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| Initiator | Initiator’s goal | Participants | Use Case Name |
| Tenant | Unlock and enter home | Lock, Household Device, Database, Mobile Phone | Unlock(UC-1) |
| Landlord | Retire an existing user phone number and disable access. | Database  Mobile Phone | Retire User(UC-4) |

Use case

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 a phone with correct phone number approach the door and the door unlock. | |
| Input data | The signal that phone use blue teeth send to the LockDevice | |
| Test procedure: | | Expected Result: |
| Step 1: Approach the door with a phone whose phone number isn’t in the database | | System is not responding |
| Step 2: Approach the door with a phone whose phone number is in the database | | * System flashes a green light to indicate success; * records successful access in the database; * disarms the lock device |

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| Test-case Identifier | TC-2 | |
| Use Case Tested | UC-4, | |
| Pass/fail Criteria | The test passes if landlord use his mobile phone to remove a phone number and corresponding phone is invalid to unlock the door. | |
| Test procedure: | | Expected Result: |
| Step 1: landlord remove a phone number from database using his/her mobile phone | | The chosen phone number in LockDevice’s database disappear |
| Step 2: Approach the door with a phone whose phone number isn’t in the database | | System is not responding |