

## TEAM 2

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# Software Verification and Validation Instruction

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### *Version History*

Version	Date	Responsible	Description
1.0	2015-10-06	HA	Baseline
1.1	2015-10-08	HA	Changes according to PR8
1.2	2015-10-08	HA	Changes according to PR12
1.3	2015-10-08	HA	Changes according to PR13
1.4	2015-10-08	OF	Changes according to SRS v.1.4
1.5	2015-10-09	OF	Changes according to PR19
1.6	2015-10-14	UH	Changed test instruction in B.1.5.

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# 1 Reference Documents

1. PUSS154212 - System Requirements Specification v1.4
2. Programvaruutveckling för Stora System - Projekthandledning v2.2  
(*Institutionen för datavetenskap*, Lunds Univeritet 2015)
3. PUSS154213 - Software Verification and Validation Specification v1.4
4. PUSS154253 - Test Matrices for SVVS v1.2

## 2 Introduction

This document contains the test instructions for the tests specified in PUSS154213 (ref. 3). The test instructions are in appendices A and B. The numbering corresponds to that in the SVVS (ref. 3).

### 2.1 Terminology

**Device** refers to a Light Bulb or a Sensor Device that the application can interact with.

**Device available** is used when a device is connected to the MVD.

**Swiping** or **to drag** is meant to be a relatively smooth motion with a finger (or similar device) on the screen of the telephone.

**Off** or **On** refers to the device's state of transmitting data (in case of the sensor) or light (in case of the light bulb), not whether the device is receiving electrical power or not.

**Light bulb** refers to the physical object that shines that we can interact with, while the **Light** refers to photons emitted from the *light bulb*.

**Controlled environment** refers to a environment where we can control at least one of the following physical observables:

- Temperature
- Pressure
- Humidity
- Magnetic field
- Gyroscopic data
- Acceleration

**Environmental variable** refers to one of the physical observables listed above.

**Scenario** refers to the corresponding scenario in 1.

## A Function Test Instructions

This is appendix A where we list all function test instructions.

### A.1 MyDevices View Test Instructions

**Instruction A.1.1** Test of startup screen of application.

**Precondition**

- The application is not running

**Instructions:**

1. Start the application

**Postcondition:**

- The application is running
- The MyDevices View is open
- The list of available devices is empty

**Instruction A.1.2** Test of device list on startup.

Instructions for this test have been incorporated into **Instruction A.1.1**

**Instruction A.1.3** Verification that devices are presented in a list.

**Precondition**

- MyDevices View is open
- At least two devices are available

**Instructions:**

1. Verify that the devices are in a list

**Postcondition:**

- The devices are in a list

**Instruction A.1.4** Test of selectability of devices in list.

**Precondition**

- The MyDevices View is open
- At least one device is available

**Instructions:**

1. Select one device

**Postcondition:**

- The device is highlighted and the "Control Device"-button is enabled

**Instruction A.1.5** Test of device selection in device list.

**Precondition**

- The MyDevices View is open
- At least two devices are available
- One device is selected

**Instructions:**

1. Select an other device

**Postcondition:**

- Only the last selected device is still selected

**Instruction A.1.6** Test of error message in device list.

**Precondition**

- The MyDevices View is open
- No device is selected

**Instructions:**

1. Press the "Control Device"-button

**Postcondition:**

- A pop-up message "Please select a device" is displayed

**Instruction A.1.7** Test of device naming.

**Precondition**

- The MyDevices View is open
- There is at least one sensor in the list of available devices
- There is at least one light bulb in the list of available devices

**Instructions:**

1. Check the name of each device
2. Check the address of each device
3. Check the id of each device

**Postcondition:**

- The name of each sensor device is "Sensor"
- The name of each light bulb is "Light Bulb"
- The address of each device is their MAC address
- The id of each device is their identifier

**Instruction A.1.8** Test of naming of light bulbs.

Instructions for this test have been incorporated into **Instruction A.1.7**

**Instruction A.1.9** Test of scanning function.

**Precondition**

- The MyDevices View is open
- There is at least one available device within range of the MVD
- The list of available devices is empty

**Instructions:**

1. Press the "Get Devices"-button

**Postcondition:**

- A scan for available devices has been performed
- The list of available devices is updated

**Instruction A.1.10** Test of termination of application.

**Precondition**

- The MyDevices View is open

**Instructions:**

1. Press the back button

**Postcondition:**

- The application is closed

**Instruction A.1.11** Test if layout is consistent with specifications.

**Precondition**

- The MyDevices View is open

**Instructions:**

1. Identify the "Get Devices"-button
2. Identify the "Control Device"-button
3. Identify the list of available devices
4. Check the labels at the top of the list

**Postcondition:**

- The "Get Devices"-button is at the top of the view
- The "Control Device"-button is at the bottom of the view
- The list of available devices is in the middle of the view
- The "ID"-label is placed at the top left of the list
- The "Address"-label is placed at the top right of the list
- The "Device name"-label is placed inbetween the "Address"- and the "ID"-label.

**Instruction A.1.12** Test of MAC addresses

**Precondition**

- The "MyDevices View" is open
- The devices with the MAC addresses in Ref 1 are within range of the MVD
- At least one device with an unknown MAC address is within range of the MVD
- All devices are active

**Instructions:**

1. Press the "Get Devices"-button

**Postcondition:**

- The two devices with the MAC addresses in Ref 1 are available
- No other devices are available

## A.2 Sensor View Test Instructions

**Instruction A.2.1** Test of transition from main view to sensor view.

**Precondition**

- The MyDevices View is open
- A sensor device is available in the list

**Instructions:**

1. Select a sensor device
2. Press the "Control Device"-button

**Postcondition:**

- The Sensor View is open
- The sensor name is shown in the top of the view
- The MAC address is shown in the top of the view
- The temperature, pressure, humidity, magnetic field strength, gyroscopic data and acceleration text fields are all empty

**Instruction A.2.2** Test of naming of sensor.

Instructions for this test have been incorporated into **Instruction A.2.1**

**Instruction A.2.3** Test of on/off switch.

**Precondition**

- The Sensor View is open
- The on/off-status switch is set to on

**Instructions:**

1. Set the on/off-status switch to off
2. Wait for ten minutes
3. Press the "Get All"-button
4. Check the error message
5. Set the on/off-status switch to on
6. Press the "Get All"-button
7. Check the text fields

**Postcondition:**

- The on/off-status switch of the selected sensor is on
- An error message with the text "Error Occurred" was displayed in instruction 4.
- Text fields have values

**Instruction A.2.4** Test of text field naming in Sensor View.

**Precondition**



- The Sensor View is open

**Instructions:**

1. Identify the six text fields
2. Check the labels preceding the six text fields

**Postcondition:**

- The labels preceding the six text fields are "T", "P", "H", "M", "G" and "A" respectively

**Instruction A.2.5** Test of get-button functionality.

This test should be run once for each of the text fields and its corresponding physical observables.

**Precondition**

- The Sensor View is open
- The on/off-status switch is set to on
- The sensor is in a controlled environment

**Instructions:**

1. Get a reference value for the environmental variable
2. Press the corresponding "Get"-button to the text field
3. Confirm that the reference value is consistent with the controlled environment
4. Change the variable in the controlled environment
5. Press the "Get"-button

**Postcondition:**

- The values of the corresponding sensors are retrieved if available and displayed
- The retrieved value in step five is different from that in step two

**Instruction A.2.6** Test of "Get All"-button functionality.

**Precondition**

- The Sensor View is open
- The on/off-status switch is set to on
- The sensor is in a controlled environment

**Instructions:**

1. Get a reference value for one or more of the environmental variables
2. Press the "Get All"-button
3. Confirm that sensor data is consistent with the controlled environment
4. Change one or more of the reference values in the control environment
5. Press the "Get All"-button

**Postcondition:**

- The new values for all six sensor's data are displayed in their corresponding text fields
- The retrieved values in step five are different from those in step two

**Instruction A.2.7** Test of "Clear All"-button functionality.

**Precondition**

- The Sensor View is open
- Sensor data are displayed in the text fields

**Instructions:**

1. Press the "Clear All"-button

**Postcondition:**

- All the sensor text fields are empty

**Instruction A.2.8** Test of unavailable data.

This test should be run 1 time for each of the text fields

**Precondition**

- The Sensor View is open
- The on/off-status switch is set to on
- Some sensor data is unavailable

**Instructions:**

1. Press the corresponding "Get"-button to the text field

**Postcondition:**

- A pop-up message with the text "Error occurred" is displayed

**Instruction A.2.9** Test of on/off-status switch functionality.

**Precondition**

- The Sensor View is open

**Instructions:**

1. Change the status of the on/off-status switch

**Postcondition:**

- The on/off-status switch corresponds to the status sent from the REST API.

**Instruction A.2.10** Test of back button functionality in the Sensor View.

**Precondition**

- The Sensor View is open

**Instructions:**

1. Press the back button

**Postcondition:**

- The MyDevices View is open

**Instruction A.2.11** Test of text fields on selecting new device.  
Instructions for this test have been incorporated into **Instruction A.2.1**

**Instruction A.2.12** Test of resemblance of Sensor View to specification.

**Precondition**

- The Sensor View is open

**Instructions:**

1. Identify the text field showing the name and the MAC address
2. Identify the on/off-status switch
3. Identify the six text fields and their corresponding "Get"-buttons
4. Identify the "Get All"-button
5. Identify the "Clear All"-button

**Postcondition:**

- The text field showing the name and the MAC address is placed at the top of the view
- The on/off-status switch is placed below the text field described above
- The six text fields are aligned
- The six text fields are placed below the on/off-status switch
- The "Get"-buttons are aligned vertically
- The "Get"-buttons are aligned with their respective text fields
- The "Get All"-button is placed at the bottom left of the view
- The "Clear All"-button is placed at the bottom right of the view
- The "Get All"- and the "Clear All"-button are aligned horizontally

**Instruction A.2.13** Test of current data

**Precondition**

- The Sensor View is open
- The sensor device has been turned off for at least ten minutes
- The text fields are empty

**Instructions:**

1. Press the "Get"-button corresponding to each text field
2. Press the "Get All"-button
3. Check the pop-up message.

**Postcondition:**

- A pop-up message with the text "Error occurred" is displayed

### A.3 Light Bulb View Test Instructions

**Instruction A.3.1** Test of transition from the MyDevices View to the Light Bulb View.

**Precondition**

- The MyDevices View is open
- At least one light bulb is in the list of available devices

**Instructions:**

1. Choose a light bulb in the list of available devices
2. Press the "Control Device"-button

**Postcondition:**

- The Light Bulb View is open
- The name of the light bulb is shown in the top of the view
- The MAC address of the light bulb is shown at the top of the view
- The text fields specifying color are empty

**Instruction A.3.2** Test of naming of light bulb.

Instructions for this test have been incorporated into **Instruction A.3.1**

**Instruction A.3.3** Test of light emittance from lamp.

**Precondition**

- The Light Bulb View is open
- The on/off-status switch is set to on
- The state of the light bulb corresponds to the state of the switch

**Instructions:**

1. Change the on/off-status switch to off

**Postcondition:**

- The light bulb is off

**Instruction A.3.4** Test of editability of text fields in Light Bulb View.

**Precondition**

- The Light Bulb View is open

**Instructions:**

1. For each of the four fields, enter "A"

**Postcondition:**

- The four fields are preceded by "R:", "G:", "B:" and "W:" respectively
- It is possible to enter a character into the fields

**Instruction A.3.5** Test of starting values of text fields.

Instructions for this test have been incorporated into **Instruction A.3.1**

**Instruction A.3.6** Test of "Get"-button functionality.

**Precondition**

- The Light Bulb View is open
- The light bulb is on
- The light bulb has known values, set via other means than the application.

**Instructions:**

1. Press the "Get"-button
2. Verify that the values are consistent with the values entered at precondition.

**Postcondition:**

- The R-, G-, B-, W-values are displayed in the fields specified in Req. 5.4.4-5.4.7 in ref 1

**Instruction A.3.7** Test of changeability of color of light bulb.

This test should be run six times with the following configurations:

1. A=FF, B=00, C=00, D=00 (color: Red)
2. A=00, B=FF, C=00, D=00 (color: Green)
3. A=00, B=00, C=FF, D=00 (color: Blue)
4. A=00, B=00, C=00, D=FF (color: White)
5. A=F0, B=F0, C=F0, D=F0 (color: White)
6. A=ff, B=ff, C=ff, D=ff (color: White)

**Precondition**

- The Light Bulb View is open
- The light bulb is on

**Instructions:**

1. Set the "R:"-field to A
2. Set the "G:"-field to B
3. Set the "B:"-field to C
4. Set the "W:"-field to D
5. Press the "Set"-button

**Postcondition:**

- The light bulb has the specified color

**Instruction A.3.8** Test of interpretation of empty text fields.

This test should be run four times with the following configurations:

1. A blank, B=FF, C=00, D=00 (color: Green)
2. A=00, B blank, C=FF, D=00 (color: Blue)
3. A=00, B=00, C blank, D=FF (color: White)
4. A=FF, B=00, C=00, D blank (color: Red)

