Urban Spaces Smartification: A Pathway to Improved Walkability

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ABSTRACT: The use of urban streets as an element of urban life is jeopardized today, particularly In rising metropolises such as Tehran, due to the rapid rise in automobile ownership, population expansion, ineffective transit systems, poor quality urban architecture, and other challenges. On the other hand, there are various potential to efficiently drive urban growth toward sustainability in an era of digitalization, artificial intelligence and the Internet of Things. It implemented that the use of new urban technologies is looking for methods and incentives to encourage today's citizens to walk more. This research attempts to address the question "does smartification of urban spaces significant impact on walkability"? This paper examines the effect of smartification defined as the incorporation of digital technologies and IOT solutions on walkability in urban spaces. By analyzing design of pedestrian path with various smart initiatives, such as gamification, pedestrian-friendly infrastructure, and digital solutions, this study seeks to understand how these innovations contribute to creating more walkable environments. This study used a quantitative approach to test its assumptions, and SPSS software and a questionnaire were used to examine the data that was gathered. Additionally, Friedman's test and the single population mean test (t-test) were employed to evaluate the research assumptions. The study's findings indicate that smart buildings can enhance pedestrian circulation in the studied location (Farahzadi Blvd., Shahrak Gharb). The findings suggest that smartification can significantly enhance walkability by improving safety, Social interaction, and pleasurability in user experience. Additionally, from the perspective of users, smartification has the most influence on the comfort factor that promotes walking.

KEYWORDS: Walkability, Smartification, Urban Spaces, ICT

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INTRODUCTION

ICT is developing at an accelerated rate, which has fundamental consequences on how cities are laid up spatially, alters urban lifestyles and forms, and makes it difficult to forecast the future (Yousefi and Dadashpoor 2020; Ben-Elia and Zhen 2018; Al-Ghamdi and Al-Harigi 2015). Furthermore, future neighborhood developments must adhere to fundamental urban design principles like walkability, dense development, and mixed use (Lehmann 2016; Al-Thani et al. 2018). Walkability is the appeal of an area for walking; a particular site's essential features offer easy walking without unnecessary turns and excessive effort (Mihelič et al., 2015).

On the other hand, encouraging pedestrians should be the next course of action if the streets are not attractive enough. It will be challenging for residents to stroll around the streets (Ghalambor & Farzadi, 2018). This makes it necessary to research how ICT and changes in walkability in cities interact Walkability refers to the