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Citizen emotion analysis in Smart City

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Abstract:

Applications in Smart City context are improving the quality of life of citizens through several technological interactions. These interactions can be also used to relate the citizens' emotions to city's areas. Thus, the main objective of this work is to present a smart phone application that analyzes the citizens' emotions and the relations between these parameters and different city's areas. Daily the citizens deal with a variety of emotions due a set of factors such as, violence, street illumination or car noises, trash and pollution, for instance. The techniques used to do the acquisition of the citizens' emotions involve, heart rate (HR), heart rate variability (HRV) and galvanic skin response (GSR), measured by Shimmer3 sensors. Additionally the citizens fill an on-line questionnaire using a smart phone application. The acquired signals are also processed by a smart phone application that includes signal acquisition control, citizens' emotions analysis, emotion mapping, and data storage. Once identified and stored these citizens' emotions reported to a city's area, it can be represented by green, yellow or red color, circular icons that are plotted over the city's map, using the Google Maps API on the mobile application. Several tests for ten are presented.

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I. Introduction

Developments in smart city technology and the growth of embedded devices made nowadays, turn possible that their citizens receive information such as: available services in the city, alert of occurrences at

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different areas, information about accessibility conditions, real time traffic and road info, for instance.

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