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Volume– VI

(Environmental Management)

Editors

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Identifying Crash Hotspots Using Kernel Density Estimation (GIS-Based Approach) in Udaipur City

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Abstract:

The main objective of this study is to examine the distribution of crash sites through identification of hotspots using GIS and spatial statistics. Although the accidents have been thoroughly studied based on various characteristics, a spatial framework will offer useful insight into road safety. The QGIS 3.16 software is used to prepare kernel density map. The software has functions to calculate kernel density index. For the analysis, a point file of accident location has been generated. The output of KDE is a raster file which has continuous surface. The primary data include locations of accidents for the period between January 1, 2019 and December 31, 2019, with total number of 486 cases which were collected from local police stations. The study revealed Udaipur city has 20 top crash hotspots, all of them have got value of 4.58 or higher than 4.58 in the index. The highest heat visualized in 3 areas Pratapnagar Road, Sector 14 cross to balicha and Surajpole to Delhigate area. Very high experience of the traffic on these roads make these areas complex for urban traffic and it significantly contributes to the increase in traffic accidents.

Keywords: Crash hotspots; Udaipur; Road accidents; KDE (Kernel density estimation), QGIS.

1. Introduction:

Road Traffic Accident is one of the most intricate issues over the world. 1.3 million deaths and 50 million