

Automatic Acquisition of Lane-based Road Network Data for Navigation Databases

Patent Title: Lane-based Road Network Signal Information Generation
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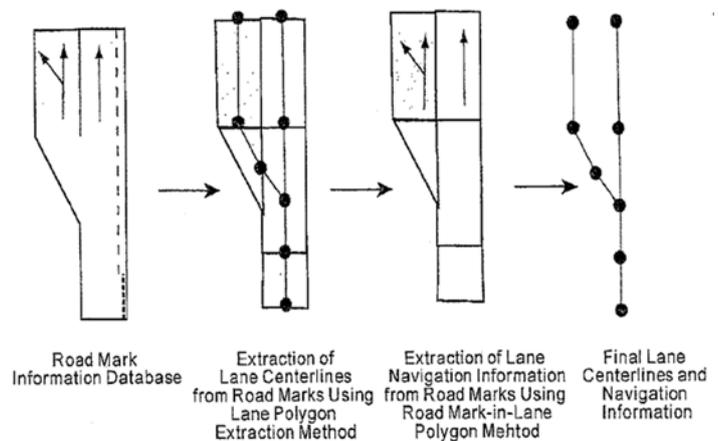
This invention provides a method for acquiring lane-based road network information automatically for navigation databases. It can meet the needs of lane-based vehicle navigation systems, advanced driver assistance systems and integrated transport safety systems.

Market Opportunity

According to Yano Research, the world car navigation market in 2010 amounted to 9.8 million units (based on shipments from manufacturers). This is expected to grow steadily at an average annual growth rate of 10.7 percent to reach 16.32 million units in 2015. Furthermore, the rapid development of the Chinese automotive market has sped up the evolution of automotive navigation in China in recent years. The car navigation market size of China was estimated to reach 5.7 million sets in 2010. [1] Also of interest to the HKU invention is the global market for Personal Navigation Devices (PND), which in 2010 was estimated to be 38.5 million units. [2]

The HKU Invention

This invention provides a new method for automatically acquiring lane-based road network information for navigation. Lane-related information, such as lane location, lane changing and turning information, are very important to advanced driver assistance systems (ADAS) which require more accurate lane details to ensure reliable and safe driving instructions. Conventionally, navigation data are based on the road centerline rather than lane-based road network information. Even if the latter is available, the current manual method of acquiring lane-related information for a navigation database is costly, time-consuming, and labor-intensive with long delays.



To address these issues, this HKU invention is able to derive lane centerlines from lane boundaries in a roadmark information database. The lane boundaries describe lane topological relationships and lane connectivity and can be extracted from remote sensing images. The topological relationships and other features, such as turning information and speed limit information that relate to the state of the lane-based road network, can then be automatically added to a navigation database. Hence, the HKU invention helps to avoid high labor costs and long-delays in creating and updating the navigation database.

About the Lead Inventor

Professor Anthony G.O. Yeh joined the Centre of Urban Planning and Environmental Management of HKU in 1981 after working as a research officer of the Strategic Planning Unit of the Hong Kong Government. Professor Yeh is the Director of the Geographic Information Systems (GIS) Research Centre and Institute of Transport Studies and the Convenor of the Contemporary China Studies Strategic Research Area of the University. His main areas of specialization are urban development and redevelopment in Hong Kong, China, and Southeast Asia, and the applications of geographic information systems in urban and regional planning. Professor Yeh has carried out research and published widely in international publications. He has been Chairman of the Hong Kong Geographical Association, Vice-President of the Hong Kong Institute of Planners (HKIP), Vice-president of the Commonwealth Association of Planners (CAP), Programme Director of the Geographic/Land Information Technology Programme of the Commonwealth Association of Planners (CAP), Founding President of the Hong Kong Geographic Information System Association (HKGISA), and Chairman of the Geographic Information Science Commission of the International Geographic Union (IGU). Professor Yeh was elected as an Academician of the Chinese Academy of Sciences in 2003 and at present he is the Secretary-General of the Asian Planning Schools Association (APSA) and Asia Geographic Information System Association.

References

[1]http://www.researchandmarkets.com/reportinfo.asp?report_id=1370516

[2]<http://www.yanoresearch.com/press/pdf/730.pdf>

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