Group project: Task 1

CS33901 Software Engineering
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Use Case Scenarios

1. Use Case Scenario: Unlock an Appropriate Door
    1. Individual swipes active security card
    2. System checks personnel access level
    3. If correct, system unlocks door
    4. If incorrect, system throws error and records anomaly/attempt
    5. And extend of this would be that the card is inactive

2.Use case scenario: Door and window alarms
    1. Exterior door is opened without proper authorization
    2. Security violation is sent to control center overseeing security zone door is located in detailing that there was an unauthorized door opening
    3. Control Center triggers lockdown of entrances/exits to that security zone
    4. Authorized personnel resolves violation in control center after the violation is investigated
    5. Lockdown on relevant security zone is released

3. Use case scenario: Fires and smoke alarms
    1. Fire alarm detects a fire or is otherwise triggered
    2. Security alarm is sent to control center overseeing security zone the alarm is in
    3. Control center logs alarm event to database, triggers alarm and emergency evacuation
    4. Restrictions on exits for affected zone are lifted for the evacuation
    5. After fire alarm is resolved and zone is evacuated and investigated, authorized Personnel marks alarm as resolved in control center, alarm stops sounding

4.Use Case Scenario: Tracking of Security Guards
    1. Security Guard Checks in for their patrol
    2. Control Center Registers that scheduled patrol as active and adds it to active patrols for that zone
    3. Guard Checks in at entrance/exit scanners of security zones they are patrolling through
    4. Security Guard is 6 minutes late to a patrol checkpoint
    5. Control Center logs security anomaly of guard being late on patrol checkpoint 6. Guard reaches end of patrol and checks out
    7. Security system removes that patrol from active patrols

5. Use Case Scenario: Changing Zone Access Level
    1. Personnel with sufficient privileges accesses security system configuration
    2. Selects Zone to configure
    3. Select time period to configure
    4. Select Access level for time period
    5. Confirm Changes, back to step 3

6. Personnel exits system configuration

6. Use Case Scenario: Security Violation
    1. Temporarily restrict exit from the violated Security zone(s) or the building upto a certain security level.
    2. Notify the control center.
    3. Violation is logged in a database.
    4. After the violation has been resolved, return control to the system.

