BUG LAB

Test Design Specifications (Task 1 MyBot & Control Centre)

Version 1.0.0

Document Control

Document Name	Test Design Specifications (MyBot and Control Centre)
Reference Number	MBCC_TDS
Version	1.0.0
Project Code	BL_MBCC
Status	In-Use
Data Released	20th July 2019

Name	Position	Signature
Prepared By: Ramona binti Ramli	Test Manager	
Prepared By: Muhammad Izwan	Test Analyst	
Prepared By: Amira Farisa	Test Analyst	
Prepared By: Justin Anthony	Tester	
Prepared By: Heizreen Syahirah	Tester	

Version History

Version	Release Date	Section	Amendments
1.0.0	20th July 2019	All	Original Document

Distribution list

Version	Release Date	Controlled Copy No	Recipient Name	Department	Issue Date	Return Date
1.0.0	20th July 2019	01		Bug Lab Test Team		

Table of Contents

1.0 Introduction

1.1 Purpose

The test design specification supports the following objectives:

i. To detail the test design for MyBot & Control Centre
ii. To identify the general cases of test to be executed

1.2 Scope

The test design specification covers all the features of CC and MyBot.

1.3 References

The following documents provide the test basis for the test case:

i. MyBot Requirement Specification Version 1.0
ii. Control Centre Requirement Specification Version 1.0

2.0 Test Design

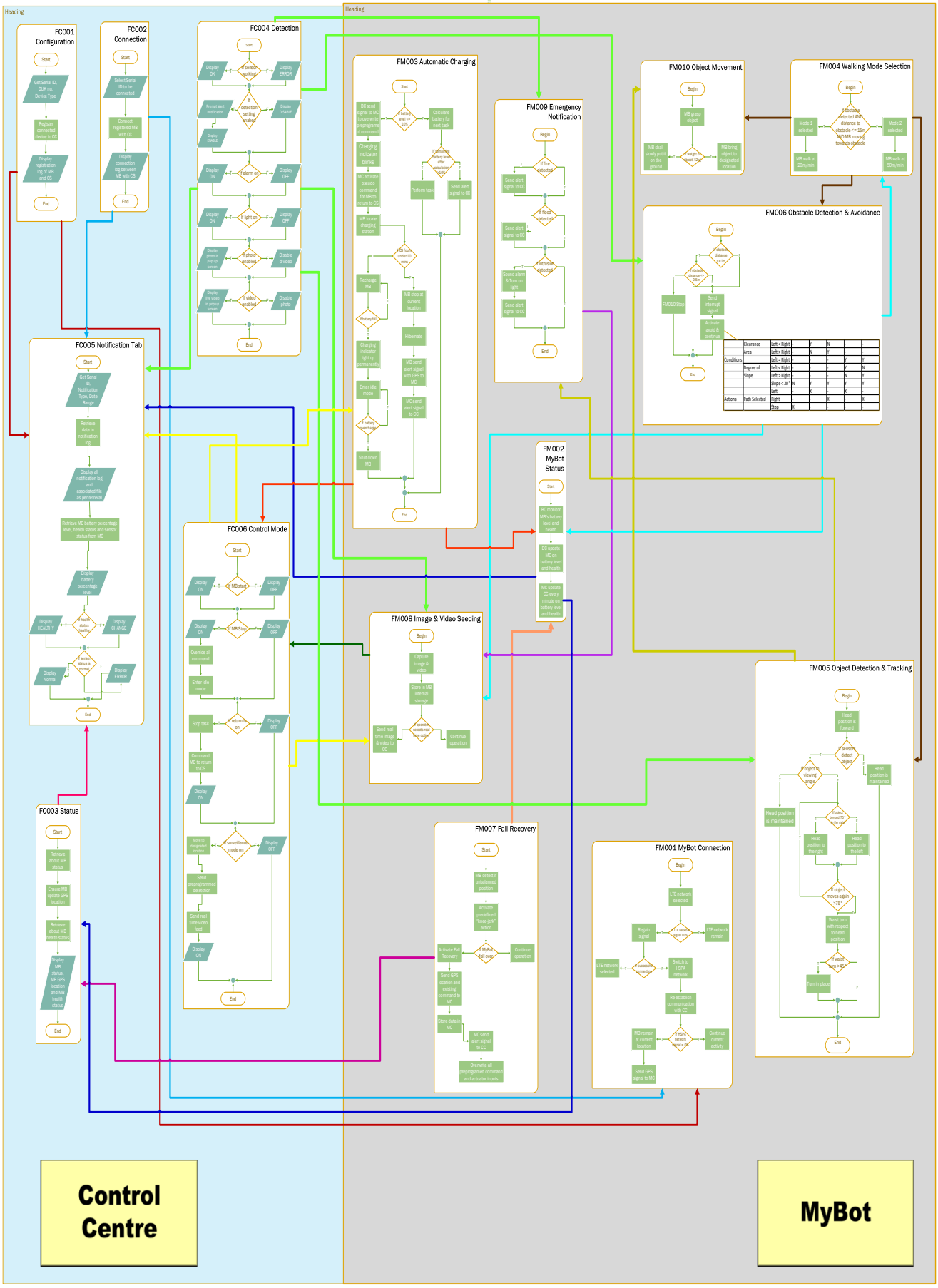
2.1 Features to be tested

The following table contains the features to be tested for both CC and MyBot.

