientists in an informal, relaxed, ‘café’ atmosphere and together explore contemporary issues in science and technology. The cafes are student-led, from choosing the topic to running the café, giving those involved the chance to turn concerns into participation, based on classroom experiences.

Café Scientifique are held in secondary schools (Junior Café Scientifique, or JCS) has developed from the Café Scientifique movement. (see <http://www.juniorcafesci.org.uk>) JCS take place in cafeterias, common rooms or libraries, not classrooms; at lunchtime or after school, so that audience and speaker meet as equals, without barriers. The café format is simple. The scientist speaks for about 10-15 minutes; time enough to introduce the topic and their interest, then the café is open for questions and debate. The talk aims to use the spoken word and low-tech demonstrations. Speakers are volunteers from local universities and industry and range from professors to young PhD students, depending on the topic and their expertise.

This junior café was held at the Sacred in the school library during the lunch break from 12:30pm until 13:15pm. The school is an-all girl school and there were 25 pupils in the audience, aged from 13 to 15 years old. The main speaker was Calum McNeil (Project co-ordinator). A second speaker was Fionagh Thomson (WP9 researcher). The discussion raised various issues, in particular around the question: how soon after being tested does a patient wants to know the results of a cancer diagnosis?

Three main themes emerged during discussion, as outlined below:

1. How quickly would a patient want to know a positive diagnosis: one individual said that they would prefer to wait for the diagnosis so they could go home and be with my family, while another wanted to know immediately rather than wait for the two weeks;
2. Who would be present when the diagnosis was given: the question of whether a counsellor could be there when the test was being taken was raised;
3. The length of time of waiting for the diagnosis, which impacts on how soon people want to know the final diagnosis. Overall, a two week wait, a current NHS guideline within the UK, was considered to be too long to wait;
4. Test accuracy: one individual asked “could the tests ever be wrong?” The knowledge that ‘false positives and false negatives’ could occur, and were common in some situations, did not produce any more questions though the group were clearly surprised by this information.

The junior café scientifique achieved its overall aim of presenting the concept of the SmartHEALTH project to a group of individuals from a secondary school. The audience of 25 pupils from year was a good size for the discussion. The high level of interest in the topic could have led to an extended discussion, beyond the allotted 45 minutes, though this timing was set by

the school lunch break. One of the most successful aspects of this café was the quality of the presentation and the subsequent discussion.

When presenting scientific discussion to school audiences, there can be a tendency for scientists and academics to underestimate the level of knowledge within the group and their ability to discuss topics in-depth. In contrast, the presentation was pitched at a good level and employed current scientific language. When questions were asked, the speaker challenged the audience's thinking, which led to increased discussion and new questions that drew interest from within the assembled group. The discussion was lively and highlighted that the SmartHEALTH project is of interest to a variety of individuals within this school age. After the café, various members of the audience came to thank both speakers and gave positive feedback on the café format and their interest in the SmartHEALTH technology and the ethical issues that had been raised. Follow up literature was sent to the school on the SmartHEALTH project.

3. Encouraging students to undertake third level education in areas of science and engineering (URV)

As part of the Spanish National Science Month Activities, Ciara O' Sullivan of Universitat Rovira i Virgili participated in a series of interactive talks with the public, aimed primarily at secondary school students with the two-fold objective of informing the public of research activities as well as encouraging students to undertake third level education in areas of science and engineering. The talk was entitled "La història del codi genètic i la promesa de la nanotecnologia" (The race for the discovery of DNA; its consequences and impacts on nanotechnology), and took place on 30th October 2008 at the Cosmocaixa Barcelona, and on 26th November 2008 at the Social and Cultural Centre of Lerida. The focus of the talk was to give an introduction to the fields of biotechnology, nanotechnology and nanobiotechnology, following this with concrete examples of projects in the nanobiotechnology arena, one of which was SmartHEALTH. An outline of the talk in Spanish is given at http://www.acup.cat/index.php?option=com_content&task=view&id=211. The talk in Barcelona was attended by 55 students, whilst the talk in Lerida was attended by 120 members of the public, about a third of which were school age students.

There was great interest in the SmartHEALTH project, particularly the communications aspect and the potential ability to have therapeutic follow-up carried out from a home setting, and some survivors of cancer commented their particular favourability towards this aspect of the project. There were some questions as to the potential negative aspects of nanobiotechnology and a short debate between audience members as to whether lack of knowledge was the reason for some scepticism as to the benefits to health and health services that could result from nanobiotechnology.

Additionally, SmartHEALTH was one of the projects showcased at the Tarragona Science Week School Interaction event (19th-21st November 2008, Palau Congres Firal de Tarragona), where a stand was focused towards high school students, with the specific aim of attracting them into science and engineering disciplines as their choice for third level education, by highlighting concrete and tangible research results. The stand was a joint effort of three groups addressing topics of bioengineering, nanobiotechnology and sustainability, with the title "De mooolt gran al més petit" (From humongously large to unbelievably small), and was awarded a prize of 10k€ for the further diffusion and promotion of science and engineering.

4. Open Day & Girls' Day (MFCS)

The Carl Zeiss Jena Open Day (31st May 2008), with roughly 23,000 visitors, was used to introduce microfluidics as an analytical and diagnostic tool to a large, non-scientific dominated but technically interested audience. The SmartHEALTH developments were one hot topic, including the microfluidic chips, how they were realized and what they were used for. The SmartHEALTH

flyers were distributed and more than 500 people visited the exhibition at MFCS (the room was permanently overcrowded) many of them kids. Hands-on experiments with microfluidics were offered to enable young people to get in touch with technology.

Within the German activity of the annual Girls' Day (23rd April 2009), MFCS offered a practical one day course with hands-on-experiments in microfluidics and an introduction in the subject of lab-on-a-chip for analytical and diagnostic applications. SmartHEALTH devices were presented as examples for future diagnostic devices. The girls who attended were school girls at the stage of deciding on their job choice.

5. Introducing a Nanotechnology Resource for Teachers (MiniFAB) – 27/5/09

This one day workshop, held at the CSIRO Science Education Centre in Melbourne, Australia, was aimed to introduce secondary school science teachers to “AccessNano” (www.accessnano.org) which is an Australian National Nanotechnology Resource for Teachers. The idea is to make the teachers aware of the greater potential around nanotechnology, provide real world real examples and a context for why nanotechnology is worth introducing into schools in terms of careers, personal health and as a consumer.

Three presentations were delivered from industry, including Dr. Andrew Campitelli from MiniFAB, who presented a talk entitled “Nanotechnology. An industrial perspective.” The talk focused on the benefits of micro- and nanotechnology solutions for POC diagnostic applications. SmartHEALTH was presented as the main case study. The technology/product development methodologies were presented together with the application environment. The multi-disciplinary nature of the project was also presented, and the importance of communication skills was discussed at great length. Interestingly, all the teachers understood that a career in nanotechnology offers diverse opportunities and that students would be attracted to the “high tech” nature and the societal benefits that the technology can bring. Concerns for the safety and regulation of nanotechnology based products was also discussed.

Over 40 teachers attended the event which was regarded as highly successful. As an outcome, MiniFAB offered to provide tours at their facilities for teachers and students to encourage interest in nanotechnology, particular for medical diagnostic applications.