|  |
| --- |
| *CometPark* |
| **System Architecture Document** |
| **SE 6387 Advanced Software Engineering Project**  **R.Z. Wenkstern**    ***03/18/2014*** |

|  |
| --- |
| **Group B *002*** |
| Arunkumar Manickam |
| Hariprasad Natarajan |
| Prasanna Venkatesh Venkitasamy |
| Rekha Muthulakshmi Nachadalingam |

# 

# Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Decription** | **Authors** |
| 1.0 | 03/06/2014 | Completed initial draft | Arunkumar, Hariprasad Prasanna, Rekha |
| 2.0 | 03/09/2014 | Updated Sequence and Architecture diagram | Arunkumar, Hariprasad Prasanna, Rekha |
| 3.0 | 03/18/2014 | Added Executable State charts | Arunkumar, Hariprasad Prasanna, Rekha |

Contents

[Revision History 2](#_Toc382903696)

[List of Figures 1](#_Toc382903697)

[1. Subsystems Sequence Diagrams 2](#_Toc382903698)

[1.1 Update Parking Spot Status 2](#_Toc382903699)

[1.2 Find Vacant Parking Spot 3](#_Toc382903700)

[1.3 Login 4](#_Toc382903701)

[1.4 Manage Parking Spot 5](#_Toc382903702)

[1.5 Update System Configuration 6](#_Toc382903703)

[2. System Architecture with Operations 7](#_Toc382903704)

[3. Statecharts 8](#_Toc382903705)

[3.1 Statechart for the entire CometPark System 8](#_Toc382903706)

[3.1.1 System State: OFF 8](#_Toc382903707)

[3.1.2 System State: Running 8](#_Toc382903708)

[3.1.3 System State: Vehicle Arrives 9](#_Toc382903709)

[3.1.4 System State: Vehicle Leaves 9](#_Toc382903710)

[3.1.5 System State: Web Application Receives a User Request 10](#_Toc382903711)

[3.2 Statechart for each component of the system 10](#_Toc382903712)

[3.2.1 Sensor 10](#_Toc382903713)

[3.2.2 Controller 12](#_Toc382903714)

[3.2.3 Web Application 13](#_Toc382903715)

[3.2.4 Server 15](#_Toc382903716)

[Appendix B: References 17](#_Toc382903717)

# List of Figures

[Figure 1 Update Parking Spot Status 2](#_Toc382904521)

[Figure 2 Find Vacant Parking Spot 3](#_Toc382904522)

[Figure 3 Login 4](#_Toc382904523)

[Figure 4 Manage Parking Spots 5](#_Toc382904524)

[Figure 5 Update System Configuration 6](#_Toc382904525)

[Figure 6 System Architecture 7](#_Toc382904526)

[Figure 7 System State: Off 8](#_Toc382904527)

[Figure 8 System State: Running 8](#_Toc382904528)

[Figure 9 System State: Vehicle Arrives 9](#_Toc382904529)

[Figure 10 System State:Vehicle Leaves 9](#_Toc382904530)

[Figure 11 System State: Web Application Receives a User Request 10](#_Toc382904531)

[Figure 12 Sensor Off State 10](#_Toc382904532)

[Figure 13 Sensor Running State 11](#_Toc382904533)

[Figure 14 Vehicle Arrives 11](#_Toc382904534)

[Figure 15 Vehicle Leaves 12](#_Toc382904535)

[Figure 16 Controller Off 12](#_Toc382904536)

[Figure 17 Controller On 13](#_Toc382904537)

[Figure 18 Web Application Idle 13](#_Toc382904538)

[Figure 19 Web Application Processing 14](#_Toc382904539)

[Figure 20 Web Application After Processing 14](#_Toc382904540)

[Figure 21 Server Ready State 15](#_Toc382904541)

[Figure 22 Server Processing 15](#_Toc382904542)

[Figure 23 Server After Processing 16](#_Toc382904543)

