

MOVIDA.polis: Physical Activity mHealth Based Platform

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Abstract : The sedentary lifestyle is associated to the development of chronic noncommunicable diseases (obesity, hypertension, Diabetes Mellitus Type 2) and the World Health Organization, given the evidence that physical activity is determinant for individual and collective health, defined the Physical Activity Level (PAL) as a vital signal. Strategies for increasing the practice of physical activity in all age groups have emerged from the various social organizations (municipalities, universities, health organizations, companies, social groups) by increasingly developing innovative strategies to promote motivation strategies and conditions to the practice of physical activity. The adaptation of cities to the new paradigms of sustainable mobility has provided the adaptation of urban training circles and mobilized citizens to combat sedentarism. This adaptation has accompanied the technological evolution and makes possible the use of mobile technology to monitor outdoor training programs and also, through the network connection (IoT), use the training data to make personalized recommendations. This work presents a physical activity counseling platform to be used in the physical maintenance circuits of urban centers, the MOVIDA.polis. The platform consists of a back office for the management of circuits and training stations, and for a mobile application for monitoring the user performance during workouts. Using a QRcode, each training station is recognized by the App and based on the individual performance records (effort perception, heart rate variation) artificial intelligence algorithms are used to make a new personalized recommendation. The results presented in this work were obtained during the proof of concept phase, which was carried out in the PolisLeiria training circuit in the city of Leiria (Portugal). It was possible to verify the increase in adherence to the practice of physical activity, as well as to decrease the interval between training days. Moreover, the AI-based recommendation acts as a partner in the training and an additional challenging factor. The platform is ready to be used by other municipalities in order to reduce the levels of sedentarism and approach the weekly goal of 150 minutes of moderate physical activity. Acknowledgments: This work was supported by Fundação para a Ciência e Tecnologia FCT- Portugal and CENTRO2020 under the scope of MOVIDA project: 02/SAICT/2016 - 23878.

Keywords : physical activity, mHealth, urban training circuits, health promotion

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