Feature	Description	Level of Risk
FC001	Configuration	High
FC002	Connection	High
FC003	Status	High
FC004	Detection	High
FC005	Notification Tab	High
FC006	Control Mode	High
FM001	MyBot Connection	High
FM002	MyBot Status	High
FM003	Automatic Charging	High
FM004	Walking Mode Selection	High
FM005	Object Detection and Tracking	High
FM006	Obstacle Detection and Avoidance	High
FM007	Fall Recovery	High
FM008	Image and Video Seeding	High
FM009	Emergency Notification	High
FM010	Object Movement	Low

Table 2.1 Features to be tested

2.2 Flow Chart



2.3 Approach Refinements

As discussed in Test Plan (MBCC_TP_1.0.0), test cases for MBCC will be designed using three techniques which are covered in this situation. Techniques are applied based on suitability of techniques according to nature of the features.

The techniques that will be applied are as follows:

i. Decision Table Testing
ii. State Transition Testing
iii. Use case Testing

Nature of feature as below:

- FC001 Configuration
- FC002 Connection
- FC003 Status
- FC004 Detection
- FC005 Notification Tab
- FC006 Control Mode
- FM001 MyBot Connection
- FM002 MyBot Status
- FM003 Automatic Charging
- FM004 Walking Mode Selection
- FM005 Object Detection and Tracking
- FM006 Obstacle Detection and Avoidance
- FM007 Fall Recovery
- FM008 Image and Video Seeding
- FM009 Emergency Notification
- FM010 Object Movement

2.3.1 FC001 Configuration

2.3.1.1 State Transition Testing

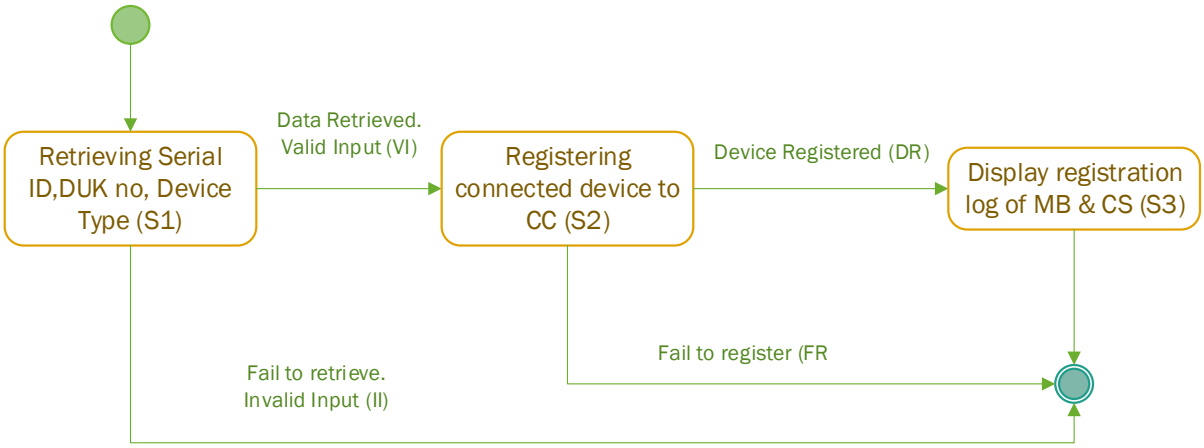


Figure 2.3.1.1 Configuration State Transition Diagram

Input / State	VI	II	DR	FR
S1	S2/TCOV-01-001	S1/-	S1/-	S1/-
S2	S2/-	S2/-	S3/TCOV-01-002	S2-

Table 2.3.1.1.a Configuration State Table

Test Coverage ID	Test Coverage
TCOV-01-001	S1 to S2 with input VI
TCOV-01-002	S2 to S3 with input DR

Table 2.3.1.1.b Configuration State Coverage

2.3.1.2 Use Case Testing

Use Case ID	UC001	
Use Case	FC001 Configuration	
Purpose	To Configure devices connected and Controlled by Control Centre	
Requirement Traceability	RFC108-1, RFC108-2, NFC108-1, NFC108-2	
Actor	Operator	
Trigger	Operator enter Serial ID, DUK No, Device Type into Control Centre.	
Precondition	Control Centre is online and in configure tab menu	
Scenario Name	**Step**	**Action**
Main Flow	**1**	Operator enters Serial ID, DUK No, Device Type.
	2	Control Centre retrieve Serial ID, DUK No, Device Type.
	3	Control Centre register Connected device.
	4	Control Centre Display Registration Log of MyBot and Charging Station.
Alternate Flow – User enter incorrect serial ID, DUK No, Device Type	**1.1**	Operator enters incorrect Serial ID, DUK No, Device Type.
	1.2	Incorrect Serial ID, DUK No, Device Type resulting in operator cannot add device.
	1.3	Device configuration ends
Alternate Flow – Control Centre Fail to retrieve Serial ID, DUK No, Device Type	**2.1**	Control centre failed to retrieve Serial ID, DUK No, Device Type.
	2.2	Device configuration ends.

