GROUP8 SMART HOME

A home assistant for an easy life

CS3307A Fall 2019 | User Stories | UML Class diagram | Stage 2

Group members

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a. As a host, I want to get alert as long as the main door is unauthorized opened. (12 points)

      Test: unknown person opens the door(alert)

      Test: host opens the door(do not alert)

b. When user enters the room, the lights will automatically turn on/off based on the time(15 points)

      Test: user enters the room in the evening(lights on)

      Test: user enters the room in the morning(lights off)

d. As a user, I want to get the weather report quickly.(5 point)

    Try it with today's weather(pass)

    Try it with location name(pass)

    Try it with Club's name(fail)

    Try it with empty location name(fail)

e. As a user, I want to get the information of my home appliances on my smartphone.(12 points)

    Test: Turn off/on the light , change status on front end(success)

    Test: Open/close the door, change status on front end(success)

    Test: Turn off/on the light , status change for door on front end(fail)

    Test: Open/close the door, status change for light on front end(fail)

f. As a user, I want to easily play music by just type the name on the pi.(12 points)

       Test: Input correct music name in PI,   be able to play it on front end(success)

       Test: Input invalid music name in PI, be able to return an alert(success)

       Test: input invalid music name in PI, music played(fail)

g. As a home member, I want the home assistant to help me send email to police when the alert is activated for too long(15 points)

     Test: For the alert activating longer than an preset time , send email to police (success)

     Test: For the alert activating longer than an preset time , didnt send email to police (fail)

     Test: For the alert activate for relatively short time , called send email to police (fail)

H. I want to get the weather report of a specific date when I requested it on PI(5)

       Test: Requested for weather report for today , returned correct data (success)

       Test: Requested for weather report for today , returned data for tomorrow (fail)

       Test: Requested for weather report for today , didn't return any data(success)

Wish List :

i. As a home member, I want my home always to be at the right temperature that I feel comfortable.(35 points)

     Test: If the temperature is low , status change to heating(success)

     Test: If the temperature is high , status   change to cooling(success)

Test: If the temperature is equal to pre-set integer , heating / cooling process   should be terminated for me(success)

Test: If the temperature is low , status is cooling or does not change(fail)

Test: If the temperature is high , status is heating or does not change(fail)

j. On my way home, I want the home assistant to activate   all the appliances as I preset so that can feel comfortable when I am back,. (30 points)

Test: While ten minutes before User arrive home , heat on

Test: While 5 minutes before User arrive home, turn on the light

Test: When   User arrives home, nothings activated

Important notes on deletion of one feature:

We deleted the feature of control tablets / phones through PI, taking into consideration   the amount of time that would be devoted to test it ,and the feature itself would be more related with the electronic devices rather than RaspBerry PI.   Since this feature appears on our wish list , the removal of it would not have any impact on any required features.

User

+ music: string
+ weather: string
+ alarmMsg: string
+ alarmLight: string
+ light: vector<Light>

+ setAlarmMsg(alarmMsg: string): void
+ getLightVector(vector):string
+ playMusic(): string
+ getWeather(): string
+ getAlarm(): void
# resgisterObserver():void
# unRegisterObserver():void
# setAlarm(): boolean

extend

<interface>
Subject

resgisterObserver():void
unRegisterObserver():void
sendUpdate(): boolean

extend

Sensor

- state: boolean

+ initSensor():void
# resgisterObserver():void
# unRegisterObserver():void
# sendUpdate(): boolean

instance   0..1

instance   0...1

listen to

alarm

userAlarmStatus: boolean
sensorStatus: boolean
- Light: alarmLight
- alarmMsg: string

+ initAlarm(): void
+ updateUserAlarm(): void
+ updateSensorStatus():void
+ getAlarmStatus():boolean

listen to request

use

webModule

- music_url: string[]
- weather: string[]
- alarmMsg: string
- alarm: alarm
- lightvector: vector<Light>

+ initWebModule(): void
+ setAlarm(alarm: alarm): void
+ setDayNightSwitch(dayNightswitch: boolean)
+ getLightVector(light: vector): string
+ setLightVector(light: vector): string
+ getMusic(music: string):string
+ getWeather(weather: string): string
+ update(): void
# sendAlarm(alarmMsg: string): boolean
- addWeather(weather: string): void
- addMusic(music: string):void
- fetchMusic(music: string):string
- fetchWeather(weather: string):string

1

extend   1

alarmLight

dayNightSwitch: boolean
lightstate:boolean
roomnumber:int
- color: int

+ initLight(): void
+ switchLight(): void
# setColor(color: int): void
# getColor():int

1..*

extend

<interface>
Observer

+ update(): void

inherit

Light

dayNightSwitch: boolean
lightstate:boolean
roomnumber:int

+ initLight(): void
+ switchLight(): void

control

0...*