




SEMEOTICONS
EMEOTICONS



SEMEiotic Oriented Technology for Individual's
Cardiometabolic risk self-assessment and Self-monitoring

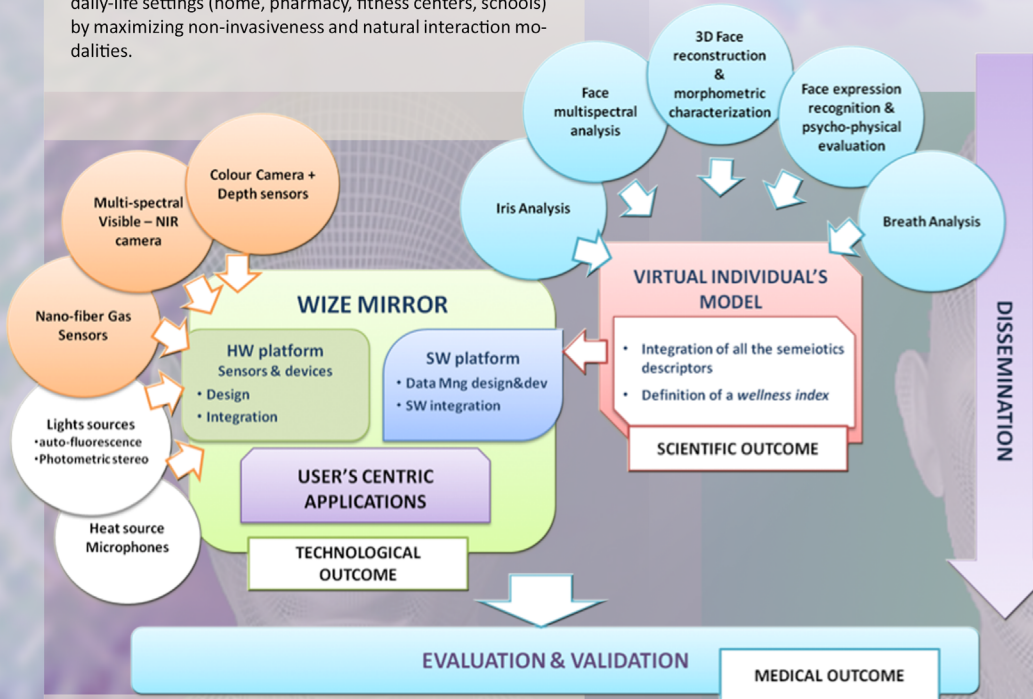
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Graphics & images: Ilgeko

The “Wize Mirror”
Face Reading to Help People stay Healthy

The main idea in SEMEOTICONS is to exploit the human face as a major indicator of the healthy status of an individual, according to the principles of Medical Semeiotics. SEMEOTICONS moves the semeiotic face code to the digital realm, by translating physical signs and facial expressions into *computational* descriptors and measures, which can be automatically extracted from digital representations of the human face. In particular, SEMEOTICONS addresses facial signs related to cardio-metabolic risk. SEMEOTICONS is developing an innovative multi-sensory platform in the form of an interactive smart mirror, called the *Wize Mirror*. The *Wize Mirror* is designed to fit into daily-life settings (home, pharmacy, fitness centers, schools) by maximizing non-invasiveness and natural interaction modalities.



Daily self-monitoring of wellbeing and personalized guidance

By seamlessly integrating contactless sensors (3D optical sensors, multispectral cameras, gas detection sensors, microphones) with a user-friendly interface, the Wize Mirror collects videos, images, 3D scans, and gas concentration of individuals standing in front of the mirror. These heterogeneous data are processed by dedicated algorithms, which extract a number of biometric, morphometric, colorimetric, and compositional descriptors. The integration of descriptors enables the definition of a virtual individual model and an individual *wellness index*, which trace and monitor over time the individual status.

The Wize Mirror is also meant to offer personalized coaching messages aimed at the achievement and the maintenance of a correct life-style. The users will be able to share the content of their diary with health professionals, so as to receive expert guidance and support when needed.



Validation, exploitation and impact of the Wize Mirror

Medical experts will validate the system with respect to the acceptability by the end user, the reproducibility of measurements, their correlation with cardio-metabolic risk and their efficacy in detecting changes in the wellbeing status. Three medical centers located in Pisa, Milan and Lyon will host the Wize Mirror testing. The exploitation of the Wize Mirror is expected to promote new aggregations between health and wellbeing actors, including industries and schools. Finally, the empowerment of individuals, in terms of their ability to self-monitor their status and improve their life-style, is expected to have a great impact on the reduction of health expenditure and disease burden, as prevention is the best strategy to limit the spread of cardio-metabolic diseases.



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Consortium

The project consortium includes ten partners from seven European countries (France, Greece, Italy, Norway, Spain, Sweden, United Kingdom). The consortium has been built to strike a good balance between innovation and technology-driven research. It comprises six research organizations with competence in both ICT and medical areas (CNR, FORTH, LIU, UCLAN, NTNU, CNRH), two industrial partners (INTECS, FORTHNET), and two SMEs (DRACO, COSMED). The project coordinator is the Istituto di Scienza e Tecnologie dell'Informazione (ISTI) of the National Research Council of Italy (CNR), located in Pisa.