

1)

a)

Protecc is a computerized home security system which provides automated security support and support from a 24-7 human response team to a homeowner who installs Protecc to their home. Protecc offers various services which provide protection from common worries that a homeowner would have. These services include cameras placed at various points around the home, door alarms, window alarms, a doorbell camera that takes clips whenever a motion detector is tripped and a picture when the doorbell is rung, and smoke and carbon dioxide detectors. Protecc can be set to a number of different security modes by the homeowner for different scenarios. The security modes include home, away, disarmed, and away (extended). No matter which mode the homeowner chooses, the carbon dioxide detectors, smoke detectors, doorbell sensors/camera, and cameras will remain on. If Protecc is left in any one of the security modes for too long, the system will attempt to contact the homeowner.

Away mode is meant to be used when the homeowner leaves the house for a short amount of time (less than 24 hours). In away mode, all of the services the Protecc system uses to provide protection are activated and the alarm threshold is set to medium. This includes all of the cameras, door sensors and alarms, window opening sensors and alarms, window break sensors and alarms, the doorbell motion sensor and camera, and smoke and carbon dioxide detectors.

Away (extended) mode is meant to be used when the house is going to be empty for at least a day. Away (extended) mode activates all of the protection services and sets the alarm threshold to high. When entering away (extended) mode, the homeowner can tell the system how many times a day they want to be given a report of activities, as well as what times of the day to be given these reports.

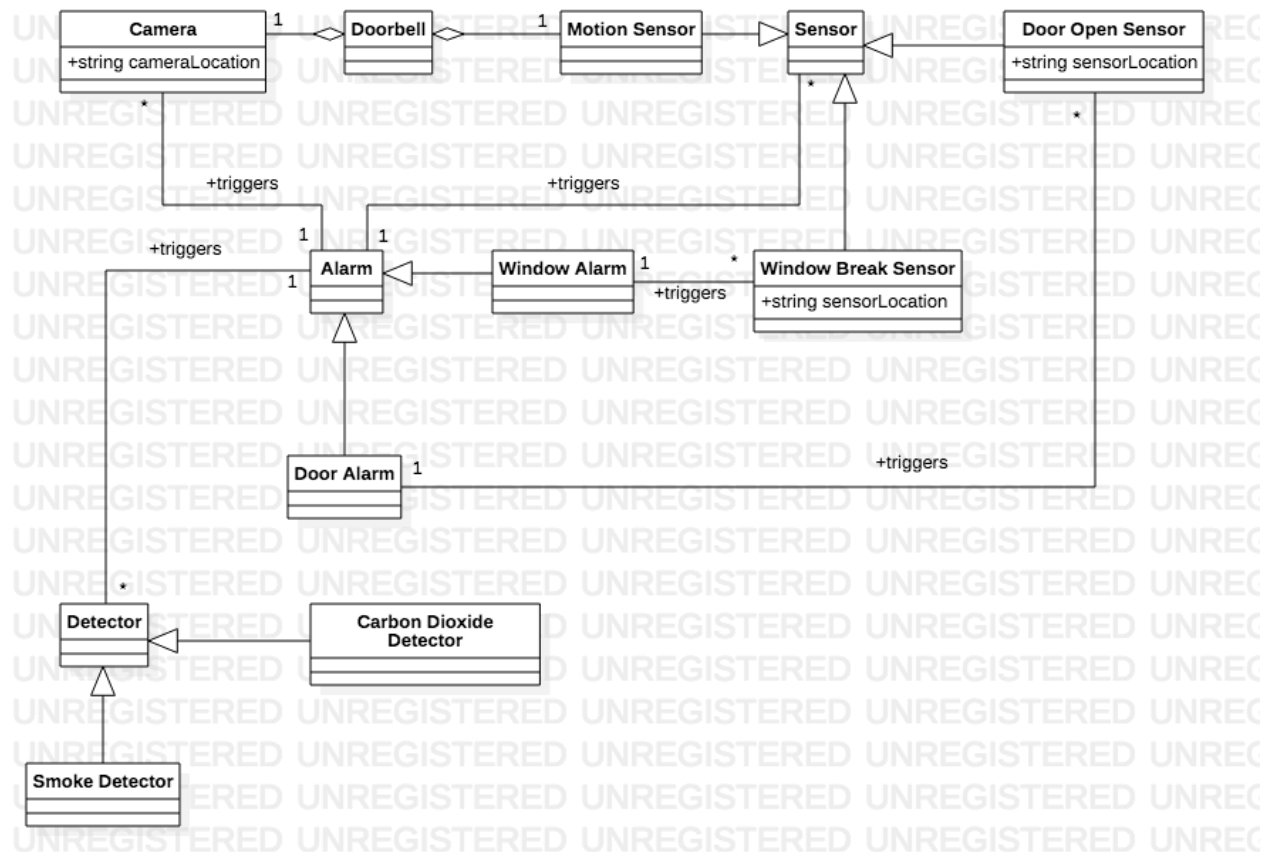
Home mode is meant to be used when the house is occupied, but nobody will be leaving the house until Protecc is disarmed (Example: homeowner going to bed). In home mode, if any door, window, smoke and carbon dioxide detector, or doorbell sensor is activated, an alarm is triggered. Home mode can only be entered from the keypad inside the house in order to ensure that the homeowner is home before entering home mode.