# 1. Subsystems Sequence Diagrams

## 1.1 Update Parking Spot Status

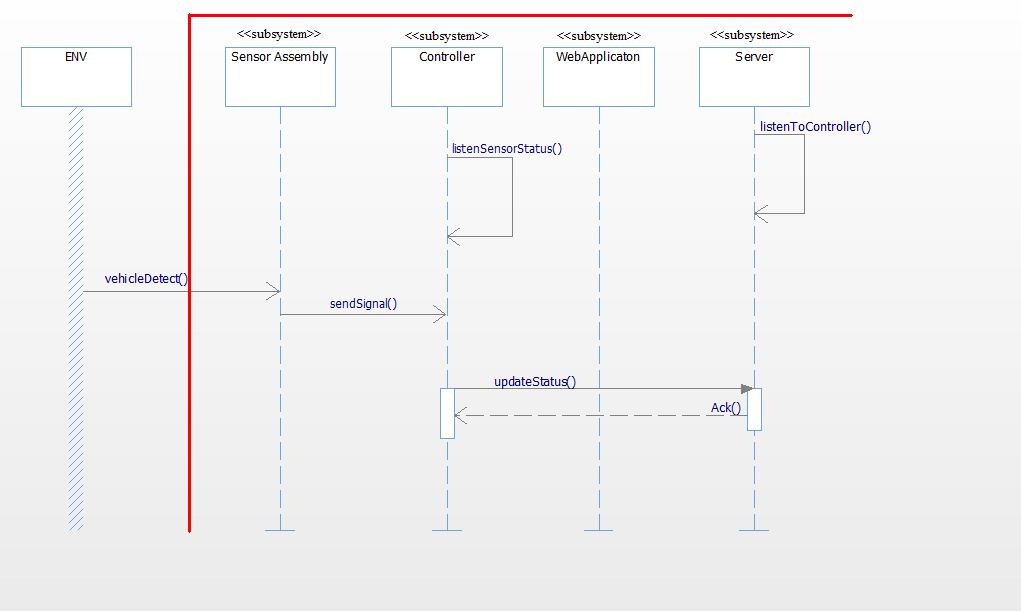


Figure 1 Update Parking Spot Status

## 1.2 Find Vacant Parking Spot

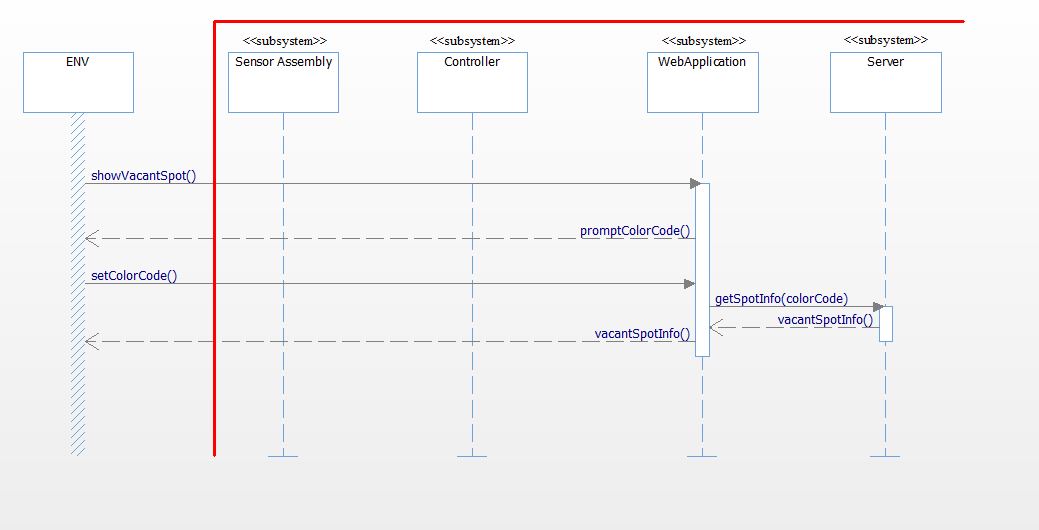


Figure 2 Find Vacant Parking Spot

## 1.3 Login

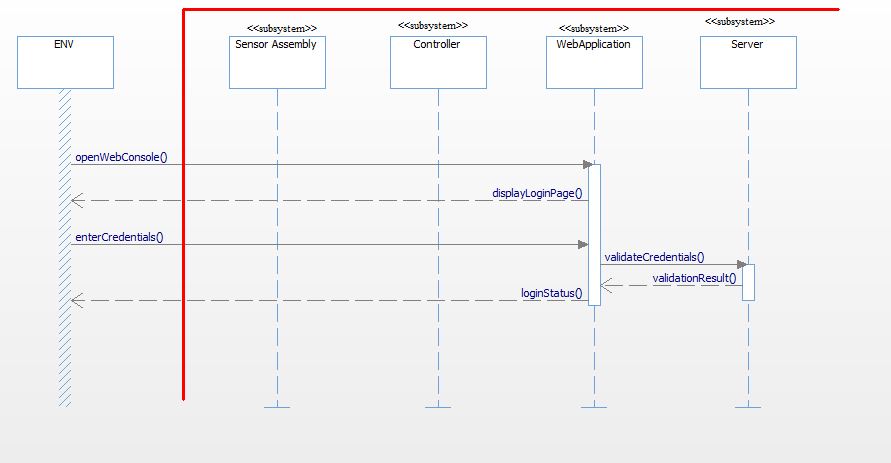


Figure 3 Login

## 1.4 Manage Parking Spot

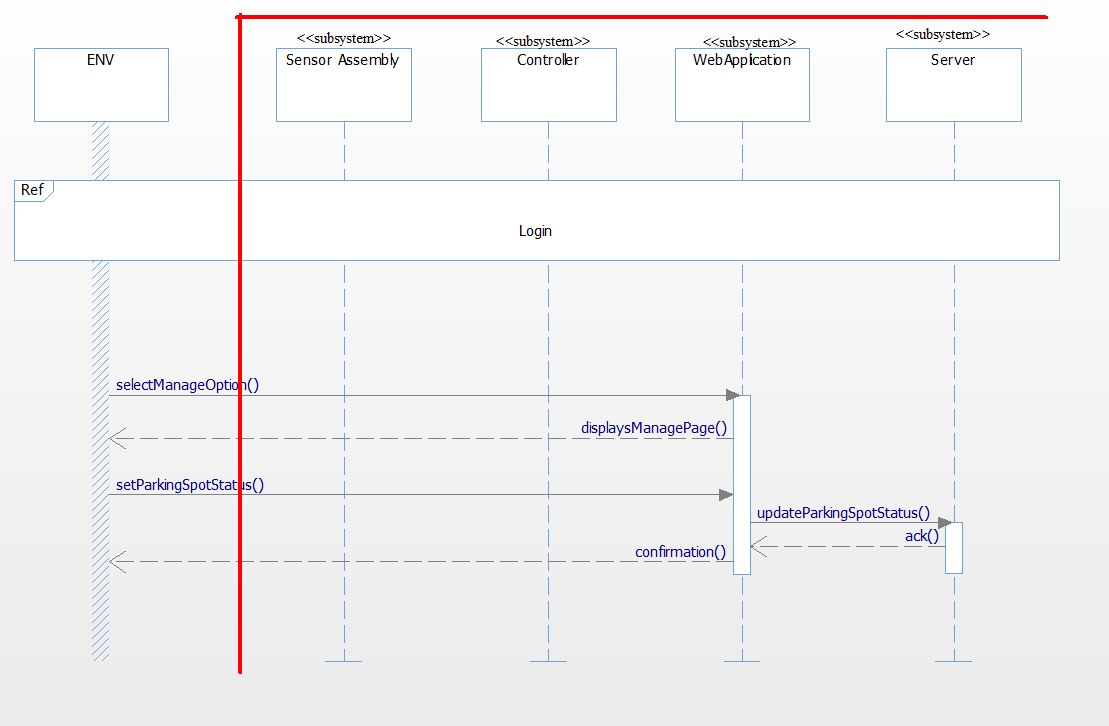


Figure 4 Manage Parking Spots

