SkinDetector

“Application of the innovative data fusion based non-invasive approach for management of the diabetes mellitus / SkinDetector”

Project code: SME-2012-1-314913  
ES programme: Framework Programme 7 (FP7)  
Duration of the project: 2012-2014

The objective of the project

The aim of the project is to develop a more accurate early-stage detection, diagnosis and monitoring that will reduce the microvascular and macrovascular complications of diabetes mellitus.

Motivation

Diabetes mellitus (DM) is a heterogeneous group of disorders characterized by a high serum glucose level and by disturbances of carbohydrate and lipid metabolism. Diabetics had a greater prevalence of skin manifestations in type 2 than type 1, and as the duration of the DM increased, the likelihood of developing skin manifestations also increased. Early referral to the dermatologist may help to detect complications of the skin in diabetes at an early stage and may prevent disability caused by these complications.

The created system using appropriate information and communication technologies would provide more convenient intercommunication among physicians, by performing consultations, information and knowledge exchange. Therefore, the time between the right diagnosis and effective treatment will be minimized and the probability of negative consequences to the patient’s health (limb amputations, or even death) will be avoided. The novel “smart” diagnostic technique and portable equipment which will be developed in the project is intended to be used by offices of general practitioners and local primary care clinics. Also, the low weight and mobile equipment will be suitable to be used for patient homecare as well.

Ultrasound Institute

Will estimate the parameters of ultrasonic transducers array: element shape, operating frequency, bandwidth, number of elements, etc. These estimations will be completed and validated by simulations. KTU will also perform an analysis and definition of the 3D beamforming algorithms, also development algorithms for data fusion of dermatoscopic (optical images), thermographic images and ultrasonic data.

Project partners

Innovative Technology and Science Limited (UK), UAB Metis Baltic (Lithuania), Boynedun Limited (Ireland), Dotsoft Olokíromenes Efarmoges Diadiktioy kai Vasen Dedomenom AE (Greece), Dasel SL (Spain), Optomed OY (Finland), Technische Universität Dresden (Germany), Lithuanian University of Health Sciences (Lithuania), TWI (UK), Kaunas University of Technology (Lithuania).