|  |  |  |  |
| --- | --- | --- | --- |
| Initiator | Initiator’s goal | participants | Use Case Name |
| Tenant | Unlock and enter home when initiator uses his own cell phone to ensure himself nearby via the Bluetooth. | Lock,Household Devices.Database,  Mobile phone | UC-1  (Unlock) |
| Landlord | Retire an user account which is existed and disable access by deleting his mobile device info | Database,mobile phone | UC-4  (RetireUser) |

Use case schemas of UC-1 and UC-4:

|  |
| --- |
| Use Case UC-1: Unlock |
| **Related Requirements:**  REQ-1,3,4,5  **Initiating Actor:**  Any of:Tenant,Landlord  **Actor’s goal:**  First, to disarm the lock and enter;  Second, to get space lighted up automatically.  **Participating Actors:**  LockDevice, LightSwitch, Timer, mobile phone.  **Preconditions:**  • The set of mobile phone (number) stored in the system database is non-empty.  • The system displays the menu of available functions; at the door keypad the menu choices are “Lock” and “Unlock.”  • Ensure the bluetooth of user’s phone has already opend to let the system detects that you are nearby or not.  **Postconditions:**  The auto-lock timer has started countdown from AutoLockInterval.  **Flow of Events for Main Success Scenario:**  ->1 Tenant/Landlord/visitors arrives at the door and select the menu item “Unlock”  <-2. System:  (a) signals to the Tenant/Landlord the lock status, e.g., “disarmed,”  (b) signals to LockDevice to disarm the lock,  (c) signals to LightSwitch to turn the light on  (d)signals to the the Tenant/Landlord the distance status e.h “out of range ,can’t disarmed”  <-3. System signals to the Timer to start the auto-lock timer countdown  ->4. Tenant/Landlord opens the door, enters the home [and shuts the door and locks] |

|  |
| --- |
| Use Case UC-4: RetireUser |
| **Related Requirements:**  REQ-7,8  **Initiating Actor:**  Landlord  **Actor’s goal:**  Retire an existing user account and disable access  **Participating Actors:**  Landlord,Mobile Phone  **Preconditions:**  • Only Landlord has access to use this function in the sysytem.  • The system stores those existing users accounts in the database。  • The system allows landlord to retire an user account which is existed and disable their access by pressing the RETIRE button presented on his/her Phone’s interface.  **Postconditions:**  Tenant entry was closed and their account was deleted from the database.  **Flow of Events for Main Success Scenario:**  ->1 Landlord presses the menu item”ManageUsers” in his/her phone and logs in.  <-2. System:   1. Options of activities available to the Landlord was displayed. 2. Prompt the Landlord to make selection   ->3. Landlord decides to retire one’s access  <-4. System   1. removes the user who is chosed by Landlord from the database.(which means the entry was deleted from the database); 2. Completed signals appear. |

Acceptance tests for UC-1 and UC-4:

|  |  |
| --- | --- |
| **Test-case Identifier:** TC-1  **Use Case Tested:** UC-1, main success scenario, and UC-7  **Pass/fail Criteria:**  If the user successfully connects to Bluetooth and the mobile phone information is in the database and less than the maximum number of pairing attempts, the test passes.  **Input Data:**  Bluetooth, door identifier | |
| **Test procedure:** | **Expected Result:** |
| Step 1. Connect an incorrect Bluetooth to the phone and try to open the door  Step 2. Connect a correct Bluetooth to your phone and try to open the door | System beep indicates fault;   * Record failed attempts in the database; * prompt the user to try again   The system flashes green light to indicate success;   * the successful access is recorded in the database; * the device is unlocked |

|  |  |
| --- | --- |
| **Test-case Identifier:** TC-2  **Use Case Tested:** UC-4,  **Pass/fail Criteria:**  Ensure that the user is the Landlord before disable one’s access.  And remember that Landlord only can retire one’s access which has been in the database  Last but not least， if the user successfully deleted a tenant’s mobile phone information, the tenant can not use the cell phone Bluetooth unlock.  **Input Data:**  Bluetooth,Landlord account and door identifier | |
| **Test procedure:** | **Expected Result:** |
| Step 1.  Log in as a tenant and try to remove one’s access  Step 2. The user uses the tenant account and tries to open the door via Bluetooth  Step 3.  Log in as a Landlord and try to remove one’s access.  Step 4  The user deleted the tenant's information and the deleted tenant tried to open the door using Bluetooth on the phone | System will remind you that you don’t have the authority to perform like that.  The system flashes green light to indicate success; the successful access is recorded in the database; the device is unlocked.  System will Execute your instructions and disable the tenant’s access.  System beep indicates fault;  Record the successful attempt in the database; prompt the user to try again |