DEVELOPMENT OF A WEBGIS SUPPORTED ROAD TRAFFIC ACCIDENT DATA MANAGEMENT SYSTEM: A CASE STUDY OF NAIROBI COUNTY

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

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This thesis has been submitted for examination with our approval as the university supervisors.

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Abstract

Road safety is a high priority issue in all countries. This is demonstrated by the many efforts in place to reduce road traffic crashes, including the United Nations declaring the period 2010 – 2020 as a decade of action and establishment of the Kenya National Transport and Safety Authority (NTSA) to address the unrelenting high number of road crashes resulting in deaths and serious injuries every year on Kenyan roads. Resulting road traffic accidents' data have been recognized as one of the factors that contribute to reducing of future road crashes. The Kenyan case is such that accident data is managed by uncoordinated various players and at best inaccurate and incomplete.

It is the objective of this project work to demonstrate how to address these short comings through the use of webGIS technologies by creating a road traffic accident data management system. This approach has been employed in other jurisdictions like the European countries where, despite higher vehicle numbers, accident statistics are comparatively lower to the Kenyan case. A case study method is used for the project work. A series of interviews were held with stakeholders to collect data. Additional data included accident reports and statistical abstracts which were used to create a road traffic accident database managed by a relational database. Spatial data used was based on the New Arc 1960 datum with UTM projection.

The study findings show that a centralized data repository that can be accessed via the internet affords 24 hours accessibility and is almost self - service as opposed to the current status where data access is constricted by office working hours and manual letter applications that take time to respond to. Besides the data is availed digitally as opposed to analogue formats. The location of accidents usually given in textual address has been addressed and thus viewing of accident locations on a map is possible.

The contributions of this project work are threefold. It has been demonstrated that road traffic accident data can be centralized. Secondly access to the data has been made easy through the use of webGIS. Lastly simple statistical analyses are afforded by the same system. The study concludes that reforms geared towards reducing road traffic accident numbers should embrace use of GIS and Web technology in line with the AMSYS to harvest spatially rich road accident

data to enable data gathering and sharing for the formulation of evidence-based policies on road safety and enabling better interventions as well as performance monitoring.

Keywords: Database, Geospatial Information Science, WebGIS.