



KEY2SHARE

SMARTPHONE AS A KEYSRING

Modern smartphones offer various apps with rich functionality allowing users to turn their smartphones into a music player, a gaming console, or a navigation system. There is no need to carry multiple devices anymore, as a single smartphone can replace them all. Two of the latest technologies are NFC (Near Field Communication) and BLE (Bluetooth Low Energy). With Key2Share, Fraunhofer SIT has designed and developed a smartphone-based access control solution that additionally relieves users from carrying bulky physical keys in their pockets. House keys, office keys, garage keys and even car key fobs – all of them can be replaced by electronic keys stored in the smartphone. With Key2Share keys can have a time limit, and they can be sent electronically.

The electronic keys of Key2Share have many advantages compared to traditional keys due to their electronic nature. Additional keys can be created with no costs and delivered to their owners via the Internet or mobile networks. Further, key owners can share their keys by creating an additional key on demand and sending it to the key recipient in a form of SMS message or e-mail attachment. Similarly, electronic keys can be easily and remotely invalidated in case they are lost or stolen, without the need for lock replacement. All these features are impossible with physical keys. Additionally, created or shared electronic keys can be bound to a usage policy which can limit access to a number of times or a specified time frame.

The concept of Key2Share solution is built around modern security technologies. In particular, it utilizes state-of-the-art cryptography to protect electronic keys from unauthorized access in transit and leverages advanced platform security mechanisms to ensure they are securely stored and processed on the mobile device. For instance, the electronic keys are bound to underlying hardware, which makes it impossible to use them with another device. Hence, the electronic keys cannot be stolen, even if an attacker may be able to overhear their transmission.

Key2Share solution currently uses Near Field Communication (NFC) and/or BLE interface for the communication between the smartphone and the lock, hence, it can be used with smartphones featuring these interfaces. Key2Share app is provided for Android and Windows smartphones.

Features

- Security by design / State-of-the-art cryptography
- Size-efficient keys
- Electronic distribution of access rights
- No additional costs for key creation/invalidation
- Flexible key usage policies (e.g., limited validity, number of openings, weekly schedules)
- NFC and/or BLE communication with the lock

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