## 1.5 Update System Configuration

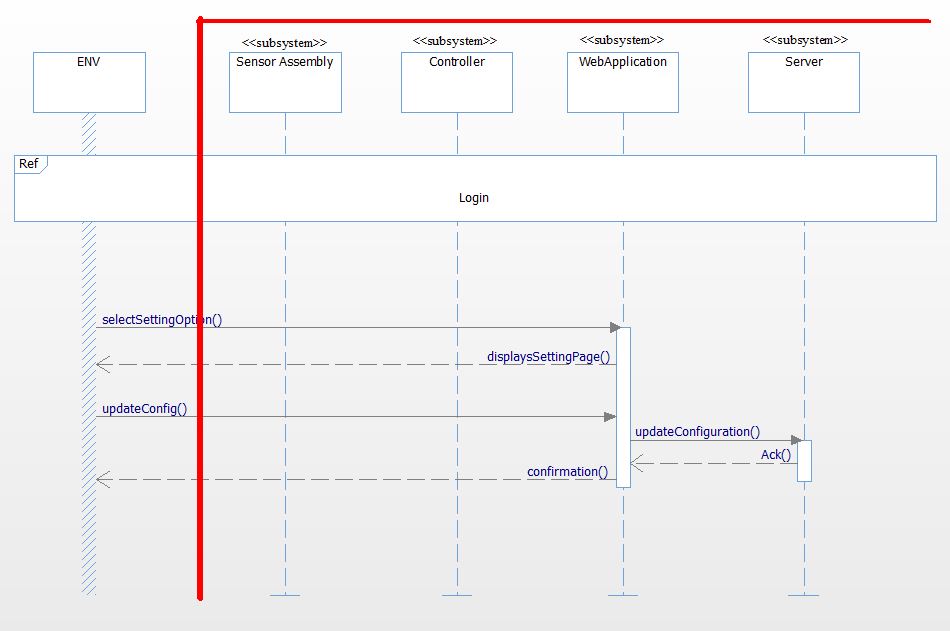


Figure 5 Update System Configuration

# 2. System Architecture with Operations

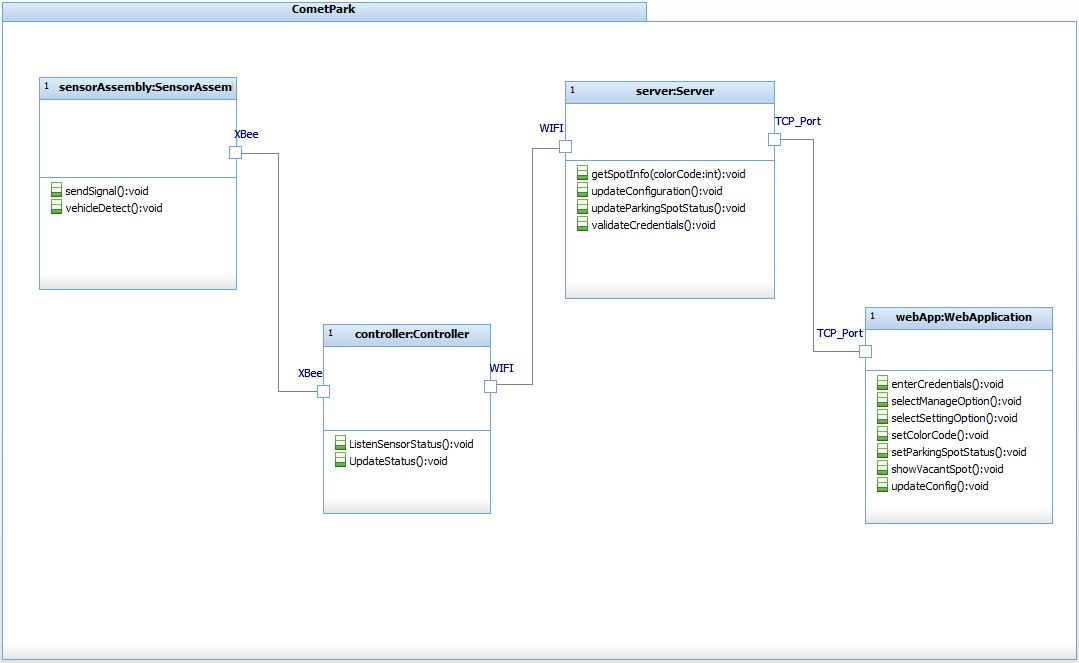


Figure 6 System Architecture

# 3. Statecharts

## 3.1 Statechart for the entire CometPark System

### 3.1.1 System State: OFF

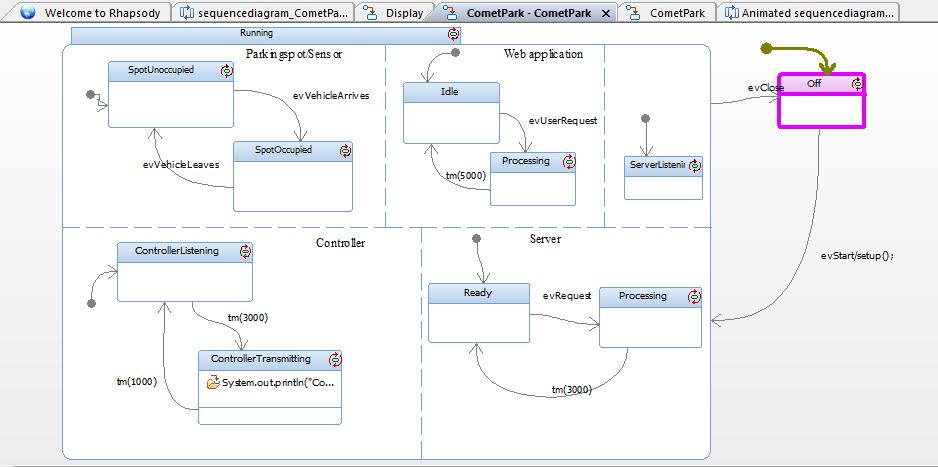


Figure System State: Off

### 3.1.2 System State: Running

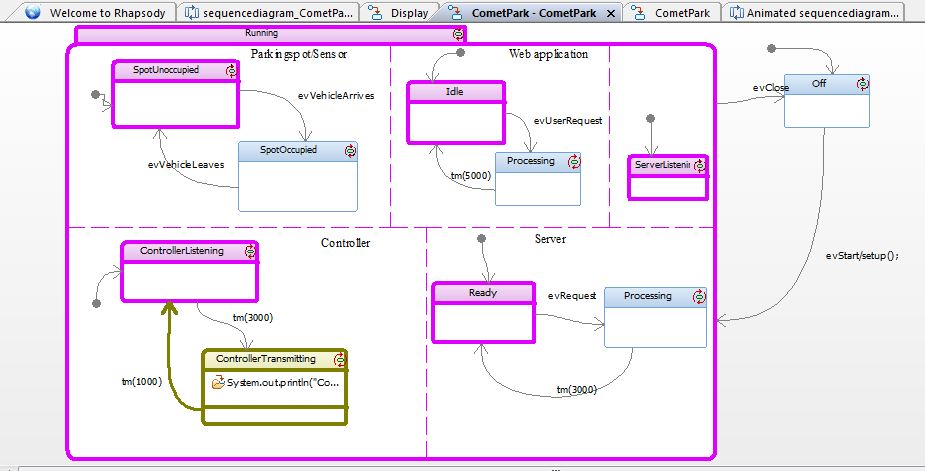


