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| initiator | Initiator’s goal | participants | Use case name |
| Tenant/landlord | Unlock and enter home | Lock, mobile phone, database, household devices | Unlock(UC-1) |
| landlord | Retire an existing user account and disable access | Database | Retire user(UC-4) |

Use case schema:

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| --- | --- |
| Use case UC-1: | unlock |
| Related requirements: | REQ-1,REQ-2,REQ-3,REQ-4,REQ-6 |
| Initiating actor | Any of: tenant, landlord |
| Actor’s goal | Unlock and enter home |
| Participating actors | Lock, mobile phone, database, household devices |
| preconditions | The door is locked  The lock is connected with user’s mobile phone by bluetooth  The user’s account information is stored in the database |
| Postconditions | The auto-lock timer start |
| Flow of events for main success scenario |  |
| → | 1.tenant/landlord arrives at the door and make his mobile phone connected with the lock by bluetooth |
| ← | 2.system examines that this account exists in the database then disarms the lock, signals to the tenant/landlord the lock is disarmed and signals to lightswitch to turn the light on |
| ← | 3.system signals to the timer to start the auto-lock timer countdown |
| → | 4.tenant/landlord opens the door and enters home |

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| Use case UC-4 | Retireuser |
| Related requirements: | REQ-7 |
| Initiating actor | Any of: landlord |
| Actor’s goal | Retire an existing user account and disable access |
| Participating actors | datadase |
| preconditions | The account information is stored in the database  The operator is landlord |
| Postconditions | a user account is retired and access is disabled |
| Flow of events for main success scenario |  |
| → | 1.landlord make his mobile phone connected to system by Bluetooth |
| ← | 2.system examines that this account is landlord’s account then signals to the landlord that “successfully log in” and wait for operation from landlord |
| → | 3.landlord choose to manage additional user accounts and retire the account he wants |
| ← | 4.system retires the account and disable access then signals to landlord “operation is done” |

Acceptance test case:

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| Test-case identifier | TC-1 |
| Use case tested | UC-1,main success scenario |
| Pass/fail criteria | The test passes if the user connect to the lock with mobile phone by Bluetooth using an account that is contained in the database, with less than a maximum allowed number of unsuccessful attempts |
| Input data | User account, door identifier |
|  |  |
| Test procedure | Expected result |
| Step 1.connect with an account that exists in the database and door identifier | System flashes a green light to indicate success;  Record successful access in the database;  Disarm the lock |
| Step 2.connect with an account that doesn’t exists in the database and door identifier | System beeps to indicate failure;  Record unsuccessful attempt in the database;  Prompts the user to try again |

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| Test-case identifier | TC-4 |
| Use case tested | UC-4,main success scenario |
| Pass/fail criteria | The test passes if the user connect to the lock with mobile phone by Bluetooth using landlord’s account, then successfully retire a user account |
| Input data | Landlord’s User account, user account to be retired |
|  |  |
| Test procedure | Expected result |
| Step 1.connect with landlord’s account and retire an account then try to use that account to unlock the door | System flashes a green light to indicate retirement success;  Delete the account in the database;  Fail to unlock the door using that account; |
| Step 2.connect with an account that is not landlord’s and try to retire an account then try to use that account to unlock the door | System beeps to indicate retirement failure;  Successfully unlock the door using that account; |