Lockino: A Novel Solution for Public Lockers using Bluetooth LE and the Estimote iBeacon Platform

Rolfness, Zachary

The smartphone has become our communication device, our wallet, and our personal assistant. It has updated many old technologies, but one that has not benefitted from it is the personal locker system. Current locking systems vary from lock and key, to combination locks, to electronic locking mechanisms. From an end user perspective, these solutions are inefficient, outdated, or, for the electronic systems, have high implementation and maintenance costs as well as high usage costs for the consumers. To improve the current options available, a novel approach using smartphone technology was theorized to open, close, and rent lockers. By allowing a consumer to use his smartphone to interact with a locker, there is no longer a need for a key, a padlock, or, in the case of electronics locks, expensive RFID bracelets, KIOSKS, and fingerprint scanners. The smartphone locker, named the Lockino, was designed to have a wireless locking mechanism, a modular design for scalability, a simple user friendly app, iBeacon positioning, and most importantly to provide safe and secure storage. The solution involves an Arduino locking mechanism communicating with an Android device that ranges itself with an iBeacon positioning system. When the app is launched, the user positions their phone in front of the desired locker. Using Bluetooth LE the phone and the Arduino controller can determine where the phone is and intake commands from the app. The Arduino then pairs the unique phone information with the locker and the user is given the ability to open, close, and rent.

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