Figure System State: Running

### 3.1.3 System State: Vehicle Arrives

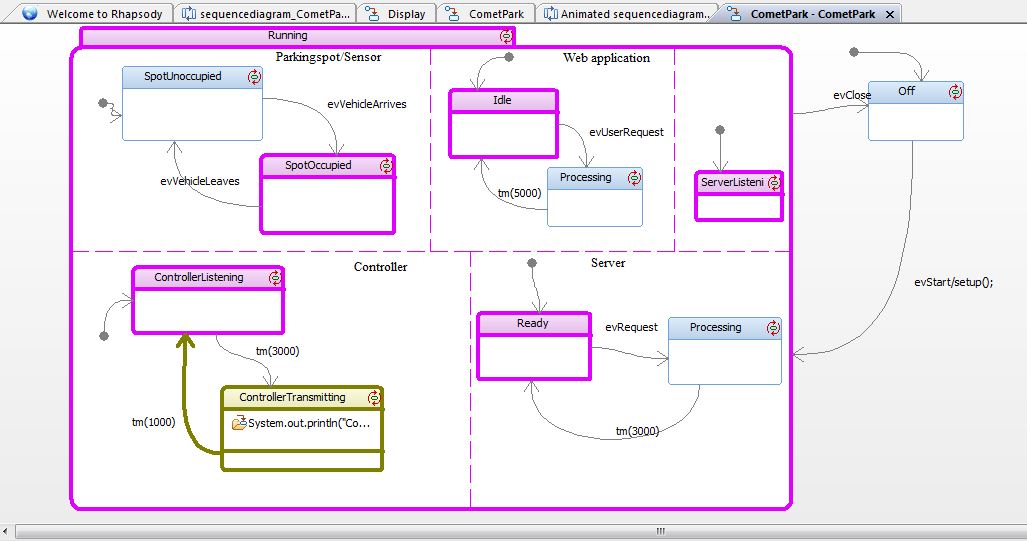
****

Figure System State: Vehicle Arrives

### 3.1.4 System State: Vehicle Leaves

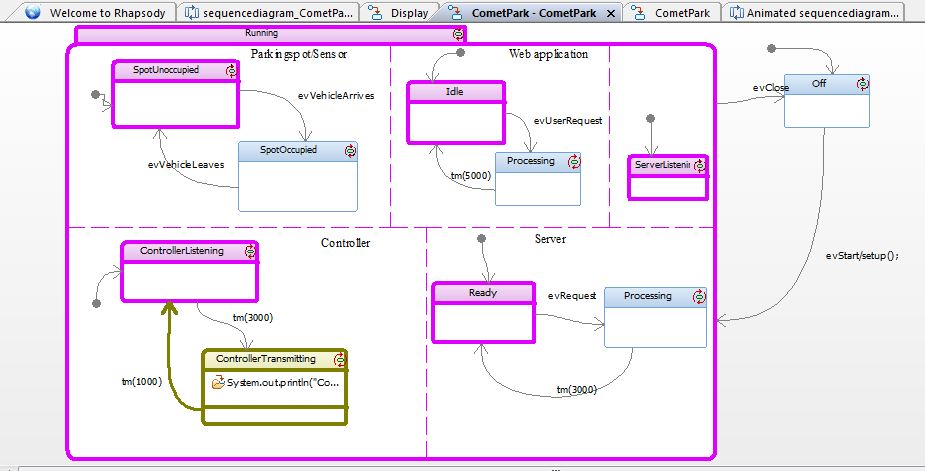


Figure System State :Vehicle Leaves

### 3.1.5 System State: Web Application Receives a User Request

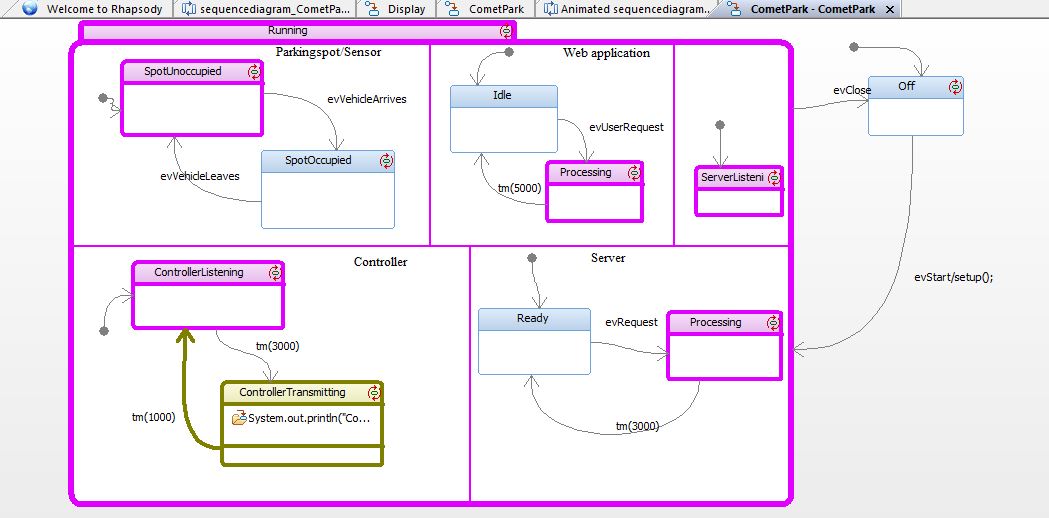
****

Figure System State: Web Application Receives a User Request

