SAMSUNG

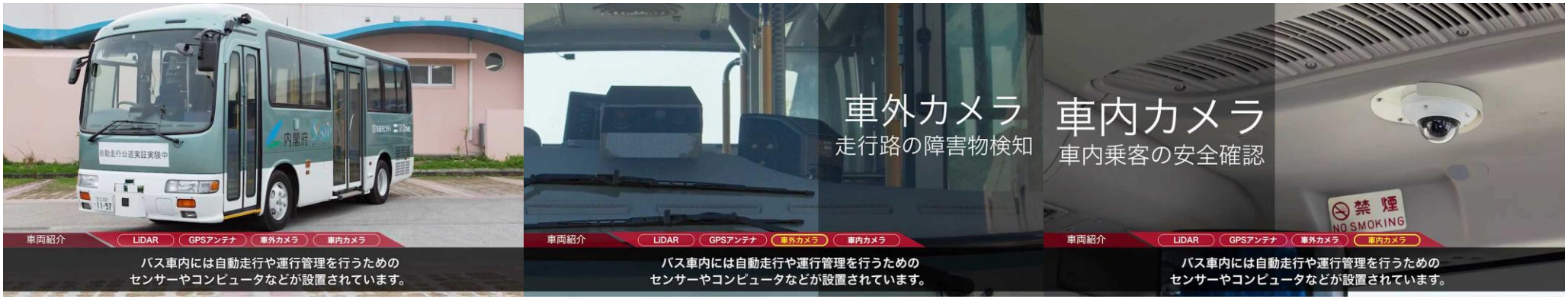
Use of Media in Vehicular Applications

Agenda Item: 11.8

Source: Samsung Electronics Co., Ltd.

Document for: Discussion

Media as Vehicle Sensor Data for Management

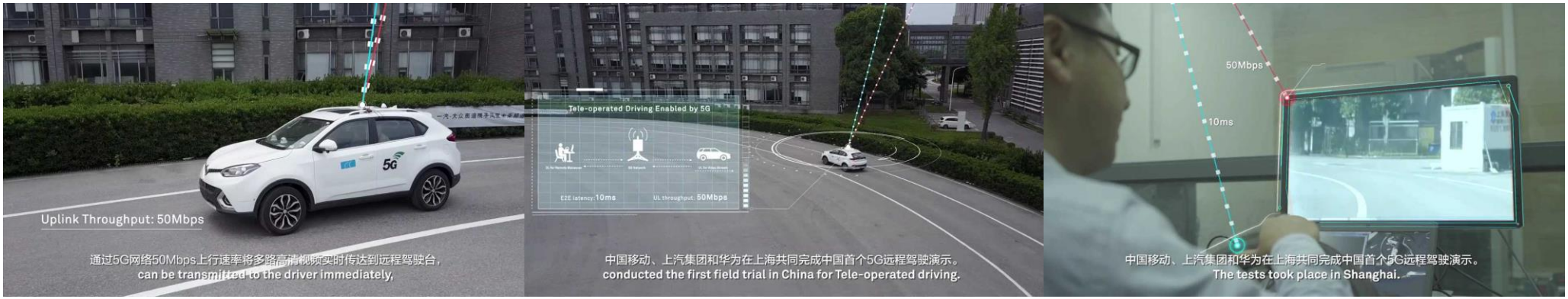


Monitoring of self-driving vehicle [1]

- Typical implementations of autonomous vehicles transmit the video of cabin or around the vehicle to management, e.g., to monitor the status of passengers.
- If unexpected events occur or passengers begin feeling uncomfortable, the management can initiate conversational sessions.
- End-to-end delay and loss rate, relaxed than in MTSI, may suffice in the uplink.
- Video covering wide angle may help remote monitoring.

[1] Autonomous bus trial in Okinawa, Japan (https://www.youtube.com/watch?v=YZvpf2CcuoU&feature=youtu.be)

Media as Vehicle Sensor Data for Control

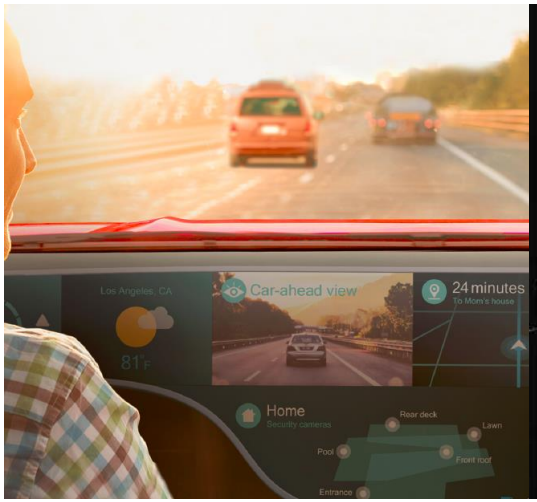


Remote control of vehicle using 5G radio access [2]

- Vehicle sensor data is transmitted to control located in edge server or cloud.
- Vehicle sensor data may include information from onboard sensors including camera, radar, lidar, GPS, and ultrasonic.
- Very high QoS, e.g., end-to-end delay and loss rate lower than those of MTSI, may need to be guaranteed in the uplink.

[2] 5G Tele-Operated Driving with Huawei (https://www.youtube.com/watch?v=ZQPZ-_k_2Hg&t=3s)

Media from Vehicle and Infrastructure



"See-through" concept

Traffic understanding in unfavorable conditions

Wide-area traffic understanding in birds-eye view

- Whether control is in the vehicle or the network, sensor data from the controlled vehicle may be insufficient in some situations, as human drivers understand the traffic status around corners from reflected images on roadside mirrors.
- Media from other vehicles or infrastructure may help overcome the coverage or accuracy limitation of onboard sensors.
- Whether direct link can be used for media delivery, or how to format media for human or machine consumption needs to be investigated.