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Dr. **Hsu-Yang Kung** received his BS degree from Tatung University, MS degree from National Tsing-Hwa University, PhD degree from National Cheng-Kung University, Taiwan, all in computer science and information engineering. He is currently a professor of Department of Management Information Systems and Dean of College of Management, National Pingtung University of Science and Technology, Taiwan. Prof. Kung published more than 200 academic papers and obtained the best paper and thesis wards 6 times. Prof. Kung dominated more than 50 industrial and academic research projects and owned 8 patens. Prof. Kung received the Excellent Research Group Awards 4 times from National Science Council and the Excellent Research Award from NPUST at 2010. Prof. Kung with his students also won more than 40 international and domestic prizes about network communication software. His research interests include multimedia network systems, wireless and mobile communications, and embedded multimedia applications.

High Efficiency Cloud Platform for Vehicular Networks: Design and Implementation

With the progress of telematics technologies, the vehicular systems have been growing rapidly and linking closely to our everyday lives. To cater to future applications associated with cloud services, nowadays the vehicular systems go towards the integration of vehicular communications and services, such as multimedia amusements, vehicular safety, and driver-vehicle sensing services. The presentation is about the integrated project, which is named as "High Efficiency Cloud Platform for Vehicular Networks: Design and Implement" , The propose of this project is to build the Cloud Service Platform (CSP) and Virtual Server Cluster (VSC) and to provide the high efficiency computing and storage capacities for users and vehicle information service providers. However, some key techniques of software and hardware need to be resolved in the current methods, so main project and each subproject are responsible for the development of vehicular communications and services, respectively. (1) High Efficiency Cloud Platform for Vehicular Networks: The main project develops the Cloud Service Load Balance Mechanism (CSLB) to integrate the web services from each subproject and allocate the servers in cloud computing data center to serve users. The main project also considers the dynamic traffic information to design the CSLB, Distribution Storage Management Mechanism (DSM), and Cloud Live Migration Mechanism (CLM) to provide high efficiency services for users. (2) The seamless handoff control mechanism: The subproject 1 establishes vehicular sensor web services to collect the sensing data from all kinds of sensors equipped in cars and transmit these data to the servers in the cloud computing data center for driver's requests. In order to provide stable and smooth transmission quality of network services, the subproject 1 designs the streaming priority management mechanism for differential service requirements. (3) Voice System in Cloud for Long-distance Driving with Refreshing Effect: The subproject 2 designs a voice system for long-distance driving with the refreshing effect. To provide an alarm when the driver is under the state of doze, the system will detect the driver's vital information and decide the fatigue degree. The subproject 2 also develops the AI techniques for the intelligent vehicle voice system which depends on the user's listening history and the taste of the group user. Moreover, a virtual Kara-Ok system will be developed with the query by humming technique. (4) Driver-Vehicle Sensing Gateway for Safe Driving: the subproject 3 designs and develops the a low-cost embedded system as the prototype gateway to transmit the data between Controller Area Network (CAN) and ZigBee networks for collecting personal health information and vehicle states. The gateway also provides the OBD (On Board Diagnostics) II information analysis module, vehicle state detection module, and personal health information analysis module to improve the convenience and safety of driver. (5) Mobile P2P Streaming Transport Service for supporting Cloud Computing in a Vehicular Network: The subproject 4 designs a video streaming transport service for facilitating the cloud video service in a vehicular network. The subproject 4 proposes the two-tier transport architecture: (1) The Cloud-to-Vehicle (C2V) tier focuses on the streaming issues between the cloud servers and vehicles to perform Unequal Error Protection/ Forward Error Correction (UEP/FEC) coding on video data. (2) The Vehicle-to-Vehicle (V2V) tier focuses on the video sharing among other vehicles to achieve the data sharing and alleviate the traffic load from cloud servers.