## 3.2 Statechart for each component of the system

### 3.2.1 Sensor

#### 3.2.1.1 Sensor Off State

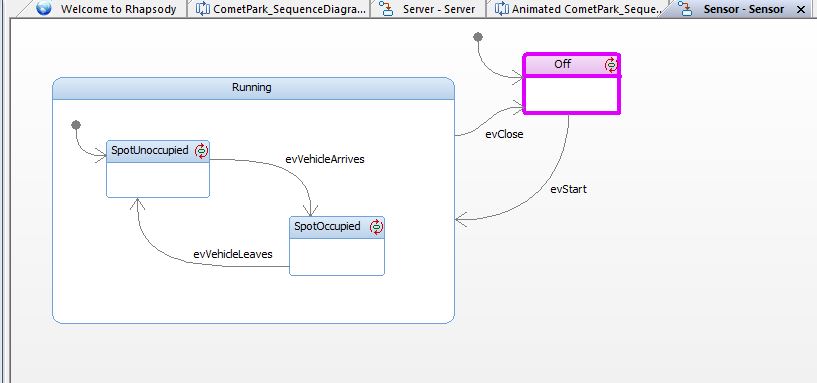
****

Figure Sensor Off State

#### 3.2.1.2 Sensor Running State

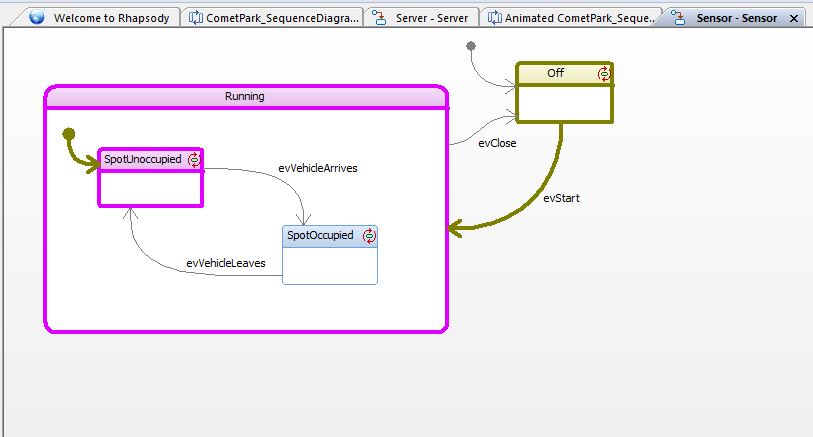
****

Figure Sensor Running State

#### 3.2.1.3 Vehicle Arrives

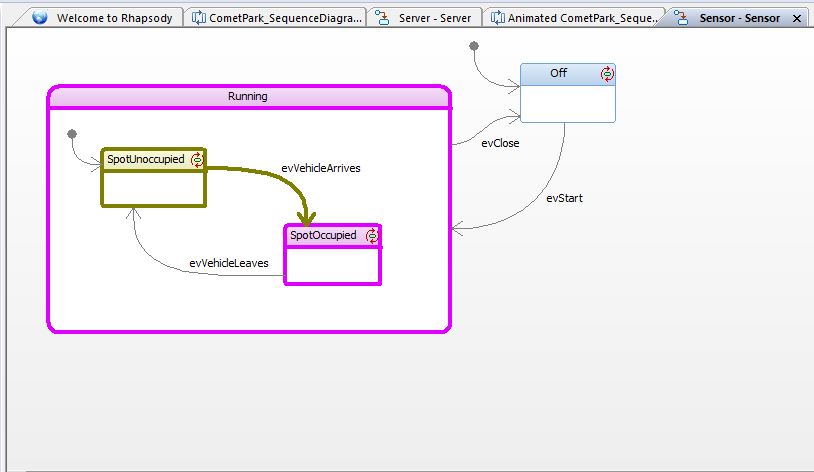
****

Figure Vehicle Arrives