Disarmed mode is meant to be used when the homeowner is home and there is a good bit of activity going on that does not require alarms to be triggered (Example: homeowner is hosting a party). In disarmed mode, the cameras, doorbell sensor and camera, and smoke and carbon dioxide detectors will remain on. No alarms will be triggered unless the smoke detectors or carbon dioxide detectors are triggered while in disarmed mode.

Automated security support, the homeowner, and the 24-7 response team have the ability to arm, disarm, and trigger the alarms. The homeowner and the 24-7 response team have the ability to monitor the live feed from the cameras via the website. Any time that any of the sensors or alarms are tripped, the system keeps a record which can be accessed by the 24-7 response team and the homeowner. The automated security support, the 24-7 response team, and the homeowner have access to the live feed from all the sensors and alarms. If the smoke detectors or carbon dioxide detectors go off, the 24-7 response team is notified who then

attempts to notify the homeowner. If the 24-7 response team fails to contact the homeowner, they notify the local fire department. If a door or window sensor is activated while Protecc is not disarmed, the 24-7 response team attempts to contact the homeowner. If the homeowner is successfully contacted, the 24-7 response team asks the homeowner's security question that they set when the account was made. If the security question is answered correctly, the alarm is deactivated. If the homeowner fails to be contacted or answers the security question wrong, the 24-7 response team notifies the local police.

b)

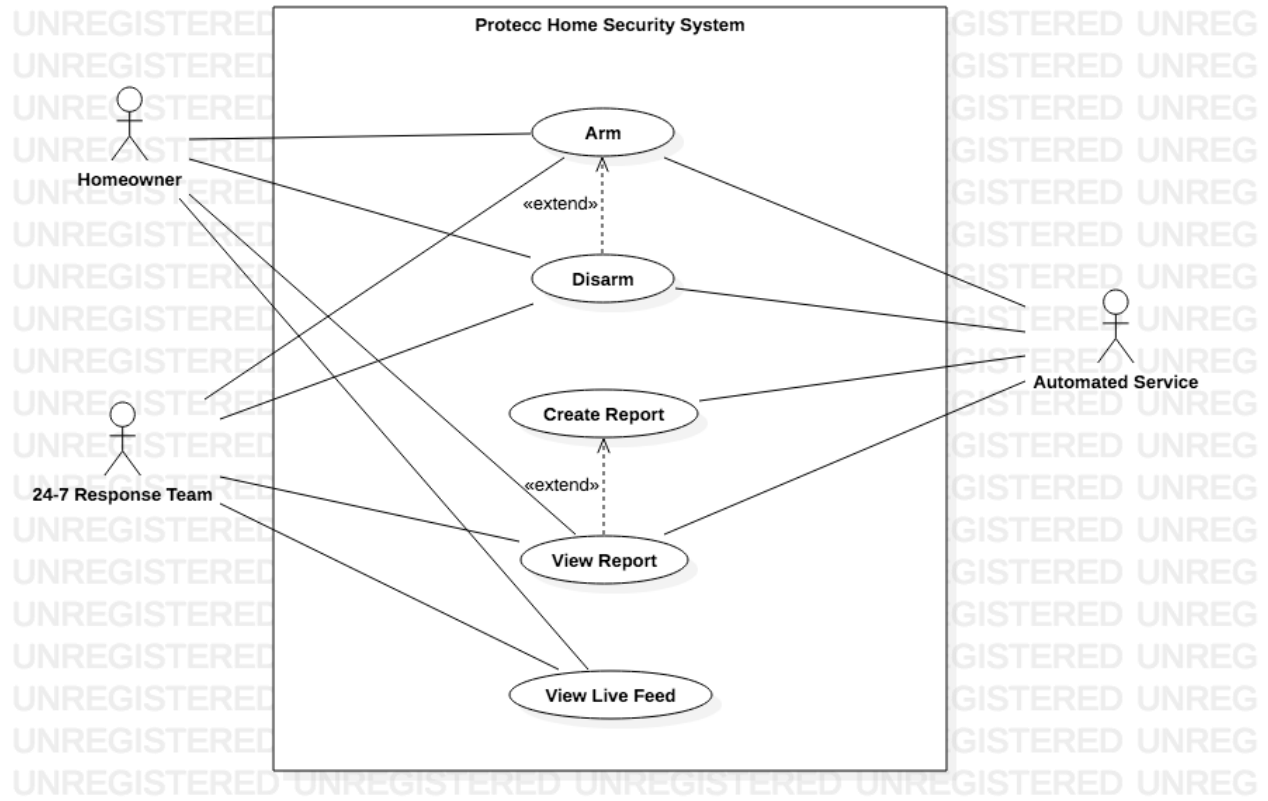


c)

