

# **Report - Assignment 01**

Modern Topics in IT (IT4020) 2021

# Sri Lanka Institute of Information Technology

Group number: 34

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IT18001730	T.S. Chethana Fernando	Smart Refrigerator, Mobile App

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### SYSTEM OVERVIEW DIAGRAM

There are 4 producer(publisher) components and 1 consumer (Subscriber) components.

- Producers
  - ➤ Room Sensor
  - Deep Freezer
  - ➤ Garage Service
  - > Smart Refrigerator
- Consumer: Mobile App

The user can receive notifications to the Mobile App (Subscriber) regarding different states about those Producers(publisher).

# Examples: -

- When getting the items (Coke Bottles/ Eggs/ Ice-creams/ Milk Bottles) from refrigerator and adding items to the refrigerator, it will be notified by using the mobile app.
- ❖ Deep freezer will inform the user about the items that he intends to put inside and inform the person about where should it stored, according to the temperature levels.
- \* Room Sensor will identify the authorized people that have the right code to enter the room.
- ❖ Garage system will inform how many cars that can be parked inside the garage at given time and available slots

# **Function Diagram**

# Smart House System Room Sensor Function Mobile App Garage Function

Figure 1 Diagram

### SCENARIO EXPLANATION

### 1) Scenario 1- RoomSensor

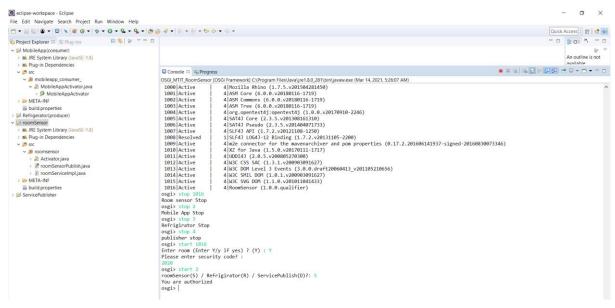


Figure 2 picture

- This program is about a smart lock that allows only authorized users to enter the house.
- As the initial step systems ask whether the user wants to enter the building.
- If "Y/y" (yes) is entered the system user can go to the code entering interface or if any other letter is entered it will exit.
- If "Y/y" is entered the system will ask for the security code.
- If the user enters the correct security code he will be authorized, and a message will be printed saying "You are authorized"
- If the user enters the incorrect security code the system will output "You are not authorized" and ask for the code again.

## 2) Scenario 2- DeepFreezer

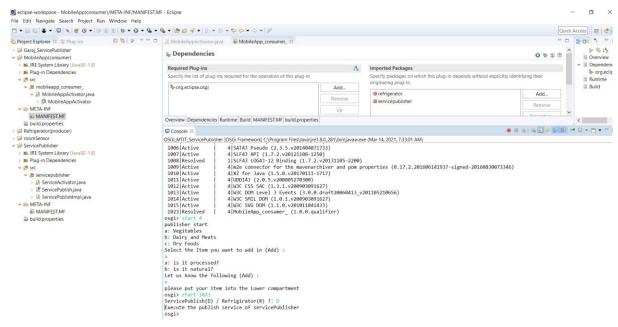


Figure 3 picture

- Following program elaborate about a smart deep freezer system, where it shows the user to choose the compartment options to put the goods in.
- Initially system asks the user to select the items from (vegetables/meats and dry food).
- User gets to select the desired item that he's willing to put inside.
- After that system asks about whether the item is processed or natural.
- Once the user selects whether the item is natural or processed, deep freezer will tell what compartment to put their foods in
- System will inform user to use the correct compartment according to the food user puts in
- Finally, user gets a notification about the information on which compartment that they should use.

### 3) Scenario 3– Garage Service

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 > © Garaj_ServicePublisher
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1015 | Active |
1016 | Active |
1020 | Active |
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Garaj Service Stop
0sgl) > stop 1020
Mobile App Stop
0sgl) > start 2
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4 | W3C DOM Level 3 Events (3.0.0.draft20060413_v201105210656) 
4 | W3C SMIL DOM (1.0.1.v20090300627) 
4 | W3C SWO DOM (1.1.0.v201011041433) 
4 | MobileApp_consumer_ (1.0.0.qualifier)
               MANIFEST.MF
      MobileApp(consumer)

