
CONFERENCE ABSTRACT

CarpeDiem: Collaborative and Adaptive Recommender for PErsonalized DIET Management

ICIC20 Virtual Conference – September 2020

Eloisa Vargiu¹

1: Eurecat, Centre Tecnològic De Catalunya, Barcelona, Spain

Background:

To live longer, healthier and more active, people at any age have to follow simple and clear suggestions that cover all the 4 pillars of health: physical activity, nutrition, mindfulness, and sleeping. Unfortunately, due to the intrinsic (e.g., daily-life habits) and extrinsic (e.g., environmental changes) factors, people are far from having a healthy life and, thus, there is an increase of chronic diseases, mental disorders, and premature death.

Methods:

The main objective of CarpeDiem is to provide intelligent and automatic support to people who want to follow a diet to stay fit, lose or gain weight (in an integral way, taking into account nutrition, physical- and sleeping-activity). Thus, CarpeDiem users are elderly people who need to follow a strict diet, athletes who want to control their weight and stay healthy or simply, people who want to follow a healthy diet. CarpeDiem is a self-management tool that controls the physical- and sleeping-activity, weight (together with body composition) and, in the near future, food intake. Physical- and sleeping-activity are controlled through an activity tracker that provides information on steps, type, and level of physical activity, pulse, sleep hours and sleeping efficiency. Weight and body composition are measured through a smart scale that provides information about weight, body mass, fat percentage, and BMI. Food intake will be controlled by means of an intelligent system capable of detecting the ingredients of the dish from a photo, a barcode reader associated with product data, an intelligent spatula that detects the amount of salt (sodium and potassium), and a smart glass that measures the amount of liquids.

Results:

On May 2019, 30 volunteers (18 females, 38.22 ± 10.55 years old) started wearing an activity tracker 24/7 and either weighting and answering questionnaires about healthy-life activities once a week. Data are gathered by an app and analysed to create users' profiles. Accordingly, users are receiving awards when the objective in terms of number of steps is reached or recommendations to improve the activity, in case is not. Regarding the sleeping activity, the overall set of recommendations and nudges are under definition by experts from the Institute of Biomedical Research. Three main categories of factors that impact sleeping habits are considered: (1) number of hours; (2) sleep efficiency, calculated as the ratio between the number of slept hours and the total number of hours in bed per night; and (3) the satisfaction of the citizen about her/his sleep calculated through the standard questionnaire SATED.

Conclusions:

The first release of the full system, including food-intake monitoring and recommendations and nudge for sleeping-activity, will be available next December. Then, it will be tested with new volunteers. The test will be aimed at assessing the efficiency and usability of the system. During the second year of the project, statistical studies will be carried out and behavioral changes techniques investigated and applied.