Alternate Flow- Control Centre failed to register connected device	**3.1**	Control centre failed to register connected devices.
	3.2	Device Configuration ends.
Rules		
Notes		Registered Device shall be displayed in the table with either online or offline status. The action will allow the operator to Edit or remove respective devices.

Table 2.3.1.2.a Configuration Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-01-001	Main flow	TCOV-01-003	Main Flow	Serial ID = 1980 Device Type = MyBot DUK No = 1234
TCON-01-002	Alternate Flow – Incorrect serial ID, DUK No, Device Type.	TCOV-01-004	Alternate flow – Incorrect serial ID, DUK No, Device Type.	Serial ID = sjskksj22 Device Type = Charging Station DUK No = bbssg22
TCON-01-003	Alternate Flow – Fail to retrieve Serial ID, DUK No, Device Type	TCOV-01-005	Alternate Flow – Fail to retrieve Serial ID, DUK No, Device Type	
TCON-01-004	Alternate Flow – Failed to register connected device	TCOV-01-006	Alternate Flow – Failed to register connected device	

Table 2.3.1.2.b Configuration Use Case Test Conditions & Coverages

2.3.2 FC002 Connection

2.3.2.1 State Transition Testing

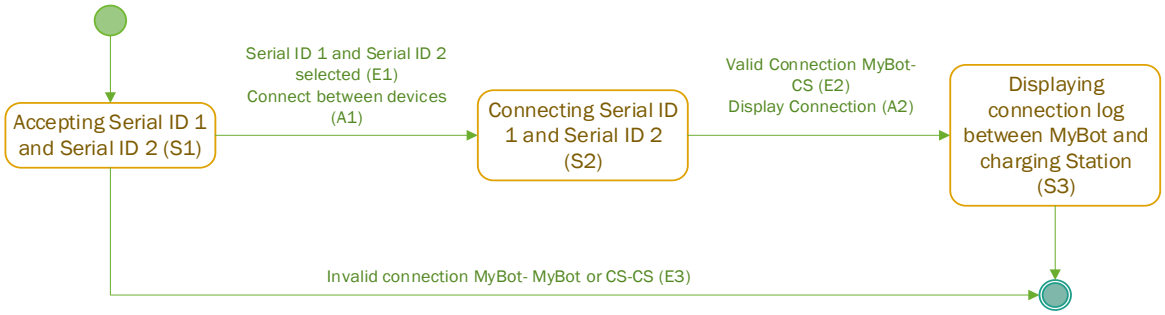


Figure 2.3.2.1 Connection State Transition Diagram

Input / State	E1	E2	E3
S1	S2/TCOV-02-001	S1/-	S1/-
S2	S2/-	S2/TCOV-02-002	S2/-

Table 2.3.2.1.a Connection State Table

Test Coverage ID	Test Coverage
TCOV-02-001	S1 to S2 with input E1
TCOV-02-002	S2 to S3 with input E2

Table 2.3.2.1.b Connection State Coverage

2.3.2.2 Use Case Testing

Use Case ID	UC002	
Use Case	FC002 Connection	
Purpose	To allow user to connect MyBot and Charging Station	
Requirement Traceability	RFC107-1, RFC107-2, NFC107-1, RFC102-1	
Actor	Operator	
Trigger	Operator selects connection tab	
Precondition	MyBot and Charging Station devices must be connected with CC	
Scenario Name	**Step**	**Action**
Main Flow	**1**	Operator selects registered Serial ID 1 (MyBot/Charging Station) and Serial ID 2 (Charging Station/MyBot)
	2	System connects Serial ID 1 and Serial ID 2
	3	System updates connection log
	4	System updates notification log
Alternate Flow- User connects MyBot with MyBot or Charging Station with Charging Station	1.1	Select registered Serial ID 1 (MyBot) and Serial ID 2 (MyBot) or Serial ID 1 (Charging Station) and Serial ID 2 (Charging Station)
	1.2	System connects Serial ID 1 and Serial ID 2
	1.3	System updates notification log
Rules	Connection is only valid between MyBot and Charging Station	
Notes	If connection failed, the devices will not be connected and the Connected To tab will be empty	

Table 2.3.2.2.a Connection Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-02-001	Main Flow	TCOV-02-003	Main Flow	Serial ID 1 = 1234 (MyBot/Charging Station) Serial ID 2 = 5678 (Charging Station/MyBot)
TCON-02-002	Alternate Flow- User connects MyBot with MyBot or Charging Station with Charging Station	TCOV-02-004	Alternate Flow- User connects MyBot with MyBot or Charging Station with Charging Station	Serial ID 1 = 1234 (MyBot/Charging Station) Serial ID 2 = 5678 (MyBot/Charging Station)