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         N Plug-in Dependencies
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More 3 Vehicle can park.
1 Vehicles are parked.
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You can park your Vehicle.
More 2 Vehicle can park.
2 Vehicles are parked.
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You got out your Vehicle.
More 3 Vehicle can park.
1 In Garaj.
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You got out your Vehicle.
More 4 Vehicle can park.
0 In Garaj.
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ServicePublish(D) / Garaj_ServicePublisher(G) / Refrigirator(R) ?: G
No new notifications
```

Figure 4 picture

- Following program is about smart garage which shows the details about garage.
- Initially system ask, "You are going In or Out."
- User can select the options what he is going to do.
- Then system will display the Number of available slots and parked slots.
- When vehicles come into the garage and going out from the garage system will automatically calculate the parked slots and available slots.
- If user try to enter wrong input, system will ask again to enter the right input.
- If user try to enter the car in the garage when it is full system inform to user, "Limit is up" and terminate the program.
- Also, there are not any vehicles in park if user try to go out, system inform to user "No vehicle in the garage."

### 4) Scenario 4 – Smart Refrigerator

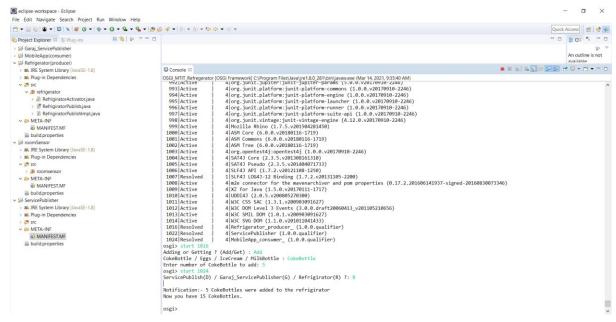


Figure 5 picture

- Here, we represent getting something from the refrigerator and adding something to the refrigerator.
- As well as we consider only coke bottles, eggs, ice-creams, and milk bottles.
- We must give inputs to the console to **imitate** the situation, which is mobile app getting the data (ex:- how many coke bottles are available at a particular moment / how many eggs are available at a particular moment/ how many ice creams are available at a particular moment/ how may milk bottles are available at a particular moment) from a sensor that is there in the refrigerator.
- Users must select the device which he/she need to get the notifications when the mobile app starts. (have to input **R** (Refrigerator) or D or S or G)
- In here user selects 'R' (Refrigerator). Therefore, the app shows notifications about the refrigerator.
- Since we add 5 new coke bottles to the refrigerator, the notification shows it.
- Furthermore, there is a hardcoded value in the code to imitate the available coke bottles to count through a sensor. (that value is initialized to 10. Therefore, here it shows the available all coke bottles count as 15 (10+5))

### SCREENSHOTS OF MANIFEST FILES

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Figure 6 picture

Figure 7 picture

5

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eclipse-workspace - ServicePublisher/META-INF/MANIFEST.MF - Eclipse File Edit Navigate Search Project Run Window Help
          MANIFEST.MF
              > mi JRE System Library [JavaSE-1.8]
> mi Plug-in Dependencies
> #5 src

> META-INF
                                             MANIFEST.MF
                                build.
                                                          Figure 8 picture
 eclipse-workspace - Refrigerator(producer)/META-INF/MANIFEST.MF - Eclipse
     File Edit Navigate Search Project Run Window Help
     Project Explorer #1 # Pug-ins

Brefrigerator

RefrigiratorActivator.java

RefrigiratorPublishjava

RefrigiratorPublishImpl.java

META-INF

MANIFEST.MF

Dulld.properties

Source

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                       MANIFEST.MF
build.properties
```

Figure 9 picture

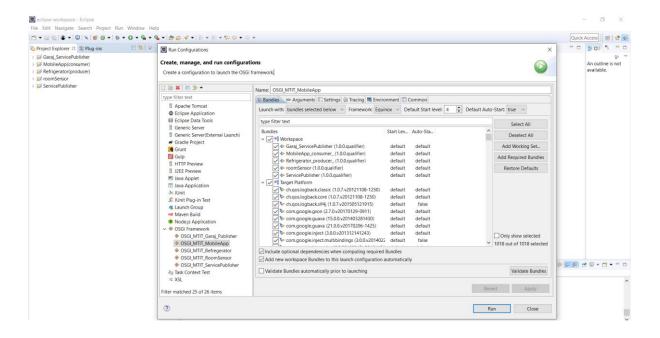


Figure 10 picture

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eclipse-workspace - Garaj_ServicePublisher/META-INF/MANIFEST.MF - Eclipse
File Edit Navigate Search Project Run Window Help
🗞 Project Explorer 🛭 💲 Plug-ins 🗎 😘 🕩 🔻 🗀 🔒 Garaj_ServicePublisher 🖺 🚱 Refrigerator_producer_ 😂 roomSensor 😂 ServicePublisher
                                                                                     © Garaj_ServicePublisher ☑ ② Refrigerator_producer ② roomSensor ③ ServicePublisher I ManifestVersion: 1.0

2 Bundle-Name: Garaj_ServicePublisher

4 Bundle-SymbolicAbare: Garaj_ServicePublisher

5 Bundle-Version: 1.0.0. qualifier

6 Bundle-Activator: garaj_servicepublisher.Garaj_ServiceActivator

7 Bundle-RequiredExecutionEnvironment: JavaSE-1.8

8 Automatic-Module-Name: Garaj_ServicePublisher

9 Import-Package: org.osgi.framework;version="1.3.0"

10 Bundle-ActivatonPolicy: lazy

11 Require-Bundle: Garaj_ServicePublisher

12 Export-Package: garaj_servicepublisher
 > 👺 Garaj_ServicePublisher
   MobileApp(consumer)
 ■ Plug-in Dependencies
    ✓ ﷺ src
✓ ∰ refrigerator
           > RefrigiratorActivator.java
           >  RefrigiratorPublish.java
>  RefrigiratorPublishImpl.java

✓ 

META-INF

          A MANIFEST ME
       build.properties
  > M JRE System Library [JavaSE-1.8]

■ Plug-in Dependencies

    v 🕮 src
    > # roomsensor

> META-INF

MANIFEST.MF
       B build.properties
 ■ Plug-in Dependencies
    > # src

> # META-INF
          MANIFEST.MF
       B build.propertie
```

Figure 11 picture