

Consumer Electronics is the Driver of Smart Cars

By Saraju P. Mohanty

I welcome the readers to the fifth 2018 issue of Consumer Electronics (CE) magazine. We have discussed various aspects of smart cities since 2016 issues of our CE magazine. The smart city can have one or more of its components such as smart transportation, smart healthcare, smart infrastructure, smart grid, and smart governance depending on its design and operation budget. Generally speaking, the smart transportation allows citizens to easily select different transportation options for lowest cost, shortest distance, or fastest route, with comfortable travel. The features of the smart transportation include automated driving, effective traffic management, real-time vehicle tracking, vehicle safety using automatic brake, vehicle-to-vehicle communication, better scheduling of train, aircraft, and easy payment system. Autonomous cars, driver-less cars, or self-driving vehicles (e.g. cars, trucks, and buses) are emerging. There is a demand for it and the research is in full swing from industry and academia to make it a reality. We can define Autonomous Vehicle (AV) as a vehicle that has the capability of sensing its environment and navigating without human input, which applies to the Autonomous Car as well. Depending on the level of autonomy, the AVs can be from Level 0 to level 5. In Level 0 the vehicle is in the complete control of a driver, whereas in Level 5 the vehicle can perform all safety-critical functions in all environments and scenarios. Various terminology including autonomous cars, driverless cars, autonomous smart cars, and self-driving smart cars, smart and connected cars are used interchangeably in the existing literature. However, I would differ the fact that autonomous driving or self-driving is a one aspect of smart car. Autonomous car can be considered as a subset of smart car. Smart car concept can include other features such as energy consumption management aspect of it. The smart car needs to have many features including energy efficient, secure, safe, self-driven, connected. This issue has several articles related to key aspects of smart car. Similar to the other components of smart cities, the smart car is made possible by the use of Internet of Things (IoT).

NEWS – GENERAL

IEEE CE Bangalore Membership Outreach Activities - CE Society Student Branch Inauguration at SRM Institute: This article discusses the inaugural event of a CE society student branch in the southern part of India.

Hong Kong Chapter runs successful one-day workshop on System Biology and Biomedical Systems: This article discusses the activities of a 1-day event on devices and systems for consumer healthcare and preventive care held in Hong Kong by the local CE chapter.

ARTICLES – GENERAL

Consumer electronics is redesigning our cars: This article relates to the cover theme on smart car. It discusses the challenges of integrated technologies for sensing, computing and storage in the autonomous cars.

Advanced Driver Assistance Systems: This article relates to the cover theme smart car. This article presents details of the Advanced Driver Assistance Systems (ADAS) which are critical to make smart cars safer.

REGULAR COLUMNS

Bits Vs. Electrons -- Broadband to Infrastructure: This article presents the evaluation of Internet.

Storage -- Storage Products at the 2018 CES: This article presents discussions on selected digital storage devices presented at CES 2018.

Energy & Security Matters -- A Supercapacitor Powered Novel Battery-Less Buck Converter for Efficient Power Delivery to CE Systems: This article presents a supercapacitor based power converter for CE system which is

better than conventional battery based energy sources. I envision that supercapacitor and chemical hybrid energy storage can be effective for new CE systems including smart cars.

Professional Development Corner -- Interview with the Entrepreneur: Lukas Kinigadner: This article presents interview of an entrepreneur.

SPECIAL SECTION

The special section titled “Recent Advances in Audio and Video Technologies for CE systems” presents selected articles which present advances in research related audio and video technologies. I would like to thank the Guest Editors for all their hard work for this strong special section which will be a good reading for CE community.

LOOKING FORWARD

I hope this issue dedicated to Smart Car is useful for a wider set of CE community to advance their knowledge. I also hope themes will be covered in future in this CE magazine on the emerging hot topics with the help of editorial board and authors around the globe.