Table 2.3.2.2.b Connection Use Case Test Conditions & Coverages

2.3.3 FC003 Status

2.3.3.1 State Transition Testing

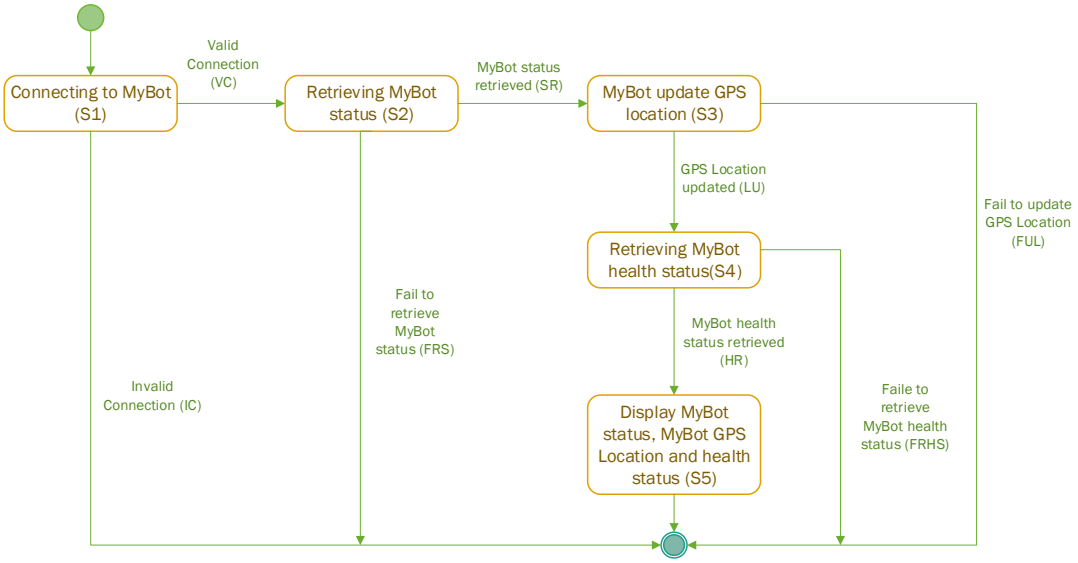


Figure 2.3.3.1 Status State Transition Diagram

State \ Input	VC	IC	SR	FRS	LU	FUL	HR	FRHS
S1	S2/TCOV-03-001	S1/-	S1/-	S1/-	S1/-	S1/-	S1/-	S1/-
S2	S2/-	S2/-	S3/TCOV-03-002	S/2-	S/2-	S/2-	S/2-	S/2-
S3	S3/-	S3/-	S3-	S/3-	S4/TCOV-3-003	S/3-	S/3-	S/3-
S4	S/4-	S/4-	S/4-	S/4-	S/4-	S/4-	S5/TCOV-03-004	S/4-

Table 2.3.3.1.a Status State Table

Test Coverage ID	Test Coverage
TCOV-03-001	S1 to S2 with input VC
TCOV-03-002	S2 to S3 with input SR
TCOV-03-003	S3 to S4 with input LU
TCOV-03-004	S4 to S5 with input HR

Table 2.3.3.1.b Status State Coverage

2.3.3.2 Use Case Testing

Use Case ID	UC003	
Use Case	FC003 Status	
Purpose	To serve as quick MyBot status window. It will display current MyBot status, Location, System Diagnosis and Connection.	
Requirement Traceability	RFC101-1, RFC101-2, RFC101-3, RFC101-4, NFC101-1, NFC101-2, RFC106-1, NFC106-1	
Actor	Operator	
Trigger	MyBot is online.	
Precondition	Control Centre and MyBot is connected	
Scenario Name	**Step**	**Action**
Main Flow	**1**	MyBot is connected to Control Centre.

	2	Control Centre retrieve MyBot Status.
	3	MyBot update its GPS location
	4	Control Centre retrieve MyBot Health status
	5	Control centre display MyBot status, MyBot GPS location and MyBot health status.
Alternate Flow – MyBot fail to connect to Control centre	**1.1**	MyBot fail to connect to Control centre
	1.2	Status function ends.
Alternate Flow – Control Centre failed to retrieve MyBot status.	**2.1**	Control Centre failed to retrieve MyBot status
	2.2	MyBot status is not updated.
Alternate Flow – MyBot fail to update its GPS Location.	**3.1**	MyBot fail to update its GPS Location.
	3.2	MyBot GPS location is not updated.
Alternate Flow – Control centre failed to retrieve MyBot health Status.	**4.1**	Control centre failed to retrieve MyBot health status.
	4.2	MyBot health status is not updated.
Rules		Control Centre and MyBot is connected.
Notes		

Table 2.3.3.2.a Status Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-03-001	Main flow	TCOV-03-005	Main Flow	Online connection is okay.
TCON-03-002	Alternate flow - MyBot fail to connect to Control centre	TCOV-03-006	Alternate flow - MyBot fail to connect to Control centre	
TCON-03-003	Alternate flow - Control Centre failed to retrieve MyBot status.	TCOV-03-007	Alternate flow - Control Centre failed to retrieve MyBot status.	
TCON-03-004	Alternate flow - MyBot fail to update its GPS Location.	TCOV-03-008	Alternate flow - MyBot fail to update its GPS Location.	
TCON-03-005	Alternate flow - Control centre failed to retrieve MyBot health Status.	TCOV-03-009	Alternate flow - Control centre failed to retrieve MyBot health Status.	

