Technical Article
Embrace IoT Living through the Gateway of Electronic Door Locks

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In the journey to embrace the new world of the Internet of Things (IoT), businesses and families are feeling more confident about securing their properties through the cloud. Electronic door locks (e-locks) are just the portal into a new age of IoT living.

Locks and keys have been around for centuries, and it's time to evolve to a higher standard of home and building security and control. Imagine a world where you can monitor who enters and exits your home or building, and control all activity with a touch of your fingertip from miles away.

The cloud has made this a reality today. And with TI's SimpleLink™ connected microcontroller (MCU) platform, you can bring that reality to a home or building, personalizing it as you please. By using a SimpleLink *Bluetooth*® low energy network processor and MSP432™ MCU, you could use a smartphone app for easy access control and user authentication. If you add a SimpleLink Wi-Fi® wireless MCU, the lock could then include a direct low-power connection to the cloud without the need for an additional bridge. On top of connectivity, adding an MSP430™ MCU with CapTIvate™ technology modernizes the in-person interface, replacing mechanical buttons with sleek capacitive-touch access control panels.

Our experts have curated a list of resources, tools and products to help you make decisions when designing a smart e-lock. Whether you need to prolong the battery life for a small and power efficient e-lock or want to further enhance the user experience with voice activation or an interactive display. The SimpleLink platform and MSP430 MCUs offer a breadth of solutions to help you design an e-lock which can even connect with other home automation products such as a video doorbell which triggers before unlocking or automatic unlock in case of a smoke alarm.

Check out our list of resources to get started building your next e-lock.

E-lock Reference Designs and Application Notes
- Access Control Panel with Bluetooth Low Energy and Capacitive Touch Reference Design.
- MSP430FR2633 Microcontroller CapTIvate Electronic Lock and Keypad Reference Design.
- "IP Smart Door Locks: Power-Optimized and Added Security Features for Cloud Connectivity with SimpleLink Wi-Fi."
- "SimpleLink™ MSP432™ MCU for electronic lock and intrusion HMI keypad."
- "Capacitive touch building security system equipment using MSP430 microcontrollers with CapTIvate technology."
- "SimpleLink Wi-Fi Enabled Electronic Smart Lock."

Blogs and Articles
- "Making a smarter door lock with the SimpleLink MSP432 microcontroller."
- "Rain on this e-lock touch panel parade won't matter."
- "How to train your door lock" via All About Circuits.

Video Trainings
- "Access Control Panel Featuring Bluetooth Low Energy and Capacitive Touch."
- "Capacitive touch access panel with CapTIvate technology and MSP432 MCUs."
- "Capacitive Touch Keypad in Rain with CapTIvate Technology."
- "Bluetooth Low Energy Accessory Lighting Control Panel."
- "SimpleLink MSP432 Bluetooth Low Energy OTA with LZ4 Compression."
- "MSP MCUs featuring CapTIvate™ Technology Training Series"

Products to Consider for Your E-lock Design
- SimpleLink MSP432P401R MCU and the MSP-EXP432P401R LaunchPad™ development kit.
- MSP430FR2633 MCU with CapTIvate technology and the MSP-CAPT-FR2633 CapTIvate technology development kit.
- SimpleLink Bluetooth low energy CC2640R2F wireless MCU and the LAUNCHXL-CC2640R2 LaunchPad development kit.
- SimpleLink Wi-Fi CC3220 wireless MCU and the CC3220S-LAUNCHXL LaunchPad development kit.

Additional System Resources
- Electronic smart lock.
- Door keypads and readers.

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