



eHealth Case Study – Project AMICA

<http://www.amica-eu.org/>

Project details

Project Acronym: AMICA

Project Reference: 507048

Duration: 36 months

Project Cost: 4.01 million euro

Contract Type: Specific Targeted Research Project

Project Funding: 2.65 million euro

Participants

UNIVERSITA CATTOLICA DEL SACRO CUORE	ITALY
JUDEX DATASYSTEMER A/S	DENMARK
INSTITUTE OF COMMUNICATION AND COMPUTER SYSTEMS	GREECE
SWISSLOG HOLDING AG	SWITZERLAND
NESS-I.S.I. LTD.	ISRAEL
UPDATE SOFTWARE LIMITED	UNITED KINGDOM
2ND REGIONAL HEALTH AND WELFARE SYSTEM OF ATTICA	GREECE
AALBORG UNIVERSITET	DENMARK
UNIVERSITAETSKLINIKUM FREIBURG	GERMANY



A large number of patients are harmed by wrong decisions and by medical errors. Data and knowledge needed to reach a correct decision and prevent errors are many times stored in the electronic universe but not available for use. Means to prevent errors are easy to envision in an electronic environment, but are seldom employed.

The main objective is to bring together at the point of care all information available on patients in the electronic accessible universe, together with relevant knowledge and evidence; and make use of this data and knowledge in computerised decision support modules, to improve medical decision-making and prevent medical errors.

To achieve this objective, they intend to implement:

- A system that will assemble, and deliver to the point of care, an integrated patient-object that includes all data available on the patient in the electronic universe.
- A generic mechanism for intelligent decision support, based mainly on causal probabilistic models, that will be triggered by patient profiles,; and used to address the main problems in medical decision-making and medical error prevention.
- A generic application for harvesting the best evidence from systematic reviews of healthcare interventions, and presenting this evidence to the clinician in a convenient and uniform format at the point of care
- Innovative computing techniques (mainly distributed computing) and advanced security solutions, to deliver speed, flexibility and safety to the application, and remove obstacles to sharing of information.
- An innovative interface that will allow the platform to integrate seamlessly with clinician decision making at the point of care.
- An evaluation of all components in 4 medical centres in 4 countries, to assess the systems potential to reduce errors and improve decision-making.



eHealth Case Study – Project INTREPID

<http://www.intrepid-project.org/>

Project details

Project Acronym: INTREPID

Project Reference: 507464

Duration: 24 months

Contract Type: Specific Targeted
Research Project

Project Funding: 2.00 million euro

Participants

ELYROS S.A.	BELGIUM
AURELIA MICROELETTRONICA S.P.A.	ITALY
UNIVERSITY OF IOANNINA	GREECE
INFOCUS HEALTH LIMITED	UNITED KINGDOM
ASSOCIATION DES ANCIENS ELEVES ET DES AMIS DE L'ECOLE SUPERIEURE D'INFORMATIQUE ELECTRONIQUE AUTOMATIQUE	FRANCE
PALLADION THERAPEFTIRION	GREECE



INTREPID project aims at developing a multi-sensor wearable system for the treatment of phobias and situational anxiety. INTREPID project actively contributes to the treatment of phobias in an unobtrusive, personalized and intelligent manner.

The wearable system will be a lightweight device with efficiently powered computation capabilities, which does not interfere with a person's ordinary comfort or activities. It will incorporate emotional intelligence, via a multi-sensor fusion system able to sense the underlying phobias states, and a virtual environment that based on machine's intelligent decisions will virtually expose the patient in situations that help him to learn how to overcome his phobia. In addition, the wearable system will communicate with a healthcare professional's site to provide decision support concerning the patient's therapy.

INTREPID will serve to empower Community citizens in the management of their individual health, to provide health care professionals and facilities with a reliable phobias treatment and decision support tool and to create new opportunities for the medical wearable device industry. INTREPID will build upon the well-documented increasing demand for "healthy lifestyle" products and services on the consumer side and offer potentially significant returns for those who chose to invest in the project outcome.

Scientific objectives

- (a) To effectively exploit the synergy in the information acquired from biometric sensors and develop a new and efficient data fusion process, which will significantly broaden machine perception and enhance awareness of the phobia's states.
- (b) To create a new sensor management system that will use active and selective perception techniques in order to optimize the performance of the multi-sensor system and the overall data fusion process.

Technological objectives

- (a) To create a multi-sensor system that will optimally monitor phobias' symptoms. The system will measure heart rate, perspiration rate, breath rate, muscle stiffness and if needed complementary modalities through a set of miniaturized wearable sensors.
- (b) To create a sophisticated environment in a wearable computer that will consist of:
 - (i) A knowledge-based expert system that will trigger in real time the alternation of sceneries in an immersive VR environment especially designed for VR exposure therapy.
 - (ii) A virtual environment that will enable the patients to interact with the objects or situations of fear.
 - (iii) Mechanisms that enable telepresence. The therapist will be able to intervene in real time into the VR scenery experienced by patient and assist him to control his emotions.
 - (iv) Mechanisms that record and transmit the physiological and emotional effects, which the VR environment provokes to a patient, in a health professional's site.
- (c) To create a professional site for therapists that will assist them to design the next steps of the patient's therapy taking into account the individualized physiological and emotional state of each patient. The system will assist patients to recover from their phobias and health professionals to monitor their patients and treatment procedures through a system which provides with enhanced intelligence.



Virtual Reality exposure has potential as a new medium for a well-established treatment, graded exposure therapy. A medium that makes exposure less aversive and more attractive to patients is likely to increase the proportion who seeks treatment. The combination of the above with emotional intelligence based on physiological signals will vastly improve the therapeutic procedure and is worthy of investigation.

INTREPID Solution & Functionalities

The INTREPID system will consist of three physical entities in terms of hardware, as presented in the diagram below:

