Sentient VOC Monitoring System

Disconnect from Monitoring System

Version <4.0>

Revision History

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| --- | --- | --- | --- |
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Use Case: Disconnect from Monitoring System

# Disconnect from Monitoring System

## Brief Description

This use case gives the VOC Monitor Manager the ability to disconnect from the Embedded VOC system. This will allow the user leave the monitoring system at a known, safe state.

## Requirements Trace

9, 14, 14.2

## Involved Actors

VOC Monitor Manager

## Preconditions

* The Embedded VOC monitoring system is connected

## Post conditions

* Connection disbanded between XBee and Mobile Client

## Invariants

* Volatile System’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 break connection with Embedded VOC system.

1. Embedded VOC monitoring system has no more packets to send.
2. Embedded VOC monitoring system sends disconnect request packet to Mobile Client.
3. Embedded VOC monitoring system overwrites “Old” file with “New” file.
4. Embedded VOC monitoring system deletes all previous readings from within “New” file.
5. Mobile client receives disconnect request packet.
6. Mobile client will notify VOC Monitor Manager the connection with Embedded VOC monitoring system has been disbanded.

## Alternate Course – None

# Extension Points

None

# Scenarios

## Happy Day

Assumptions: VOC Monitor Manager – Curious George

Max Range: 300 Yards

Current Connection: Connected

New Connection: Not Connected

Steps:

1. Embedded VOC monitoring system has no more packets to send.
2. Embedded VOC monitoring system sends disconnect request packet with destination Zigbee address set to 0xBE34 and source address set to 0xD34D.
3. Embedded VOC monitoring system overwrites “Old” file with “New” file.
4. Embedded VOC monitoring system deletes all previous readings from within “New” file.
5. Mobile client receives disconnect request packet.
6. Mobile client will notify Curious George the connection with Embedded VOC monitoring system has been disbanded.

## Rainy Day 1 – VOC Monitor Manager leaves XBEE\_DISTANCE\_MAX without disconnecting

Assumptions: VOC Monitor Manager – Curious George

Max Range: 300 Yards

Current Connection: Connected

New Connection: Not Connected

Steps:

1. Curious George exits XBEE\_DISTANCE\_MAX without first receiving a disconnect request.
2. Embedded system detects mobile client is no longer in contact.
3. Embedded VOC monitoring system sets a bit indicating system was not disconnected properly.
4. Embedded VOC monitoring system will notify Curious George upon next connection.

# Testing

## Disconnect Test

Precondition: Connection established.

Assumptions: Not operating under rainy day situation.

No data packets need to be sent.

Steps:

1. Set a break point at the beginning of the ParsePacket() function within PCXBeeConnection class.
2. Run Mobile Client connect program. This will send a packet to the Arduino in order to begin the connection and packet transfer.
3. Exam *packet* variable. Under GetData(), the word “Disconnect” will be present.
4. Continue running the program.
5. Ensure the words “Connection Severed” appear within the console screen.
6. With the program still running, run the Arduino program Series2\_TX.
7. If “Wrote to file” appears in console, the test was a fail. If nothing appears, the test was a success.