

GENTEX
CORPORATION

SPECIAL CES
EDITION

2021

CONNECTIVITY & SENSING



NOTE: The Consumer Electronic Show has gone digital this year, and so has Gentex. This Tech Brief is designed to provide a quick update on Gentex's technologies. For a more comprehensive overview, please contact your Gentex sales representative.

Gentex is developing robust V2I features and comprehensive sensing technologies that connect the vehicle to the surrounding infrastructure while keeping occupants safe and vehicles on the road. We have car-to-home automation and transactional vehicle features ready for immediate implementation, with cabin sensing technology in development to monitor the driver, passengers, objects, and vehicle environment today through the autonomous age.

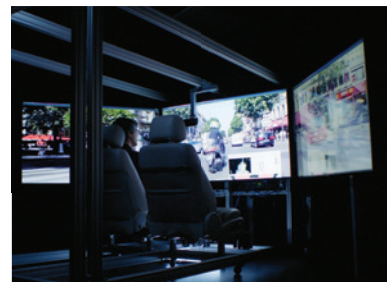
PRODUCT PORTFOLIO

HOMELINK®

Comprehensive car-to-home automation.

Functionality

- Vehicle-integrated programmable buttons that can operate virtually any type of home automation device.
- More than 100 million HomeLink-equipped vehicles are on the road around the world today.
- Dual transmission modes: radio frequency (RF) to activate entry-critical appliances such as garage doors and security gates, and cloud-based wireless transmission to operate home lighting, thermostats, smart outlets, security systems, and other IOT devices.
- Wireless control is made possible through HomeLink Connect®, a companion app that facilitates button programming, pairs with vehicle and allows drivers to operate home automation devices from the vehicle's touch screen or Bluetooth-enabled rearview mirror.





TRANSACTIONAL VEHICLE

Mobile payment technologies for immediate implementation.

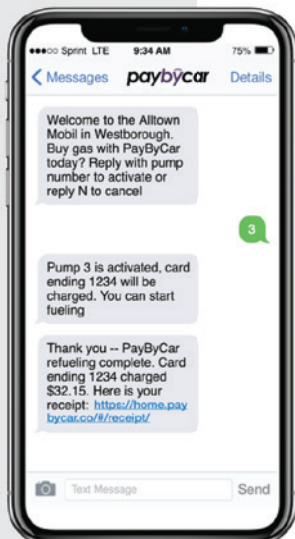
INTEGRATED TOLL MODULE® (ITM®)

- Nationwide toll collection technology for factory integration into new vehicles.
- Mirror-integrated, multi-protocol toll tag provides motorists with access to toll roads throughout the U.S.
- Supports HOT/HOV lanes and growing number of airport parking lots, bridges, etc.
- Eliminates windscreen clutter and the need to manage multiple accounts.
- Opens door to increasing array of vehicle transactions and OEM revenue sharing opportunities.
- High-performance transponder location.
- 2020 PACE Award Winner.

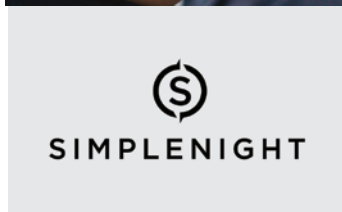
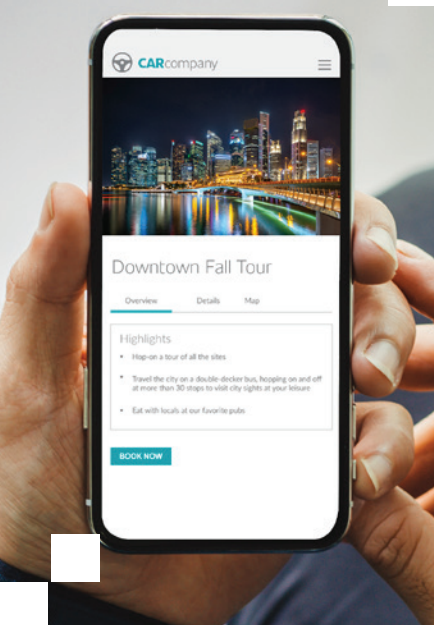


PAYBYCAR

- Gentex has announced a partnership with PayByCar.
- Contactless, in-vehicle payment technology.
- Will use Gentex's ITM to identify vehicles at gas stations and complete fueling transactions with driver's smartphone.
- How it works:
 - Users register for PayByCar online
 - Toll transponder locates vehicle at gas station
 - Pump number confirmed via text message
 - PayByCar turns on pump and executes transaction



paybycar



SIMPLENIGHT

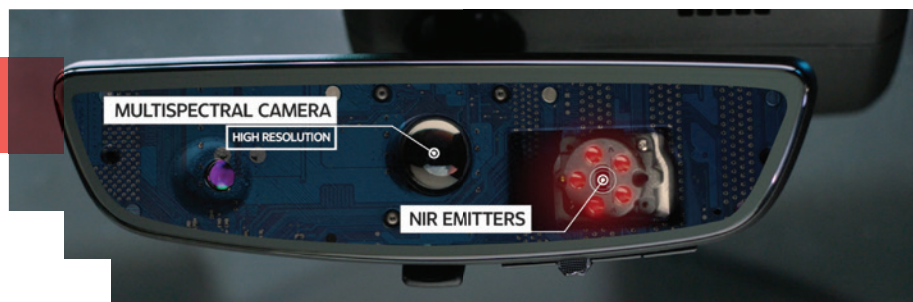
- Gentex has announced a partnership with Simplenight.
- Mobile “e-concierge” services for booking travel, entertainment and lifestyle activities.
- Can be integrated with branded OEM vehicle apps, nav systems, telematics services, etc.
- Integrated into Gentex’s HomeLink Connect app.
- OEMs can use their branded interface to build customer loyalty.
- Revenue-sharing and marketing opportunities.
- Global booking inventory.