**Precondition**

- The Light Bulb View is open
- The light bulb is on
- The R-, G-, B-, W-, fields show FF, FF, FF and FF respectively
- The light bulb glows white

**Instructions:**

1. Set the "R:"-field to A
2. Set the "G:"-field to B

3. Set the "B:"-field to C
4. Set the "W:"-field to D
5. Press the "Set"-button
6. Press the "Get"-button

**Postcondition:**

- The light bulb has the specified color
- The fields that were left blank show "00"

**Instruction A.3.9** Test of allowed values in text fields.

This test should be run three times with the following configurations:

1. A = '111'
2. A = 'GG'
3. A = -1

**Precondition**

- The Light Bulb View is open
- The light bulb is on

**Instructions:**

1. Try to enter A into the "R:"-field
2. Try to enter A into the "G:"-field
3. Try to enter A into the "B:"-field
4. Try to enter A into the "W:"-field

**Postcondition:**

- The value A is not accepted



**Instruction A.3.10** Test of user feedback when color is changed.

**Precondition**

- The Light Bulb View is open
- The light bulb is on
- The light bulb glows white

**Instructions:**

1. Set the "R:"-field to FF
2. Set the "G:"-field to 00
3. Set the "B:"-field to 00
4. Set the "W:"-field to 00
5. Press the "Set"-button

**Postcondition:**

- A pop-up message saying "Color successfully changed" is displayed
- The light bulb is red

**Instruction A.3.11** Test of user feedback when color could not be changed.

**Precondition**

- The Light Bulb View is open
- The light bulb is on
- The light bulb glows red
- The color of the light bulb can not be changed

**Instructions:**

1. Set the "R:"-field to 00
2. Set the "G:"-field to 00
3. Set the "B:"-field to FF
4. Set the "W:"-field to 00
5. Press the "Set"-button

**Postcondition:**

- A pop-up message with the text "Error occurred" is displayed
- The light bulb glows red

**Instruction A.3.12** Test of set button characteristics.

**Precondition**

- The Light Bulb View is open
- The light bulb is off

**Instructions:**

1. Identify the "Set"-button

**Postcondition:**

- The "Set"-button is unavailable

**Instruction A.3.13** Test of back button functionality in the Light Bulb View.

**Precondition**

- The Light Bulb View is open

**Instructions:**

1. Press the back button

**Postcondition:**

- The MyDevices View is open

**Instruction A.3.14** Test if layout is consistent with specifications.

**Precondition**

- The Light Bulb View is open

**Instructions:**

1. Identify the text field showing the name and the MAC address
2. Identify the on/off-status switch
3. Identify the four text fields
4. Identify the "Get"-button
5. Identify the "Set"-button

**Postcondition:**

- The text field showing the name and the MAC address is placed at the top of the view
- The on/off-status switch is placed below the text field described above
- The four text fields are aligned
- The four text fields are placed below the on/off-status switch
- The "Get"-button is placed at the bottom left of the view
- The "Set"-button is placed at the bottom right of the view
- The "Get"- and the "Set"-button are aligned horizontally

## B System Test Instruction

This is appendix B where we list all system test specifications.

### B.1 Use Cases

**Instruction B.1.1** Test of Scenario 5.1.1.

**Precondition**

- The MyDevices View is open
- There is a light bulb and a sensor device with MAC addresses as specified in Ref 1 within scan range of the MVD
- No other known devices are within range of the MVD

**Instructions:**

1. Press the "Get Devices"-button

**Postcondition:**

- The light bulb is displayed in the MyDevices View
- The sensor device is displayed in the MyDevices View

**Instruction B.1.2** Test of exception handling in Scenario 5.1.1.

This test has been redacted.

