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Pervasive Monitoring of Public Health and Well-Being in Urban Areas with Blue-Green Solutions

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Abstract. The urban environment seems to affect the citizens' health. The implementation of Blue-Green Solutions (BGS) in urban areas have been used to promote public health and citizens well-being. The aim of this paper is to present the development of an mHealth app for monitoring patients and citizens health status in areas where BGS will be applied. The "HEART by BioAsssist" application could be used as a health and other data collection tool as well as an "intelligent assistant" to monitor and promote patient's physical activity in areas with Blue-Green Solutions.

Keywords. Blue-Green Solutions, Urban Health, Well-Being, Pervasive Computing

1. Introduction

The urban environment seems to affect the citizens' health. The implementation of Blue-Green Solutions (BGS) in urban areas have been used to promote public health and citizens well-being [1]. The mobile health (mHealth) technologies contribution in people's well-being has been examined and found to be significant based on the international literature [2]. The aim of this paper is to present the development of an mHealth app for monitoring patients and citizens health status in areas where BGS will be applied in the context of the HEART project.

2. Methods

The application requirements were to monitor users' physical, physiological, and emotional status using wearable devices, as well as to motivate users to engage in social

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activities. The specifications of the application include the recording of heartrate, SpO_2, sleep quality, stress levels and physical activity including the number of steps, daily exercise, walking/running and others.

3. Results and Discussion

The "HEART by BioAsssist" application was developed to monitor the users' daily physical activity and other variables related to their health status in areas where BGS will be applied. The application is available for multiple smartphone devices, and it is compatible with most commercially available wearables. The application development was based on an integrated platform approach was used in previous studies [3,4]. HL7-FAIR, standards have been adopted for data storage and data exchange. The "HEART by BioAsssist" application could be used as a health and other data collection tool as well as an "intelligent assistant" to monitor and promote patient's physical activity. The proposed application may be also used to support clinical studies requirements for remote monitoring, advanced study management, and higher patient adherence and compliance. Relative studies have used comparable approaches to monitor people's well-being and public health using similar mHealth applications [2,5].

4. Conclusions

The aforementioned application is developed in the frame of the EU-funded project "HEAlthier Cities through Blue-Green Regenerative Technologies: the HEART Approach" as health and personal data tool. HEART's integrated approach aims to systematically improve urban health using BGS on future area planning.

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