CABIN MONITORING

Camera-based monitoring for today though autonomous.

Functionality

- Mirror-integrated cameras and emitters provide a host of monitoring and communication services.
- Scalable solutions from driver-centric features to wholistic vehicle monitoring.
- Hardware and software options tailored to OEM needs.

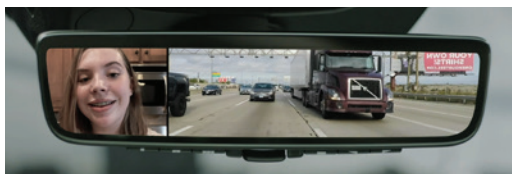


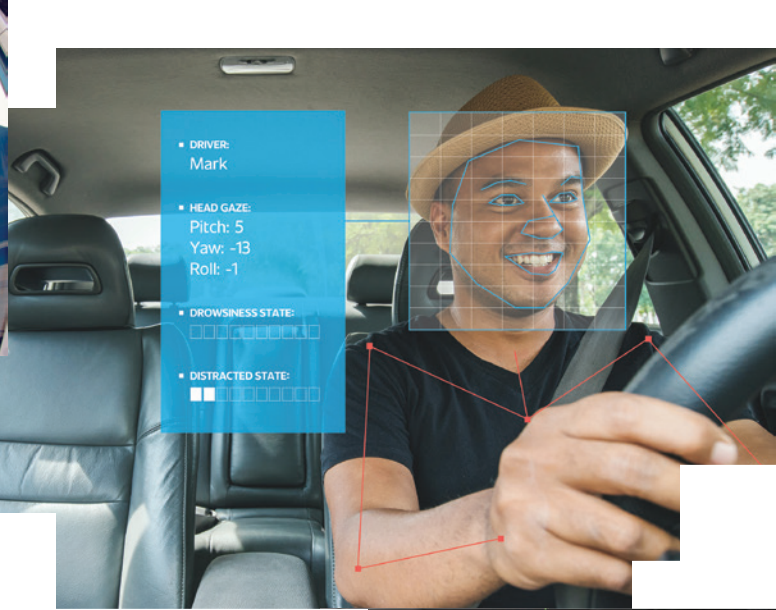
Communications

- Selfie cam
- Phone calls
- Virtual meetings

Why the Mirror?

- Discrete, unobtrusive camera location.
- Location constantly monitored and adjusted by the driver.
- Good view of driver, passenger and vehicle interior.
- Common location across vehicle platforms.
- Quick-to-market solution.
- Shared electronics w/ mirror-integrated CPU.





DRIVER MONITORING (DMS)

- Driver distraction
- Driver drowsiness
- Return of manual vehicle control

IN-CABIN MONITORING (ICMS)

- Occupant detection
- Objects left behind

BIOMETRICS

- Iris-scan occupant authentication for custom security, comfort and convenience.
- Mirror-borne camera and emitters; ideal location for system components.
- System provides secure, customized vehicle operation and personalization.
- Authorizes secure in-vehicle transactions and other V2I functionality.



▶ PLAY



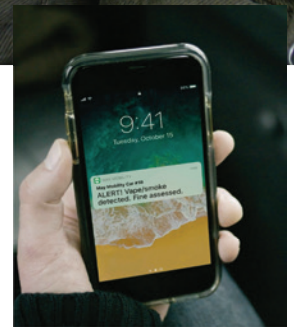
CABIN SENSING

Particulate and chemical sensing for security and air quality monitoring.

Functionality

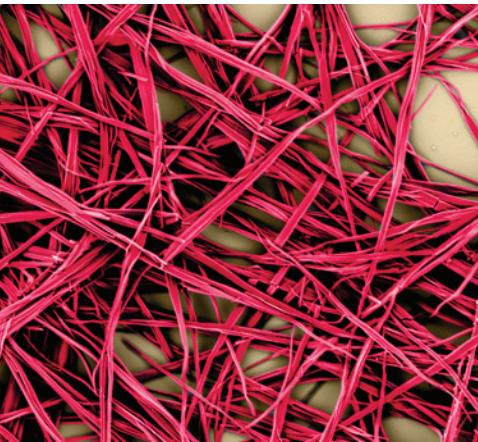
- In-vehicle sensing units for the detection of smoke, vape, VOCs, explosives and other airborne contaminants.
- Ideal for ride sharing and autonomous vehicles.
- Keep passenger safe and fleet vehicles in operation.





PARTICULATE SENSING

- Over 40 years of experience in the commercial fire protection industry.
- Pioneered photo-electric smoke detection, which uses light to detect smoke.
- Re-engineered for automotive purposes.
- In-vehicle solutions with detection units in overhead or integrated into ventilation ducts.



CHEMICAL SENSING

- Gentex recently acquired Vaporsens chemical sensor technology.
- Uses nanofiber sensors tuned to detect target chemicals.
- Nanofibers “capture” targeted molecules from air sampling through molecular diffusion and surface absorption.
- Allows for the survey of ambient air, headspace or gaseous samples.
- Rapid response – within seconds.
- High sensitivity.