**Instruction B.1.3** Test of Scenario 5.1.2.

**Precondition**

- The MyDevices View is open
- A light bulb is available

**Instructions:**

1. Select the light bulb
2. Press the "Control Device"-button

**Postcondition:**

- The Light Bulb View is open

**Instruction B.1.4** Test exception 1 in Scenario 5.1.2.

**Precondition**

- The MyDevices View is open
- A light bulb and a sensor device is available

**Instructions:**

1. Press the "Control Device"-button

**Postcondition:**

- A pop-up message with the text "Please select a device" is shown

**Instruction B.1.5** Test of Scenario 5.1.3.

**Precondition**

- The MyDevices View is open
- A sensor device is available

**Instructions:**

1. Select the sensor
2. Press the "Control Device"-button

**Postcondition:**

- The Sensor View is open

**Instruction B.1.6** Test exception 1 in Scenario 5.1.3.

Instructions for this test have been incorporated into **Instruction B.1.4**

**Instruction B.1.7** Test of Scenario 5.1.4.

**Precondition**

- The Light Bulb View is open
- The light bulb is on

**Instructions:**

1. Set the on/off-status switch to off

**Postcondition:**

- The light bulb is off

**Instruction B.1.8** Test of Scenario 5.1.5.

**Precondition**

- The Light Bulb View is open
- The light bulb is off

**Instructions:**

1. Set the on/off-status switch to on

**Postcondition:**

- The light bulb is on

**Instruction B.1.9** Test of Scenario 5.1.6.

**Precondition**

- The Sensor View is open
- The sensor device is on

**Instructions:**

1. Set the on/off-status switch to off

**Postcondition:**

- The sensor device is off

**Instruction B.1.10** Test of Scenario 5.1.7.

**Precondition**

- The Sensor View is open
- The sensor device is off

**Instructions:**

1. Set the on/off-status switch to on

**Postcondition:**

- The sensor device is on

**Instruction B.1.11** Test of Scenario 5.1.8.

**Precondition**

- The Light Bulb View is open
- The light bulb is on
- The "R:"-field of the light bulb is set to FF
- The "G:"-field of the light bulb is set to FF
- The "B:"-field of the light bulb is set to 00
- The "W:"-field of the light bulb is set to 00

**Instructions:**

1. Set the "R:"-field to FF
2. Set the "G:"-field to 00
3. Set the "B:"-field to 00
4. Set the "W:"-field to 00
5. Press the "Set"-button

**Postcondition:**

- The light bulb glows red

**Instruction B.1.12** Test of Scenario 5.1.9.

**Precondition**

- The Light Bulb View is open
- The light bulb is on
- The light bulb glows yellow
- The R-value of the light bulb is FF
- The G-value of the light bulb is FF
- The B-value of the light bulb is 00
- The W-value of the light bulb is 00

**Instructions:**

1. Press the "Get"-button

**Postcondition:**

- The "R:"-field displays FF
- The "G:"-field displays FF
- The "B:"-field displays 00
- The "W:"-field displays 00

**Instruction B.1.13** Test if no data is available in Scenario 5.1.9.

**Precondition**

- The Light Bulb View is open
- The light bulb is on
- The light bulb glows yellow
- One or more R-, G-, B-, W-values are unavailable

**Instructions:**

1. Press the "Get"-button
2. Confirm the pop-up message

**Postcondition:**

- pop-up message with the text "Error occurred" is displayed

**Instruction B.1.14** Test of Scenario 5.1.10.

**Precondition**

- The Sensor Device View is open
- The sensor device is on

**Instructions:**

1. Press the "Get"-button next to the "T:"-field

**Postcondition:**

- The temperature is displayed in the "T:"-field

**Instruction B.1.15** Test of Scenario 5.1.10, when some data is unavailable.

**Precondition**

- The Sensor Device View is open
- The sensor device is on
- The temperature data for the sensor device is unavailable

**Instructions:**

1. Press the "Get"-button next to the "T:"-field

**Postcondition:**

- A pop-up message with the text "Error occurred" is displayed

**Instruction B.1.16** Test of Scenario 5.1.11.

**Precondition**

- The Sensor Device View is open
- The sensor device is on

**Instructions:**

1. Press the "Get All"-button at the bottom of the view

**Postcondition:**

- All the sensor values are displayed in their respective field

**Instruction B.1.17** Test of Scenario 5.1.11, when some data is unavailable.

**Precondition**

- The Sensor Device View is open
- The sensor device is on
- Some sensor data for the sensor device is unavailable

**Instructions:**

1. Press the "Get All"-button

**Postcondition:**

- A pop-up message with the text "Error occurred" is displayed

**Instruction B.1.18** Test of Scenario 5.1.12.

**Precondition**

- The Sensor Device View is open
- At least one of the sensor data fields has data

