THE NUISANCE VALUE OF GOING MAINSTREAM

Car Navigation

Car navigation systems significantly ease safe arrival at a destination. However, one side effect is a dramatic increase in heavy goods vehicles passing through rural villages and suburbs, significantly reducing quality of life for people living along these roads. Some national governments have put this issue on the political agenda, holding liable the failure of car navigation systems. Mankind is living more and more closely together in extended urbanised areas where it seems everybody is continually on the move. Mobility means navigation, and navigation means instantanâ€“eously determining position whilst on the move, or attempting to move. Navigation systems are becoming an essential facility for many drivers, especially those professionals who commercially transport goods, livestock and passengers. Todayâ€™s systems have a high degree of automation and can be operated by simply button-pushing. As cities increasingly turn into urban jungles, so navigation systems represent a blessing for the car driver; and increasing mobility among an increasing world population is a blessing for the geomatics industry.

Mainstream GPS

With the broad embracing of car navigation systems by the general public, GPS technology has become a hit beyond imagining. The success is even such that the man in the street associates the term GPS with car navigation, making â€˜GPSâ€™ its synonym. So today GPS has gone mainstream, and when a technology goes mainstream complaints soon start being heard from the general public about negative impact on others than the actual users. The rise in the use of cellular phones led to ubiquitous piercing ring tones and subsequent public yelling, so annoying people in the vicinity that soon rules of etiquette were formulated. Violation of traffic safety led governments to prohibit by law the use of cellular phones while driving a car.

Liability

History repeats itself. Now we are hearing complaints about car navigation. An optimal route advised by the navigation system, whilst perfect for the driver, may dramatically interfere with the lives of those dwelling along the road. Truck drivers, for example, may receive advice from the onboard system to leave the main road and instead follow one that bisects the centre of a village or suburb. For the village dweller, the noise, stench and vibrations produced by heavy traffic may convert their dream of country idyll into nightmare, and the life and welfare of children who consider the road part of their play area may be endangered. Densely populated areas of prosperous countries suffer particularly from such problems. The Netherlands and Belgium are among the most densely populated countries on the globe, and here the severity of the above sketched problem would appear so great that it has been put on the political agenda in both countries. In autumn 2006, members of parliament questioned the Dutch Minister of Transport, Public Works and Water Management on the subject of navigation systems for guiding heavy goods vehicles through village centres, and earlier, in spring 2005, the Flemish minister of Mobility, Social Economy and Equality faced similar questions. Remarkably enough, the members putting these parliamentary questions held the technology, and more specifically the producers of car navigation systems, responsible for the movement of heavy traffic through village centres. Asked whether she was willing to bring in measures to avoid navigation systems guiding trucks through the centre of rural villages, the Dutch Minister on 18th December 2006 replied, â€œNavigation systems are just an aid in the selection of routes; the driver remains himself responsible for the choice. Users of navigation systems have the accountability to check prior to leaving and during driving whether the advised route is suitable.â€ Questioning the Flemish Minister, one member confronted her with the possibility of making designers of car navigation systems liable for failings. The minister doubted whether the law allowed for this.

Congestion

Viewed at close range, the problem reveals itself as more complex than simple deficiencies in technology making rural villages and suburbs suffer from heavy traffic. Another factor is the overcrowded motorway. Congestion causes drivers desperately to seek alternative routes and Traffic Message Channel (TMC) enables them easily to find them. TMC transmits using Radio Data System (RDS), an FM radio signal inaudible to the listener, which contains traffic information concerning congestion on motorway trajectories, weather conditions and the like. Car navigation systems are able to pick up and interpret such signals, and to compute and suggest alternatives if available. The selected route, which may go through rural villages and thus disturb the life of people living there, guides the driver to another, hopefully not congested, motorway. Another point is that car navigation systems are able to compute both the shortest and the fastest route; the user may choose between the two. Truck drivers in particular are inclined to follow the shortest route, because what they see projected towards vanishing point is the eternal truth not of the adagio â€œtime is moneyâ€ but â€œfuel is moneyâ€. And the shortest route often crosses rural villages. A third problem is caused by navigation systems not usually being specialised for navigating the mastodons of the roads. Truck drivers may be heard complaining how lacking they are in essential information such as heights of viaducts, and road trajectories prohibited for trucks.

Rapid Spatial Change

A fourth issue is continual change in the visual appearance of roads as a result of local government activity driven by a desire to improve traffic safety within the jurisdiction. Thresholds, small roundabouts, and other obstacles designed to force the driver to slow down are rapidly adding to the furniture of the road. As a result, many are becoming less and less suited for use by heavy traffic. The maps

implemented in car navigation systems are produced by a limited number of commercial firms for whom it is very difficult, or even impossible, to update them in pace with rapid real-world changes. The Dutch Minister of Transport, Public Works and Water Management in her answers of 18th December 2006 was nevertheless of the opinion that, â€œWhen a navigation system advises a route resulting in heavy goods vehicles or other vehicles driving on roads unsuited for them, then the product does not fulfil the requirements a user might reasonably expectâ€.

Data Warehouse

Although the minister does not explicate the consequences of her statement, it is obvious that the up-to-date status of digital map data in navigation systems is a high political priority. How should commercial road-map manufacturers cope with such a priority Updating map data is an expensive exercise, and when it has to be maintained on a continual basis it is even more expensive. Here co-operation between public and private sector comes into view. It is reasonable to assume that at some government level the relevant information on road changes will be available; somehow such changes had to be designed, implemented and the as-built checked against the design. It is just a matter of transporting such local information to a central server or centrally registering upon which (local) servers what information is available and accessible. The Dutch Minister has initiated a process to establish a National Data Warehouse able to link distributed road information at diverse levels. This information should next be transported to commercial mapmakers and, finally, from mapmakers to car drivers. In her reply to members of parliament the Minister announced that her ministry was presently studying how to streamline co-operation to enable fruitful exchange between government datasets and those of commercial mapmakers.

Concluding Remarks

Truck drivers acknowledge that navigation systems ease their work. But improvement of safety is also essential, because heavy goods vehicles are relatively more often involved in accidents than cars. Such vehicles cause approximately 15% of all fatal accidents, whereas they constitute on average around 12% of traffic volume and contribute only 2% to the vehicle pool. Furthermore, The Netherlands Bureau for Economic Policy Analysis (CPB) has predicted that heavy good vehicles will increase in the Netherlands by some 40% over the period 2000 to 2020. In many parts of the world growth will be a manifold of that percentage.