#### 3.2.1.4 Vehicle Leaves

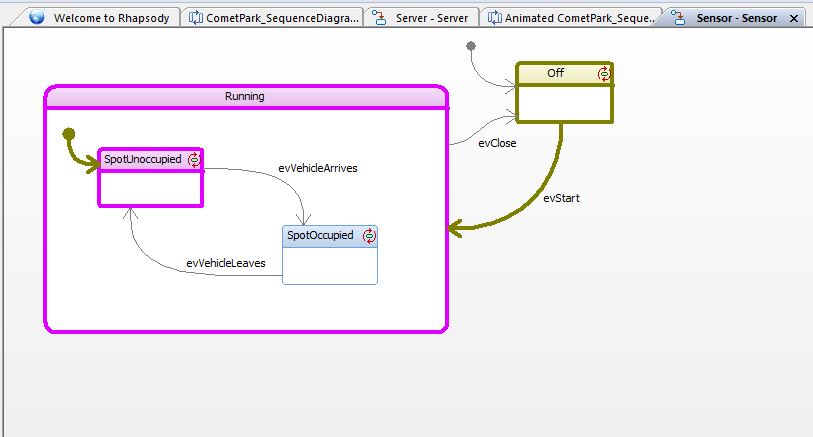


Figure Vehicle Leaves

### 3.2.2 Controller

#### 3.2.2.1 Controller Off

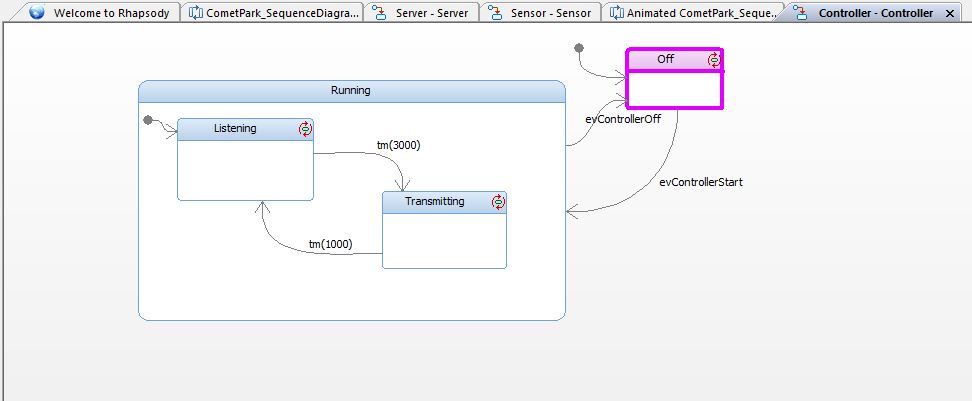


Figure Controller Off

#### 3.2.2.2 Controller On

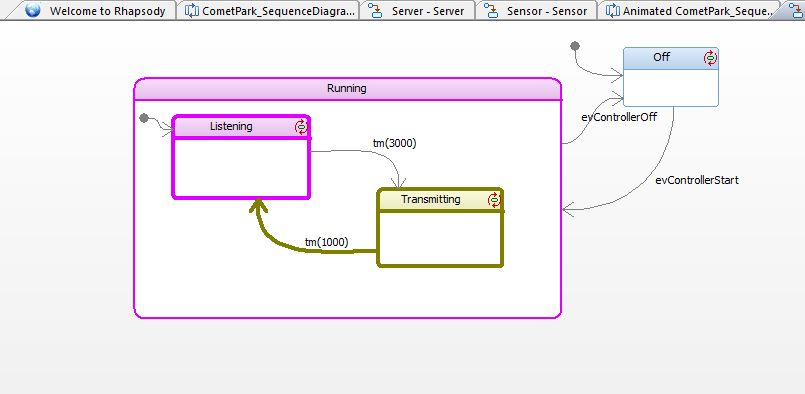


Figure Controller On

### 3.2.3 Web Application

#### 3.2.3.1 Web Application Idle

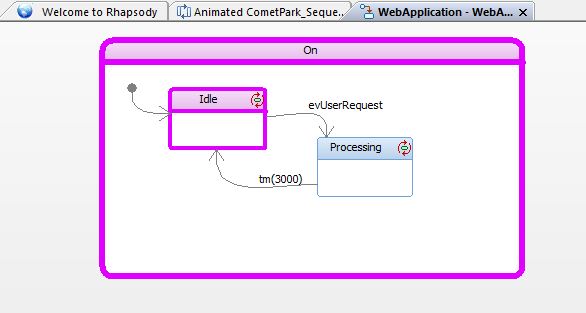


Figure Web Application Idle

