BluKey

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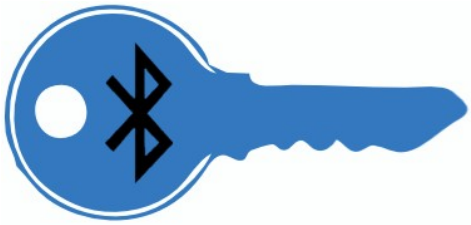

Overview

BluKey is a project aimed at easing the management and use of electronically lockable doors. Current electronically lockable door implementations require that the user have a key-card, or remember a numeric code for authentication. Management in these implementations involves assigning a number or preparing a key-card for a user to create a mapping between a person and his electronic identity.

Our system attempts to reduce some of these complexities of management and usage. Rather than having the user carry around a special card or remember a number, we chose to use something that the user is likely to always carry with him: a cell phone. Using a cell phone solves the problem of creating a mapping between a user and a new device, because most businesses will already have a mapping established between an employee and his cell phone. In fact, many businesses provide a company phone to their employees. These cell phones now come equipped with a Bluetooth radio that can be used to create small personal networks with other Bluetooth enabled devices. Because of its ubiquity, Bluetooth is very easy to incorporate into an embedded project. The logical result of these conclusions led us to design an electronically lockable door system centered around Bluetooth for authentication.

The BluKey project has two parts: the door lock, and the management server. The lock part stays at the door and constantly monitors the area for Bluetooth devices. When a device is found, information about it is sent over a network to the management server. Software running on the server determines if the new device is allowed to open the door by consulting a local database. If the device is allowed, a message is sent back to the lock which then unlocks the door. The management server also provides a web interface to the management of the lock. From here, an administrator can add new devices, remove devices, or view log files that track the activity of the lock for auditing purposes.

The flexibility of our design allows cell phone data to be stored in whatever way is most convenient. For example, our implementation stores phone data in a database, and provides a web-based frontend for the management of that database. However, in another setting, it may be more appropriate to store phone data in an LDAP directory which will have its own separate interface for manipulation. The flexibility and simplicity of our project makes it an ideal starting point for future Bluetooth-centered electronic lock setups.