- **Context:** Camera
`self.cameraLocation->exists(c, d | c.cameraLocation != d.cameraLocation)`
- **Context:** Door Open Sensor
`self.sensorLocation->exists(c, d | c.sensorLocation != d.sensorLocation)`
- **Context:** Window Break Sensor
`self.sensorLocation->exists(c, d | c.sensorLocation != d.sensorLocation)`

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Homework 4
Comp 3700

2)



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3)

Name: View Report

Participants: Homeowner, 24-7 Response Team, Automated Security Service

Precondition: Automated Security Service has created the report.

Postcondition: Homeowner, 24-7 Response Team, or Automated Security System can view the report

Typical Course of Events:

Actor Intention:

1. Automated Security Service has created the report.
2. Homeowner requests to view the report.
4. Homeowner must enter password to view report.
6. Homeowner, Automated Security Service, or 24-7 Response Team can now view the report.

System Responsibilities:

3. System will ask for verification from the Homeowner.
5. System will present the report of activities picked up by sensors and cameras.

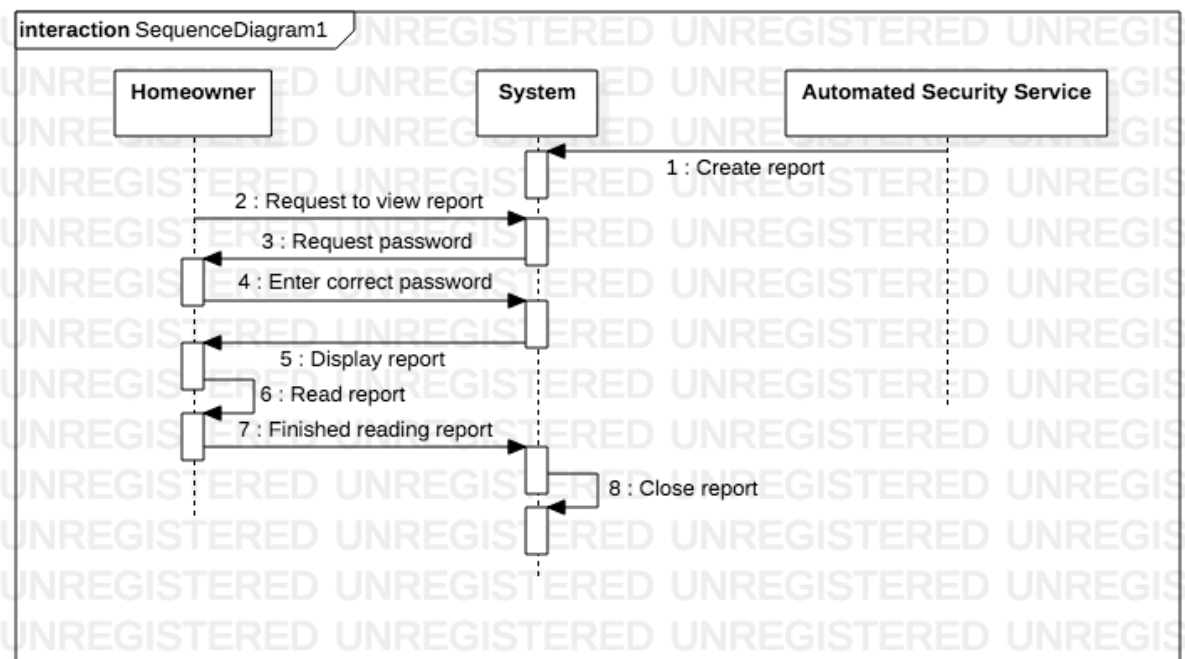
Alternate Flow of Events:

2. The Automated Security Service or the 24-7 Response team requests to view the report, so the system does not require them to enter the password.
4. The Homeowner incorrectly enters their password, so the system requests the Homeowner to enter the correct password. The system will not show the report to the Homeowner unless the correct password is entered.

4)

a) **Scenario for View Report:**

- Automated Security Service creates the report of all sensor and camera activities.
- Homeowner requests to view the most recent report.
- System requests the Homeowner's password.
- Homeowner enters the correct password.
- System fetches the report and displays it to the screen to be read.
- Homeowner reads the report.
- Homeowner notifies the system that they are finished reading the report.
- System closes the report.



b) **Scenario for View Report:**

- Automated Security Service creates the report for all sensor and camera activities.
- 24-7 Response Team requests to view the most recent report.
- System fetches the report and displays it to be read.
- A member of the 24-7 Response Team views the report.
- 24-7 Response Team may take action such as contacting the homeowner, fire department, or police if the report states an emergency has occurred.
- 24-7 Response Team notifies the system that they are finished reading the report.
- System closes the report.