#### 3.2.3.2 Web Application Processing

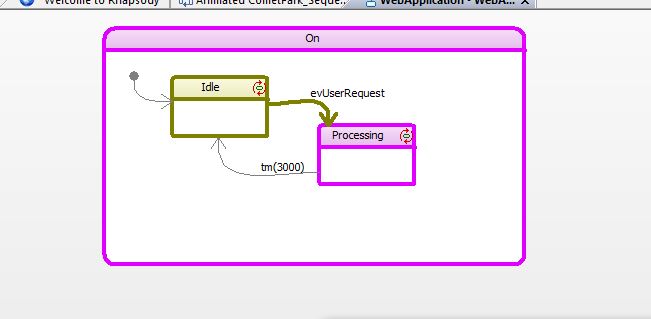


Figure Web Application Processing

#### 3.2.3.3 Web Application After Processing

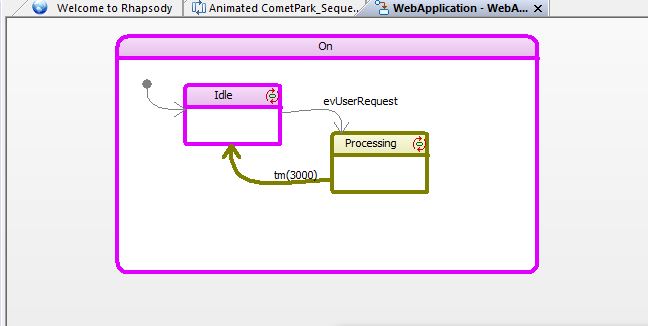


Figure Web Application After Processing

### 3.2.4 Server

#### 3.2.4.1 Server Ready State

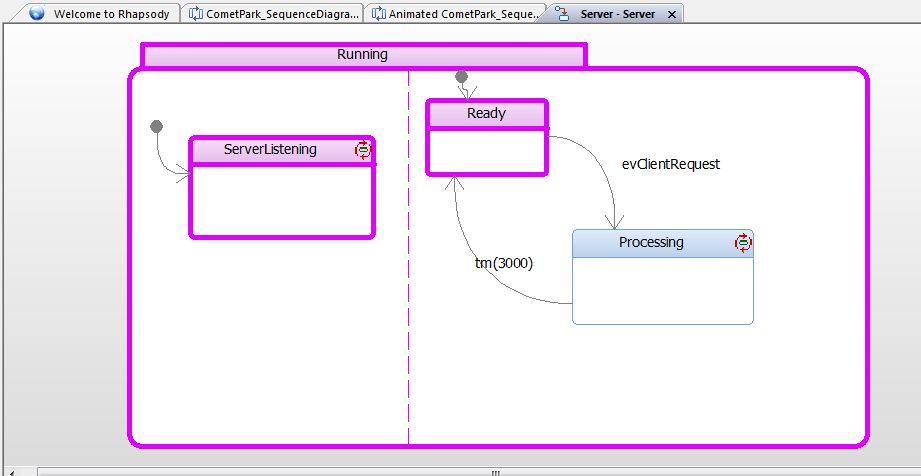


Figure Server Ready State

#### 3.2.4.2 Server Processing

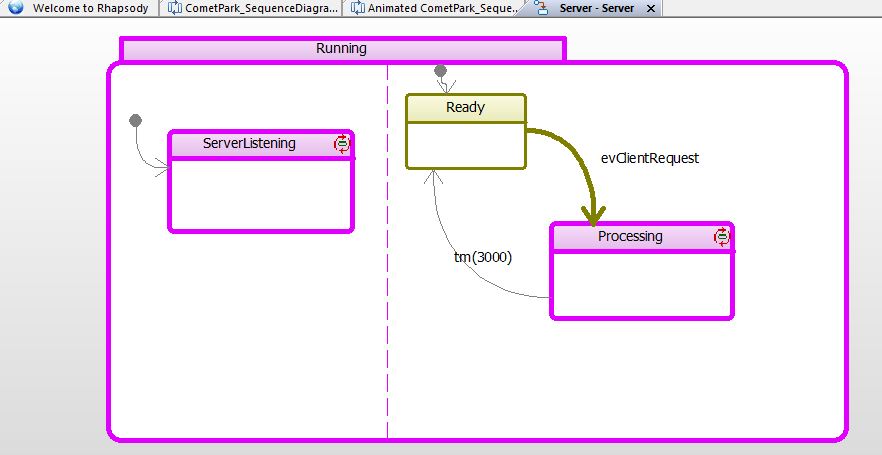


Figure Server Processing