Table 2.3.3.2.b Status Use Case Test Conditions & Coverages

2.3.4 FC004 Detection

2.3.4.1 State Transition Testing

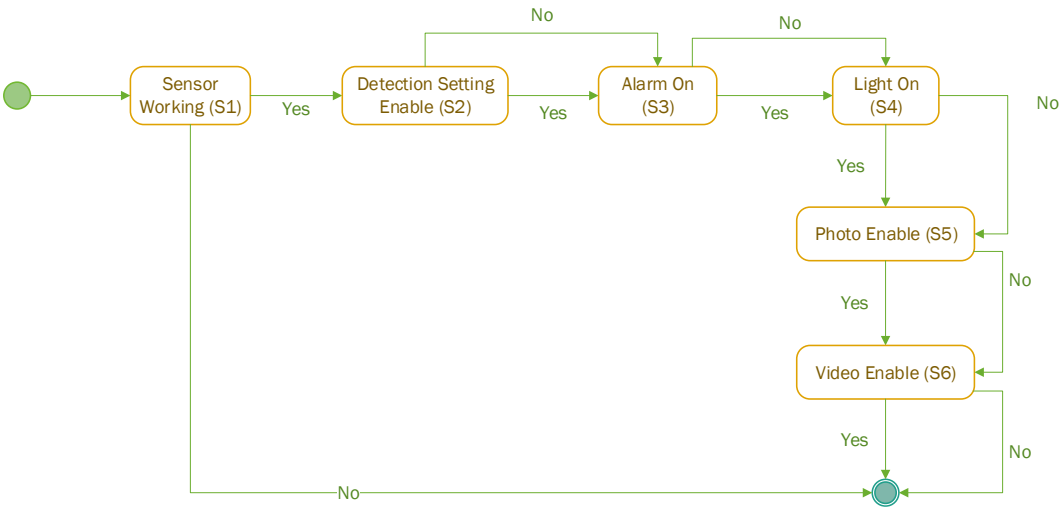


Figure 2.3.4.1 Detection State Transition Diagram

Input / State	Yes	No
S1	S2/ TCOV-04-001	S2/ TCOV-04-002
S2	S3/ TCOV-04-003	S3/ TCOV-04-004
S3	S4/ TCOV-04-005	S4/ TCOV-04-006
S4	S5/ TCOV-04-007	S5/ TCOV-04-008
S5	S6/ TCOV-04-009	S6/ TCOV-04-010

Table 2.3.4.1a Detection State Table

Test Coverage ID	Test Coverage
TCOV-04-001	S1 to S2 with input yes
TCOV-04-002	S1 to S2 with input no
TCOV-04-003	S2 to S3 with input yes
TCOV-04-004	S2 to S3 with input no
TCOV-04-005	S3 to S4 with input yes
TCOV-04-006	S3 to S4 with input no
TCOV-04-007	S4 to S5 with input yes
TCOV-04-008	S4 to S5 with input no
TCOV-04-009	S5 to S6 with input yes
TCOV-04-010	S5 to S6 with input no

Table 2.3.4.1b Detection State Coverage

2.3.4.2 Use Case Testing

Use Case ID	UC004	
Use Case	FC004 Detection	
Purpose	To view MyBot sensor status, set MyBot detection setting, turning on or off alarm and light function and view MyBot live feed.	
Requirement Traceability	RFC104-1, RFC104-2, RFC104-3, RFC104-4, NFC104-1, RFC105-1,RFC1052	
Actor	Operator	
Trigger	Operator select Detection Tab	
Precondition	MyBot is in online condition	
Scenario Name	**Step**	**Action**
Main Flow	**1**	Control centre detect whether MyBot Sensor is working properly.
	2	Control centre detect whether MyBot Detection setting is enabled.
	3	Control centre detect whether MyBot alarm is on.

