Note: The information given in this document is still preliminary until partner contracts and funding allocations are finalised.

Project Information

Project Short Name	PAMAP
Project Full Name	Physical Activity Monitoring for Aging People
Project Reference	aal-2008-1-162
Coordinator	Didier Stricker
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Background of the Project

In this context, physical activity plays a fundamental role, since it not only increases well-being, but also addresses many **chronic diseases related to chronic conditions**. The most common ones are high blood pressure, arthritis, respiratory diseases like emphysema, and high cholesterol.

Physical inactivity is described as “A Global Public Health Problem” by the World Health Organisation (http://www.who.int/dietphysicalactivity/factsheet_inactivity/en/index.html). Many researchers have noticed that the amount of physical activity in average per individual is diminished and lays below the required threshold. The French report n°623 of February 2008 of the French Research, Study, Evaluation and Statistics Directory reveals that still one quarter of the 15-74 year olds do not even perform the equivalent of at least 30 minutes of physical activity of a mean intensity at least five times a week, although such an activity would meet the recommendations of the WHO. A Swiss study shows that about 30% of the 50 to 64 year olds do not have any physical activity at all. Of those who exercise, about 45 % have a regular physical activity (walking or cycling 150 min per week) and 30% have a moderate to intense activity. This is notwithstanding the fact that the decrease of physical activity has for consequence an evident deficiency of the musculoskeletal system, eventually leading to musculoskeletal pathologies.

Visions and Objectives of the Project

Monitoring of physical activities is a growing field with many diverse applications in the area of Ambient Assisted Living, ranging from medical screening, disorder diagnosis, rehabilitation, to wellness being. A balanced physical activity is essential for “well aging”, and represents a fundamental indicator of good health and life quality. It is well-known that physical activity plays a positive role against Chronic Conditions, and more precisely, stimulates the immune system, decreases depressive state, reduces muscle loosening, activates the bone remodeling, and reduces the risk of cardiovascular diseases. It is an excellent factor for the functional rehabilitation process. In advanced clinical cases, physical activity becomes vital, and patients must, for example, walk or change their posture in bed
at regular time intervals. Current monitoring systems are rather costly, often required wires or special infrastructure, and are often more dedicated to motion analysis than to capturing muscle-skeleton efforts and activities. The objective of this project is to develop an unobtrusive and fully mobile system that enables the accurate monitoring of the physical activities of aging people. The system will base on a set of tiny MEMS sensor units and dedicated software for professional and private use. It will rely on a sounded bio-mechanical model of the human body, measure accurately the motions and efforts of the upper and lower limbs, thanks to an appropriate parameterization. The system will be usable in- and

outdoor, and will enable monitoring of users during their daily activities. It will be modular and will cover applications from well-being to patient monitoring. Important efforts will be put on the User-Interface that will, in an entertaining and motivating way, accompany the user during the day, and enable reviewing and sharing of the recorded activity measurements with physicians, family members, or friends, for medical supervision or private purposes.

Project Partners and Funding

Full name	Short name	Country Code	Type of Organization	Final granted budget in EUR
Deutsches Forschungszentrum für Künstliche Intelligenz GmbH	DFKI	DE	Research Institute	605.167
Foundation Alfred de Rothschild	FAR	FR	Non-Profit Organisation	224.464
Intracom Telecom S.A.	ICOM	EL	Private Company	300.000
Trivisio Prototyping GmbH	Trivisio	DE	Small-Medium Entreprise	446.574
Université de Technologie de Compiègne	UTC	FR	University	252.512
			Total	**1.828.717**

Additional Information

Overview picture of the PAMAP-system