#### 3.2.4.3 Server After Processing

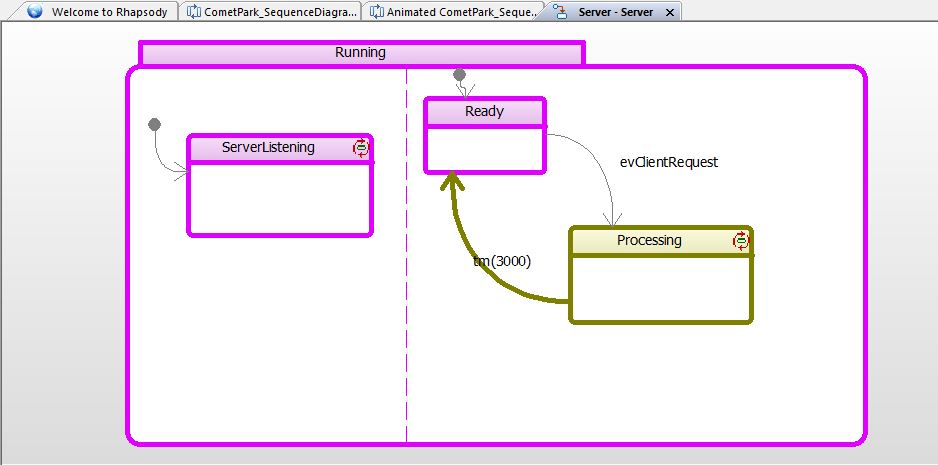


Figure Server After Processing

# Appendix B: References

[1] IBM Rational Rhapsody Tutorial <http://publib.boulder.ibm.com/infocenter/rsdp/v1r0m0/topic/com.ibm.help.download.rhapsody.doc/pdf75/tutorialcpp.pdf>

[2] Java Tutorial for Rational Rhapsody <https://publib.boulder.ibm.com/infocenter/rsdp/v1r0m0/topic/com.ibm.help.download.rhapsody.doc/pdf75/tutorialj.pdf>