



作品名稱

結合路口交通資訊與GPS定位之主動式導航系統

An active navigation system based on the traffic information of intersections

隊伍名稱

暢快到底 Quick and Safe

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作品摘要

本作品結合了即時路口交通資訊及影像、全球衛星定位系統與地圖資訊，提供駕駛者避開壅塞路段的規劃路徑，可直接觀看路口的即時車流影像以及透過行動裝置隨時掌握愛車位置。本作品主要是架構在兩個系統間，一是整合道路壅塞資訊與GPS定位資訊並主動規劃路徑的車內系統，二是以獨特影像處理技術偵測交通車流資訊並可傳送路口影像的路口系統。車內系統負責整合目前的路口壅塞資訊與GPS定位資料，並藉助地圖資訊規劃路徑以幫助駕駛者避開壅塞的路段，當然，規劃的路徑也會隨著所接收到即時路口壅塞與否的不同而即時的更新。而在路口系統部份，除了傳送路口壅塞與否的資訊之外，透過網路連線的幫助，還能提供此路口的即時影像車流，駕駛者除了能利用車內系統的螢幕來觀看外，不在車內的駕駛者甚至也可以利用行動裝置來觀看，真正達到行前準備的目的。而在安全防護方面，在車內系統裡具備了擷取位置與影像的資訊，除了將目前車輛的位置以地圖的方式傳送至使用者的行動裝置，更可以傳送目前車內的實況照片，真正讓您掌握車子的位置與實際狀況，除了讓竊賊無所遁形外，也可在平日透過此功能來瞭解家人外出的情形，讓您在家放心，出門不擔心。

Abstract

The system integrating the real-time traffic information, GPS and the digital map is proposed. The shortest path on the map with good traffic conditions and the real-time streaming images from the intersection are provided to the driver. Furthermore, the driver can receive the images inside the car and the position on the digital map easily with his/her mobile phone. Our system is integrated by two sub-systems, one is an Embedded Navigation Platform (ENP) and the other is a Road-Side Unit (RSU). The main function of ENP is to provide the driver a shortest path to the destination by combining the real-time traffic information and the position from the GPS receiver. ENP calculates a new route based on the receiving traffic congestion data associated with the calculated route. On the other hand, RSU detects the traffic flow in all kinds of weather from day to night. The traffic congestion data and the real-time images in the intersection are transmitted to ENP in the vehicle over 3.5G/3G network. Moreover, the real-time intersection images are also available with the mobile phone so that the driver can acquire the traffic status of the road in advance. For safety's sake, ENU records the car's position and the images inside the vehicle and transmits them to the user's mobile phone. Therefore, the user can monitor the vehicle's status anytime and anywhere.