Road Traffic Accident Black Spot Determination by Using Kernel Density Estimation Algorithm and Cluster Statistical Significant Evaluation

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SUMMARY

Determining road collision black spot locations plays an important role in reducing significantly the number of traffic accidents. The article presents a new procedure that identifies road traffic accident black spot locations by using GIS-based kernel density estimation algorithm, evaluates the statistical significance of resulting collision clusters, and then arranging them in accordance with their significance. The results of the paper show that the approach was effective and exact in identifying road traffic accident black spot in Hanoi, Vietnam, simultaneously these hot spots were ranked according to their level of dangerousness. These outcomes will not only enable transport authorities to know comprehensively the reasons for each collision but also to help them manage and deal with hazardous areas according to the prior order in case of limited expense and allocate traffic safety sources suitably.