	4	Control centre detect whether MyBot Light's is switch on.
	5	Control centre detect whether MyBot Photo live feed is on.
	6	Control centre detect whether MyBot Video live feed.
Alternate Flow – MyBot sensor not working properly	**1.1**	Control centre detect MyBot sensor not working properly.
	1.2	Control centre return error logs in notification centre.
Alternate Flow - MyBot Detection setting is disabled	**2.1**	Control centre detect MyBot Detection setting is disabled.
	2.2	Back to main flow step 3.
Alternate Flow - MyBot alarm is switch off	**3.1**	Control centre detect MyBot alarm is switch off.
	3.2	Back to main flow step 4.
Alternate Flow - MyBot Light's is switch off	**4.1**	Control centre detect MyBot Light's is switch off.
	4.2	Back to main flow step 5.
Alternate Flow – MyBot Photo live feed is off	**5.1**	Control centre detect MyBot Photo live feed is off.
	5.2	Back to main flow step 6.
Alternate Flow – MyBot Video live feed is off.	**6.1**	Control centre detect MyBot Video live feed.
	6.2	Return MyBot Video live feed status off in notification log.
Rules		MyBot Sensor status must be online

Table 2.3.4.2a Detection Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-04-001	Main flow	TCOV-04-011	Main Flow	Sensor = Ok Detection Setting = Enabled Alarm = On Light = On Photo feed = Enabled Video feed = Enabled
TCON-04-002	Alternate Flow – MyBot sensor not working properly	TCOV-04-012	Alternate Flow – MyBot sensor not working properly	Sensor = Error Detection Setting = Enabled Alarm = On Light = On Photo feed = Enabled Video feed = Enabled
TCON-04-003	Alternate Flow - MyBot Detection setting is disabled	TCOV-04-013	Alternate Flow - MyBot Detection setting is disabled	Sensor = Ok Detection Setting = Disabled Alarm = On Light = On Photo feed = Enabled Video feed = Enabled
TCON-04-004	Alternate Flow - MyBot alarm is switch off	TCOV-04-014	Alternate Flow - MyBot alarm is switch off	Sensor = Ok Detection Setting = Enabled Alarm = Off Light = On Photo feed = Enabled Video feed = Enabled
TCON-04-005	Alternate Flow - MyBot Light's is switch off	TCOV-04-015	Alternate Flow - MyBot Light's is switch off	Sensor = Ok Detection Setting = Enabled Alarm = On Light = Off Photo feed = Enabled Video feed = Enabled
TCON-04-006	Alternate Flow – MyBot Photo live feed is off	TCOV-04-016	Alternate Flow – MyBot Photo live feed is off	Sensor = Ok Detection Setting = Enabled Alarm = On Light = On Photo feed = Disabled Video feed = Enabled

TCON-04-007	Alternate Flow – MyBot Video live feed is off.	TCOV-04-017	Alternate Flow – MyBot Video live feed is off.	Sensor = Ok Detection Setting = Enabled Alarm = On Light = On Photo feed = Enabled Video feed = Disabled

Table 2.3.4.2b Detection Use Case Test Conditions & Coverages

2.3.5 FC005 Notification Tab

2.3.5.1 State Transition Testing

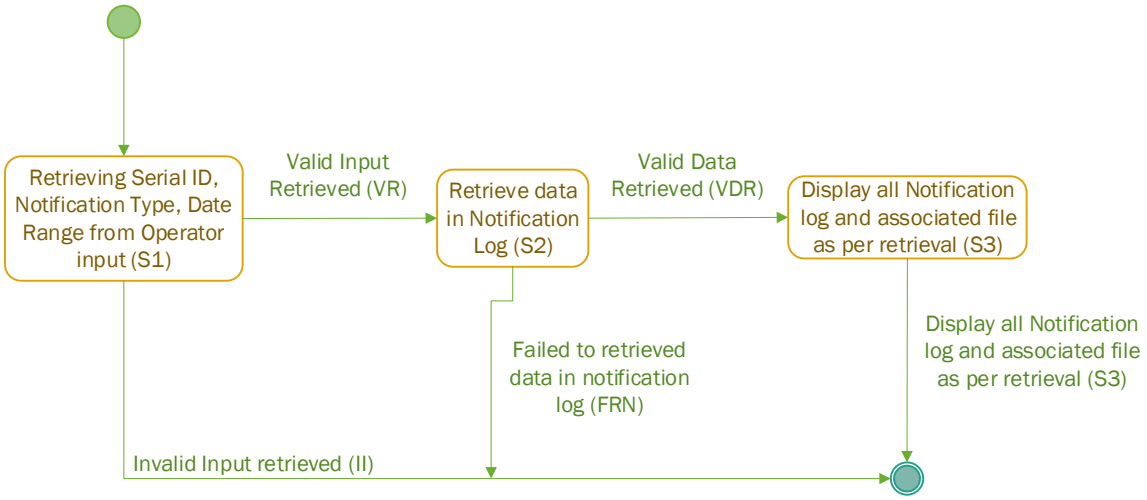


Figure 2.3.5.1 Notification Tab State Transition Diagram

Input / State	VR	II	VDR	FRN
S1	S2/ TCOV-05-001	S1/-	S1/-	S1/-
S2	S2/-	S2/-	S3/ TCOV-05-002	S2/-

Table 2.3.5.1.a Notification Tab State Table

Test Coverage ID	Test Coverage
TCOV-05-001	S1 to S2 with input VR
TCOV-05-002	S2 to S3 with input VDR

Table 2.3.5.1.b Notification Tab State Coverage

2.3.5.2 Use Case Testing

Use Case ID	UC005	
Use Case	FC005 Notification Tab	
Purpose	To view all MyBot notification log stored in the server.	
Requirement Traceability	RFC105-1, NFC105-1, RFC102-1	
Actor	Operator	
Trigger	Operator select Notification Tab	
Precondition	Control Centre is online and in notification tab menu	
Scenario Name	**Step**	**Action**
Main Flow	**1**	Operator enter Serial ID, Notification Type, Date Range.
	2	Control Centre retrieve data in notification log.
	3	Control centre display all notification log and associated file as per retrieval.
Alternate Flow –	**1.1**	Operator enters Invalid Serial ID, Notification Type, Date Range.

