Sentient VOC Monitoring System

Use Case: Retrieve VOC Data from Monitoring System

Version <4.0>

Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| <07/02/14> | <1.0> | Document Creation | Thyanna Voisine |
| <27/02/14> | <2.0> | Corrections Made | Thyanna Voisine |
| <27/02/14> | <3.0> | Added Tests | Thyanna Voisine |
| <10/03/14> | <4.0> | Updated to Match System | Thyanna Voisine |

Table of Contents

1. Retrieve VOC Data from Monitoring System 1

1.1 Brief Description 1

1.2 Requirements Trace 1

1.3 Involved Actors 1

1.4 Preconditions 1

1.5 Post conditions 1

1.6 Invariants 1

2. Flow of Events 1

2.1 Basic Flow 1

2.2 Alternate Course – None 1

3. Extension Points 1

4. Scenarios 2

4.1 Happy Day 2

4.2 Rainy Day 1 – Embedded VOC system has no new data 2

4.3 Rainy Day 2 – Embedded VOC system does not signal download completion 3

5. Testing

5.1 Accuracy Test 3

Use Case: Retrieve VOC Data from Monitoring System

# Retrieve VOC Data from Monitoring System

## Brief Description

This use case gives the VOC Monitor Manager the ability to download VOC data from the Embedded VOC system. This will allow the information retrieved to be transferred to a database.

## Requirements Trace

10, 11, 12, 14.1

## Involved Actors

VOC Monitor Manager

## Preconditions

* The Mobile Client is connected to Embedded VOC system.

## Post conditions

* Mobile Client will have VOC data stored.

## Invariants

* Mobile Client’s distance from XBee is less than XBEE\_DISTANCE\_MAX

# Flow of Events

## Basic Flow

This use case starts when the VOC Monitor Manager wants to download information from the Embedded VOC system they are connected to.

1. VOC Monitor Manager selects the ‘connect’ query area.
2. VOC Monitor Manager sends a ‘connect’ packet to Embedded VOC system.
3. Embedded VOC System sends ‘download size’ packet to Mobile Client.
4. Mobile Client displays a download progress display.
5. Mobile Client retrieves Embedded VOC system data packets.
6. Mobile Client stores VOC data in packets.
7. Mobile Client notifies VOC Monitor Manager that download is complete.

## 

## Alternate Course – None

# Extension Points

None

# Scenarios

## Happy Day

Assumptions: VOC Monitor Manager – Curious George

Max Range: 300 Yards

Current Data Location: On Embedded VOC system

New Data Location: On Mobile Client

Steps:

1. Curious George selects the ‘connect’ query area.
2. Curious George sends a ‘connect’ packet to Embedded VOC system data packets with Zigbee address set to 0xBE34 and source address set to 0xD34D.
3. Embedded VOC System sends ‘download size’ packet to Mobile Client with Zigbee address set to 0xD34D and source address set to 0xBE34.
4. Mobile Client displays a download progress display.
5. Mobile Client retrieves Embedded VOC system data packets.
6. Mobile Client stores VOC data in packets.
7. Mobile Client notifies Curious George that download is complete.

## Rainy Day 1 – Embedded VOC system has no new data

Assumptions: VOC Monitor Manager – Curious George

Max Range: 300 Yards

Current Data Location: On Embedded VOC system

New Data Location: On Mobile Client

Steps:

1. Curious George selects the ‘connect’ query area.
2. Curious George sends a ‘connect’ packet to Embedded VOC system data packets with Zigbee address set to 0xBE34 and source address set to 0xD34D.
3. Embedded VOC System sends ‘download size’ packet to Mobile Client with Zigbee address set to 0xD34D and source address set to 0xBE34.
4. Mobile Client checks that download size and it is zero.
5. Mobile Client notifies Curious George that there is no new data to download.

## Rainy Day 2 – Embedded VOC System does not signal download completion

Assumptions: VOC Monitor Manager – Curious George

Max Range: 300 Yards

Current Data Location: On Embedded VOC system

New Data Location: On Mobile Client

Steps:

1. Curious George selects the ‘connect’ query area.
2. Curious George sends a ‘connect’ packet to Embedded VOC system data packets with Zigbee address set to 0xBE34 and source address set to 0xD34D.
3. Embedded VOC System sends ‘download size’ packet to Mobile Client with Zigbee address set to 0xD34D and source address set to 0xBE34.
4. Mobile Client displays a download progress display.
5. Mobile Client retrieves Embedded VOC system data packets.
6. Mobile Client stores VOC data in packets.
7. Mobile Client receives no new data packets or downloads completion packets.
8. Mobile Client notifies Curious George that the download was corrupted.
9. Curious George notifies Sentient management.

# Test

## Accuracy Test

Precondition- Download Complete

Assumptions: Not working under rainy day scenario

Steps:

1. Open temporary download folder.
2. First ensure that VOC data is present

Example File (shortened version):

20,02/23/14,05,0; 20,02/23/14,06,0; 20,02/23/14,07,0; 20,02/23/14,08,0; 20,02/23/14,09,0; 20,02/23/14,10,0; 20,02/23/14,11,0; 20,02/23/14,12,0; 20,02/23/14,13,0; 20,02/23/14,14,0; 20,02/23/14,15,0; 20,02/23/14,16,0; 20,02/23/14,17,0; 20,02/23/14,18,0; 20,02/23/14,19,0;

1. VOC data comes in the following format: VOC level, date, hour, accuracy flag. To test for accuracy ensure that the accuracy flag just before each semicolon is 0; a one means a corruption occurred. Upon corruption, set corruption flag and note corruption cause. If all accuracy flags are zero for the temporary file, the test passes. If not all accuracy flags are not zero in the temporary file, the test fails.
2. To ensure download accuracy, check the consistency of dates and hours. For example, if the date goes from 02/23/14 to -0/25/14, then data is missing.
3. Upon missing data, attempt to download the old file to ensure the download was corrupted and not the data.
4. Ensure that the download size recorded matches the number of entries into file.