**Instructions:**

1. Press the "Clear All"-button

**Postcondition:**

- All the sensor data fields are empty

**Instruction B.1.19** Test of exception 2 in scenario 5.1.2.

**Precondition**

- The MyDevices View is open
- A light bulb is available

**Instructions:**

1. Manually disconnect the light bulb
2. Select the light bulb
3. Press "Control Device"



**Postcondition:**

- A pop-up message with the text "Device not found" is shown

**Instruction B.1.20** Test of exception 2 in scenario 5.1.3.

**Precondition**

- The MyDevices View is open
- A sensor device is available

**Instructions:**

1. Manually disconnect the sensor device
2. Select the sensor device
3. Press "Control Device"

**Postcondition:**

- A pop-up message with the text "Device not found" is shown

**Instruction B.1.21** Test of Exception 1 in Scenario 5.1.4.

**Precondition**

- The Light Bulb View is open
- The light bulb is on

**Instructions:**

1. Disconnect the device running the app from the internet
2. Set the on/off-status switch to off

**Postcondition:**

- A pop-up message with the text "Error occurred" is displayed

**Instruction B.1.22** Test of Exception 1 in Scenario 5.1.5.

**Precondition**

- The Light Bulb View is open
- The light bulb is off

**Instructions:**

1. Disconnect the device running the app from the internet
2. Set the on/off-status switch to on

**Postcondition:**

- A pop-up message with the text "Error occurred" is displayed

**Instruction B.1.23** Test of Exception 1 in Scenario 5.1.6.

**Precondition**

- The Sensor View is open

- The sensor device is on

**Instructions:**

1. Disconnect the device running the app from the internet
2. Set the on/off-status switch to off

**Postcondition:**

- A pop-up message with the text "Error occurred" is displayed

**Instruction B.1.24** Test of Exception 1 in Scenario 5.1.7.

**Precondition**

- The Sensor View is open
- The sensor device is off

**Instructions:**

1. Disconnect the device running the app from the internet
2. Set the on/off-status switch to on

**Postcondition:**

- A pop-up message with the text "Error occurred" is displayed

**Instruction B.1.25** Test of Exception 1 in Scenario 5.1.8.

**Precondition**

- The Light Bulb View is open
- The light bulb is on
- The "R:"-field of the light bulb is set to FF
- The "G:"-field of the light bulb is set to FF
- The "B:"-field of the light bulb is set to 00
- The "W:"-field of the light bulb is set to 00

**Instructions:**

1. Set the "R:"-field to FF
2. Set the "G:"-field to 00
3. Set the "B:"-field to 00
4. Set the "W:"-field to 00
5. Disconnect the device running the app from the internet
6. Press the "Set"-button

**Postcondition:**

- A pop-up message with the text "Error occurred" is displayed

## B.2 Quality Test Instructions

**Instruction B.2.1** User friendliness test  
Measure the time it takes to perform this test

**Precondition**

- 5 persons without prior knowledge of the project or the application are chosen

**Instructions:**

1. Give the test persons a minor introduction of what the application is able to do
2. Tell the test persons to turn the lamp green
3. Tell the test persons to collect all data from the sensor

**Postcondition:**

- All test persons completed the tasks without any major problems
- The full test requires less than 10 minutes to perform

**Instruction B.2.2** Interaction time test.

For each step in the instruction below, measure the response time for the application.  
For the test to pass, the response time for each step should be less than 2 seconds.

**Precondition**

- The application is not running

**Instructions:**

1. Start the application
2. Press "Get Device"-button
3. Select a sensor
4. Press "Control Device"-button
5. Turn the sensor on by flicking the switch
6. Press "Get"-button. Do this for all data
7. Press "Get All"-button
8. Press "Clear All"-button
9. Turn the sensor off by flicking the switch
10. Press "Back"-button
11. Select a light bulb
12. Turn the light bulb on by flicking the switch
13. Press "Get"-button
14. Enter any value in the color fields
15. Press "Set"-button
16. Turn the light bulb off by flicking the switch
17. Press "Back"-button until the application is closed

**Postcondition:**

- Application is not running

**Instruction B.2.3** Test of response time for error messages.

For each step in the instruction below, measure the time until an error message is displayed. For the test to pass, the error message response time for each step should be 15 seconds.

**Precondition**

- In each step, the corresponding device should be out of range of the MVD
- In each step, first navigate to the appropriate view (some devices may need to be connected for this. In that case, remove them from range before the test instruction is performed)

**Instructions:**

1. Press the "Get Devices"-button
2. Change the on/off-status switch of the sensor device to on
3. Press the "Get All"-button in the Sensor Device View
4. Change the on/off-status switch of the sensor device to off
5. Change the on/off-status switch of the light bulb to on
6. Change the color of the light bulb:
  - Set the "R:"-field to 00
  - Set the "G:"-field to 00
  - Set the "B:"-field to FF
  - Set the "W:"-field to 00
  - Press the "Set"-button
7. Change the on/off-status switch of the light bulb to off