Operator enter Invalid Serial ID, Notification Type, Date Range	**1.2**	Fail to retrieve notification record.
Alternate Flow – Control Centre failed to retrieve data in notification log	**2.1**	Control centre failed to retrieve data in Notification log.
	2.2	Notification Function ends.
Rules		User need to enter the required input (Serial ID, Notification Type, Date Range) in order to retrieve all notification log and its associated file.
Notes		

Table 2.3.5.2a Notification Tab Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-05-001	Main flow	TCOV-05-003	Main Flow	Serial ID = 1234 Notification Type = All Date Range = 10/9/2019 To = 11/9/2019
TCON-05-002	Alternate Flow - Operator enter Invalid Serial ID, Notification Type, Date Range	TCOV-05-004	Alternate Flow - Operator enter Invalid Serial ID, Notification Type, Date Range	Serial ID = Null Notification Type = All Date Range = 10/9/2019 To = 9/9/2019
TCON-05-003	Alternate Flow - Control Centre failed to retrieve data in notification log	TCOV-05-005	Alternate Flow - Control Centre failed to retrieve data in notification log	

Table 2.3.5.2b Notification Tab Use Case Test Conditions & Coverages

2.3.6 FC006 Control Mode

2.3.6.1 State Transition Testing

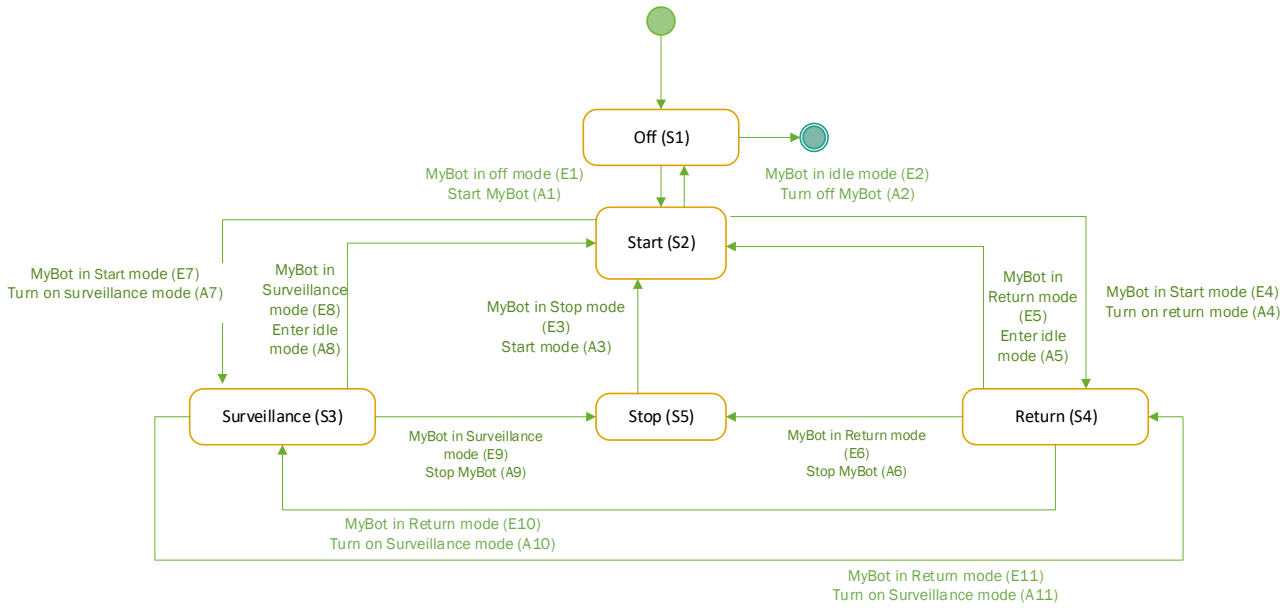


Figure 2.3.6.1 Control Mode State Transition Diagram

Input / State	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11
S1	S2 TCOV-06-001	S1/-	S1/-	S1/-	S1/-	S1/-	S1/-	S1/-	S1/-	S1/-	S1/-
S2	S2/-	S1 TCOV-06-002	S2/-	S4 TCOV-06-005	S2/-	S2/-	S3 TCOV-06-003	S2/-	S2/-	S2/-	S2/-
S3	S3/-	S3/-	S3/-	S3/-	S3/-	S3/-	S3/-	S2 TCOV-06-004	S5 TCOV-06-008	S3/-	S4 TCOV-06-011
S4	S4/-	S4/-	S4/-	S4/-	S2 TCOV-06-006	S5 TCOV-06-009	S4/-	S4/-	S4/-	S3 TCOV-06-010	S4/-
S5	S5/-	S5/-	S2 TCOV-06-007	S5/-	S5/-	S5/-	S5/-	S5/-	S5/-	S5/-	S5/-

