

Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: Heavy Vehicle Rear Signage Display for Advanced Driver Assistance CamCom System

Date Submitted: March 2017

Source: Jaesang Cha, Vinayagam Mariappan (SNUST), Soo-Young Chang (SYCA), Ji-Hye Jeon(STans Inc), Jintae Kim, Jaekwon Shin (Fivetek Co., Ltd), Lee Hang Woo (BK Energy), Chunseop Kim (QUBER Co., Ltd), Dongwoo Lee, Daehyun Kim (Namuga Co., Ltd)

Address: Contact Information: +82-2-970-6431, FAX: +82-2-970-6123, E-Mail: chajs@seoultech.ac.kr

Re:

Abstract: This documents introduce the Advanced Driver Assistance System (ADAS) using Vehicle CamCom Concept models for Vehicular Assistant Technology (VAT). This proposed VAT using Image Sensor Communication to operate on the application services like ITS, ADAS, IoT/IoL, LED IT, Digital Signage with Advertisement Information etc.

Purpose: To Provided Concept models of Vehicle CamCom for Vehicular Assistant Technology (VAT) Interest Group

Notice: This document has been prepared to assist the IEEE P802.15. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.

Release: The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.15.

Contents

- Heavy Vehicle Rear Signage Display
- Vehicle Signage-CamCom Link for Roadway Safety
- Conclusion

Heavy Vehicle Rear Signage Display

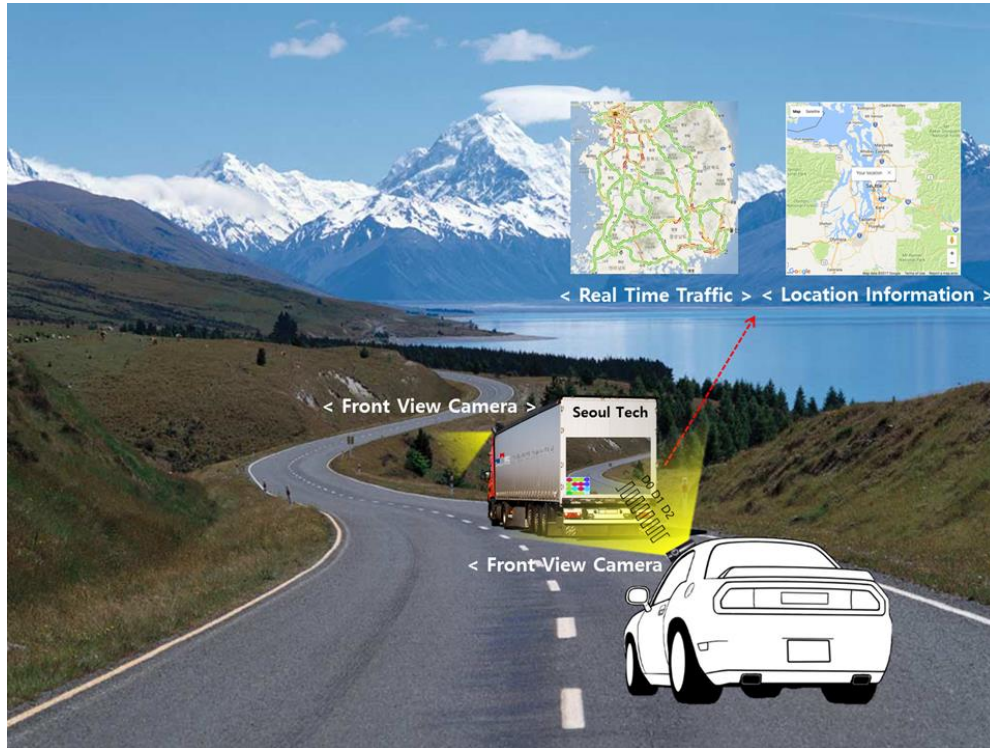
- Heavy Vehicle obscure the frontal view for followed Vehicles
- Leads to crashes when drivers attempt to overtake long heavy vehicles
- Rear Signage Display
 - Signage Display back surface of the Heavy Vehicle
 - Display the Forward Camera View of Road Condition
 - Instead of obscuring most of the view, it actually shows the driver what's going on ahead of the forward driving Heavy Vehicle
 - Aims to reduce crashes when drivers attempt to overtake long vehicles on one-way roads
- Integrated With:
 - Day/Night Forward/Front View Camera
 - Wireless Video Feeds to Display Screens
 - High Resolution Display Screens
 - HD, Full HD, UHD
- Dual Mode Use
 - Digital Signage Advertisement
 - Road Safety – Driver Assistance



Note : Modified from <https://news.samsung.com/global/the-safety-truck-could-revolutionize-road-safety>

Vehicle Signage-CamCom Link for Roadway Safety

V2V Signage Display – CamCom Link



- V2V CamCom Link between Heavy Vehicle Rear Signage Display and Following Vehicle Front View Camera
 - Rear signage display used for leading vehicle front roadway view as well as display based CamCom Tx
 - Rear signage uses Visible or Invisible mode of data transmission
 - Following Vehicle Front view camera work as Rx
 - Signage Tx Transmits
 - Vehicle Speed, Location to Travel, and Vehicle Specific Informations
 - Location Informations
 - Real-Time Traffic Informations
 - Digital Advertisement
 - Provide high end driving assistance to the following vehicle and ensures roadway safety
 - Provides Mobile Network Connectivity Infrastructure

Advantages

- Safety Driver Assistance
- Real-time Information Sharing
- Guides to easy ITS Integration and Connectivity

Conclusion

- Proposed the Heavy Vehicle Signage-CamCom Link Technology Use Case Model
- Driver Assistive Safety Drive use of display to CamCom Technology
- CamCom guarantees data communication from Mobile Infrastructure-to-Vehicle, broadcasting many safety related information, hence suitable for road safety applications.
- Easy Integration support with ITS using Mobile Infrastructure Technology
- Novel road safety system and directly related to human and material safety