Use of geo-spatial techniques to estimate the efficiency of public transport service in an urban area

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Spatial efficiency estimation of public bus service in densely populated cities is an obligatory step to define sustainable public transportation network. Some of the urban centers in developing countries facing disproportionate amount of attention in recent discourse on urban public transport system. This research aims to present the spatial efficiency of selected public buses, commuting to different parts of an urban center (i.e. city Karachi–Pakistan), using detour index (DI) algorithm and network analysis tool in GIS environment, enabled to estimate the load of the ever increasing number of commuters to already disadvantaged public vehicles in the city. Cartographic results showed higher DI values for long and well deviated course of routes passing through highly populated parts of urban area. On the contrary, lesser DI values were observed for bus routes passing through the lighter density areas located at peripheral parts of the city. Highest spatial efficiency values on the map illustrates that very few public buses pass through core areas of the city, accommodating more than hundred thousand passengers, adding to their hardships. Statistically, DI values had a significant (p <0.005) impact on spatial efficiency of bus routes. This situation exhibits the poor quality of bus service, sub-standard vehicles and clumsy routes. It is strongly suggested that urban centers need circular railway or mass transit system to cater the movement of millions of people. This would help to reduce the ongoing transport related issues to a greater extent.

Biography
Salman Zubair completed his PhD in Geography (GIS) in 2014 from the University of Karachi. At present, he is an Assistant Professor in the Department of Geography, University of Karachi, Pakistan. He is the Author of more than 15 research papers, published in reputed journals. He is also the Member of different national and international geographical associations. He has presented his research work as an Oral Presenter in more than 30 national and international conferences.

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