TI *Bluetooth*® low energy technology helps unlock the Schlage Sense™ Smart Deadbolt from Allegion™

"TI understands our definition of low power. Many other microcontroller vendors tout low-power offerings, but they are referring to products that are clearly designed to be recharged daily. Our customers expect a battery life of one year, and TI helped us deliver it."

– Donald Beene, Allegion Product Manager

ALLEGION™
www.allegion.com

Challenge

Homeowners increasingly want the convenience of using smartphones to easily set up and control devices in their homes. Existing smart deadbolt locks required third-party home automation hubs for phone connectivity, had limited app integration or were not capable of working with recent smart home innovations like Apple HomeKit™ technology.

Solution

The Schlage Sense™ Smart Deadbolt from Allegion uses the Texas Instruments (TI) SimpleLink™ *Bluetooth*® low energy CC2640 wireless microcontroller (MCU) and DRV8833PWPR motor driver to maximize the battery life, RF range and compact size of the lock. TI's CC2640 wireless MCU provides industry-leading RF performance while reducing power consumption for longer battery life.

Customer benefit

The Schlage Sense Smart Deadbolt gives homeowners the ability to use Bluetooth low energy on their iPhone®, iPad®, or iPod touch® to easily share and manage access codes for their door lock without needing a third-party home automation hub. Also, the Schlage Sense Smart Deadbolt is among the first products to support Apple HomeKit, allowing users to control their door lock using Siri® voice control. Customers can expect extended RF range with a battery life of one year, a simpler pairing process and seamless Bluetooth low energy performance.

The challenge

As the concept of the Internet of Things (IoT) evolves, it is clear that consumers want more convenience and control of the things around them, especially in their homes. Homeowners now expect to be able to easily set up and control accessories in their homes with their smartphones or tablets. In order for a device to meet this expectation, Allegion needed to design a deadbolt door lock with a high industry rating for security and durability, a slim and

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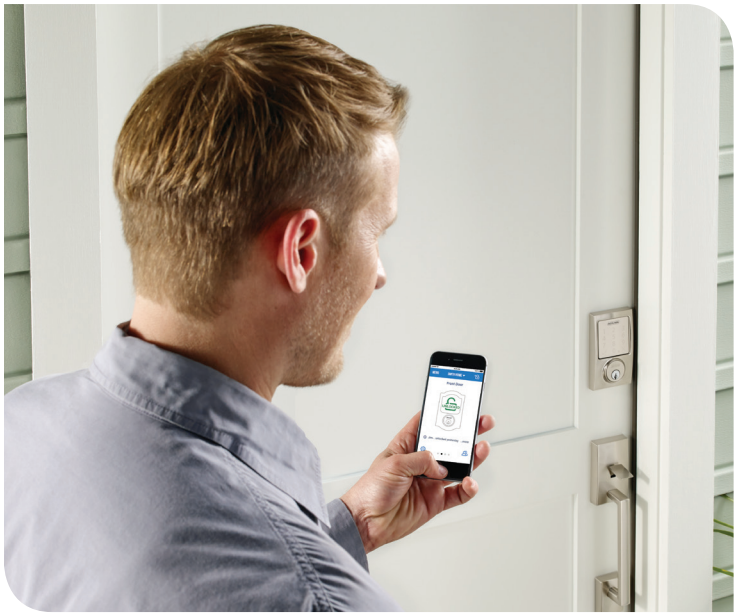
tasteful design with easy programming and control using a smartphone app, all with the lowest power consumption possible.

The application

Allegion saw an opportunity to create an intelligent and secure door lock for consumers who want everything connected to their smartphones. In order to achieve this, Allegion's design team needed a Bluetooth low energy solution that provided consistent low sleep current, on-board stack and a simple UART interface to enable connectivity to the rest of their embedded system. This is where TI's CC2640 wireless MCU and DRV8833PWPR motor driver came into play.

The solution

The Schlage Sense Smart Deadbolt offers one of the strongest, most intelligent Bluetooth low energy-enabled locks available on the market and gives consumers the option to enter their homes with access codes on the touchscreen or by using their smartphone. This connectivity puts consumers in total control of their homes' access points using devices that are already in their pockets. TI's SimpleLink CC2640 wireless MCU not only provides industry-leading RF performance along with high quality and easy-to-use Bluetooth low energy software stacks, but also offers ultra-low power consumption to extend the battery life of the lock to over a year. The circuit integration of DRV8833PWPR enables a compact, reliable and efficient product. The internal protection features extend the life of the motor and components, while the low internal resistance maximizes power efficiency and battery utilization.



OEM customer benefits

These technologies come together in the Schlage Sense Smart Deadbolt to make it easier for homeowners to share and control access to their home. Because it works with Apple HomeKit technology, the lock allows users to control their door lock using Siri from their iPhone, iPad or iPod touch—all with advanced security, end-to-end encryption and authentication between the deadbolt and the device. With the use of TI's ultra-low power Bluetooth low energy technology, it is ready to pair with a smartphone or tablet right out of the box. The Schlage Sense Smart Deadbolt has the ability to manage and schedule up to 30 access codes through a dedicated, easy-to-use app. The app allows individuals to create and delete codes, check on lock status and view activity, as well as update settings and check battery life without requiring a connection to an existing home automation system or a monthly subscription charge. The lock also gives homeowners the choice and flexibility of entering their homes using the lock's illuminated touchscreen, with their iPhones or even an Apple Watch®.

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