Technical Article

Here's How Body Electronics and Lighting Technology are Changing the Driving Experience

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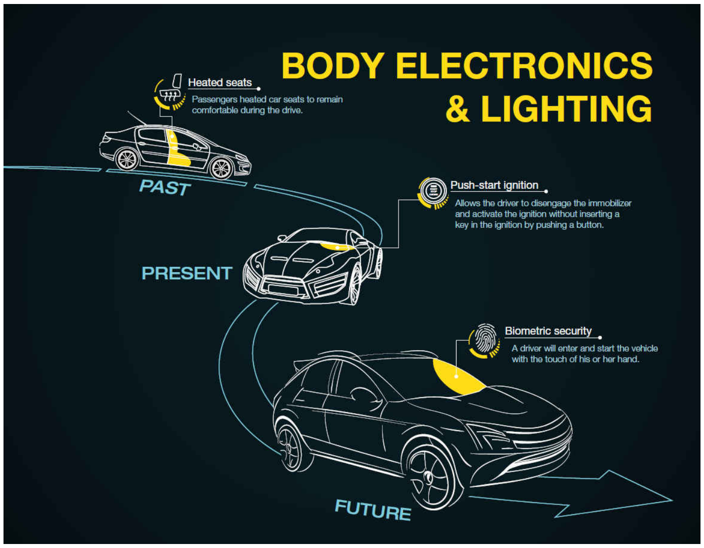

Autonomous vehicles. Head-up display (HUD). Hybrid-electric powertrains. The list of exciting and game-changing developments currently underway in the automotive industry is truly astounding.

Even more than a century after the Model T, innovation continues to accelerate. But some things have not changed, especially when it comes to driver expectations around interior and exterior comfort and visibility.

That's why I'm exciting to shine a light on some of the many interesting advances in automotive body electronics and lighting we're working on at Texas Instruments (TI). From a vehicle's exterior styling, to how a driver sees the cockpit with interior cabin lights, it's a very opportune moment for automotive manufacturers and their customers.

LED is Changing the Automobile for All

Right now, there is a trend away from incandescent and HID lamps toward LED-based lighting. This shift means automakers can use LEDs to generate the same intensity of light while consuming less energy than the older options.

Beyond improved efficiency, the more diverse form factors available with LED illumination gives vehicle stylists newfound creativity in where lighting can be placed on the interior, front and rear of vehicles. Already, I'm seeing some wonderful experimentation with new exterior vehicle shapes because of the new and unique headlamp and tail light configurations that are possible with LEDs.

This same LED technology, which can be powered by our family of TI solutions, are also helping our customers implement adaptive front light systems (AFS) to enhance visibility while driving in very dark conditions.

Enhancing the Ride Experience

There are many interesting applications for driver comfort and convenience as well. For example, Bluetooth® low energy solutions can interface the interior comfort features such as cabin temperature, ambient light color and seat positions with an app on the driver's smartphone.

Through an app, the driver can easily customize the vehicle interior by adjusting things like seat position, climate settings, custom interior lighting and music preferences to their liking. The same smartphone app can use BLE to serve as a more convenient way for a driver to unlock and start their vehicle.

Supporting the Future of Automotive Body Electronics and Lighting

The work we do at TI continues to help our partners as they strive to meet and exceed rising customer expectations. Right now we're busy creating an array of LED lighting control solutions including linear LED drivers, switching LED drivers and LED matrix managers.

We also offer current shunt monitors and temperature sensors to help customers develop fault diagnostics and protection solution in lighting applications. TI is also developing DLP solutions that will allow customers to implement high-resolution AFS systems and automotive BLE solutions.

As these technologies continue to mature, I'm excited to help create the next generation of high quality, reliable and efficient electronics to drive the future forward.

I encourage you to learn more about our TI Designs, featuring a broad portfolio of analog, embedded processor and connectivity products for automotive and many other applications. These designs can save time by eliminating the need to build something from scratch and give engineers more time to focus their talent on customizing their product for their goals.