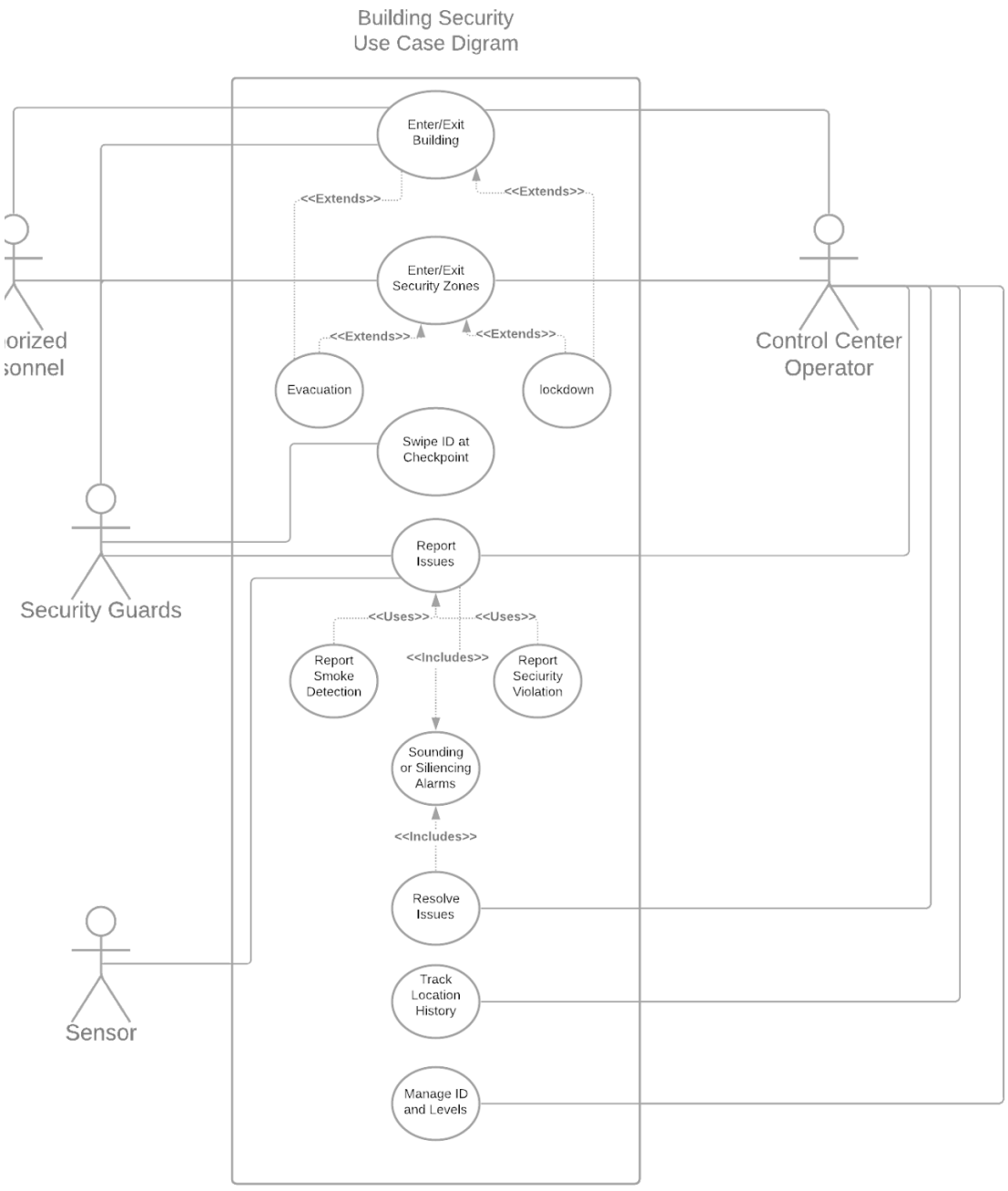
7. Use Case Scenario: Fire/Emergency Detection
    1. Fire detector detects smoke or the system is notified of an emergency situation
    2. System retrieves detector or notification and determines emergency handling option
    3. System locates the affected zones
    4. System turns off module that requires restricted security access for exiting those zones
    5. System locates appropriate alarms based on emergency event
    6. System sets off alarms

8. Use Case Scenario: Resolve an Alarm
    1. System displays unresolved violations and alarms on screen
    2. Control Center Operator clicks on individual violations
    3. System displays handling options menu
    4. Control Center Operator manually resolves violation with access card/key
    5. Control Center Operator manually turns off alarm with access card/key Operator may stop actions at anytime by exiting window

9. Use Case Scenario: Retrieving Personnel Location Data
    1. Personnel with sufficient permissions accesses control center
    2. Enters name of personnel whose information they want to access (ID card also acceptable)
    3. Accesses Location Data
    4. Displays List of {Zone, Entrance/Exit, Time/Date} for the personnel being checked
    5. User returns to personnel information
    6. User exits control center

10. Use Case Scenario: Issue an Id card
    1. Personnel reports to the control center.
    2. Authorized Personnel Adds new Personnel into the Control Center
    3. Printer In Control Center Prints ID Card for the new Personnel

Use Case Diagram



Data Dictionary

Control Center
Personnel (Name, ID, Access)
Time/Date
Timer
Alarm
Fire Detector/Sensors (could include other detectors such as CO)
Display
Printer
Input Manager/Device
Card Scanners
Window Sensors
Zone (this object might contain data such as the required access level and its location/territory)
Event
Violation (would contain the type of violation and the location of the violation)

Preliminary Features

Control Center which can be used to

- Report/Handle issues and security violations that occur
- Automatically record security events within the security zones it oversees
- Retrieve the location history of personnel and security guards, and track security guards on their patrols while reporting irregularities
- Manage Personnel Information and Security Zones throughout the building
- Trigger Alarm in the event of security alarms/violations until they are resolved
- Trigger evacuations from security zones, unlocking exit scanners on zones while still restricting entry
- Lock down security zones in the event of major violations

- Scanners at entrances and exits of security zones that pass information up through to the control center their zone reports to when an id card is scanned
    - ID cards are tied to personnel/security guards
- Fire Detectors within each security zone that issue alarms to the control center overseeing the zone they are in when a fire is detected
- Sensors on Doors/Windows within a security zone to detect forced or unauthorized entry and issue alarms to the control center overseeing the zone as necessary