Table 2.3.6.1a Control Mode State Table

Test Coverage ID	Test Coverage
TCOV-06-001	S1 to S2 with input E1
TCOV-06-002	S2 to S1 with input E2
TCOV-06-003	S2 to S3 with input E7
TCOV-06-004	S3 to S2 with input E8
TCOV-06-005	S2 to S4 with input E4
TCOV-06-006	S4 to S2 with input E5
TCOV-06-007	S5 to S2 with input E3
TCOV-06-008	S3 to S5 with input E9
TCOV-06-009	S4 to S5 with input E6
TCOV-06-010	S4 to S3 with input E10
TCOV-06-011	S3 to S4 with input E11

Table 2.3.6.1b Control Mode State Coverage

2.3.7 FM001 MyBot Connection

2.3.7.1 State Transition Testing

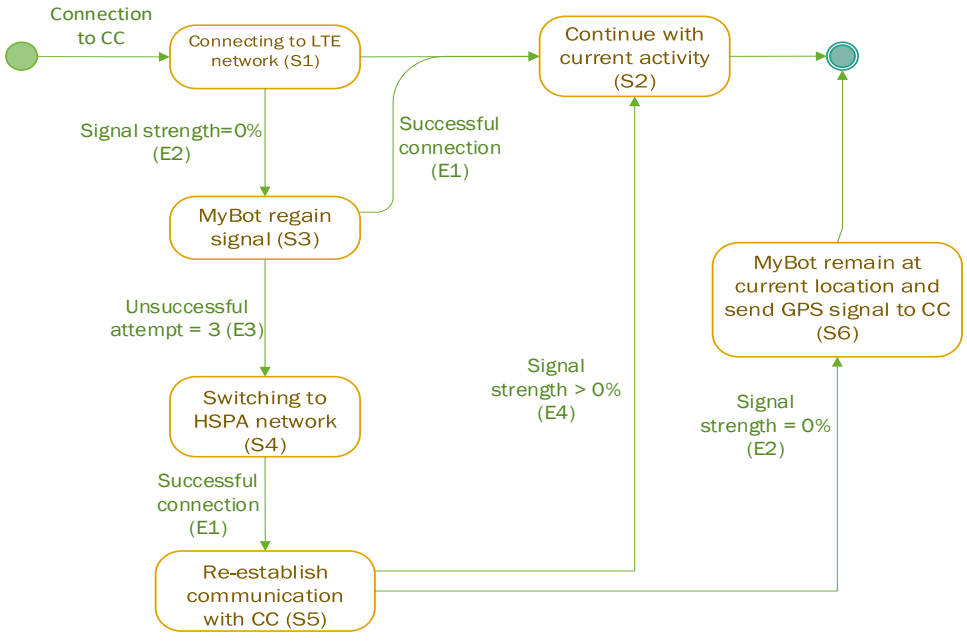


Figure 2.3.7.1 MyBot Connection State Transition Diagram

Input / State	E1	E2	E3	E4
S1	S2/TCOV-07-001	S3/TCOV-07-002	S1/-	S1/-
S2	S2/-	S2/-	S2/-	S2/-
S3	S2/TCOV-07-003	S3/-	S4/TCOV-07-004	S3/-
S4	S5/TCOV-07-005	S4/-	S4/-	S4/-
S5	S5/-	S6/TCOV-07-006	S5/-	S2/TCOV-07-007
S6	S6/-	S6/-	S6/-	S6/-

Table 2.3.7.1a MyBot Connection State Table

Test Coverage ID	Test Coverage
TCOV-07-001	S1 to S2 with input E1
TCOV-07-002	S1 to S3 with input E3
TCOV-07-003	S3 to S2 with input E1
TCOV-07-004	S3 to S4 with input E3
TCOV-07-005	S4 to S5 with input E1
TCOV-07-006	S5 to S6 with input E2
TCOV-07-007	S5 to S2 with input E4

Table 2.3.7.1b MyBot Connection State Coverage

2.3.7.2 Use Case Testing

Use Case ID	UC006	
Use Case	FM001 MyBot Connection	
Purpose	To allow MyBot to connect with CC	
Requirement Traceability	RFM115-1, RFM115-2, RFM115-3, RFM115-4, RFM115-5, RFM115-6, RFM115-7, NFM115-1, NFC107-1	
Actor	MyBot, CC	
Trigger	MyBot registered in Configuration	
Precondition	MyBot is turned "ON"	
Scenario Name	**Step**	**Action**
Main Flow	**1**	MyBot establishes a successful connection with CC via LTE network
	2	LTE network is selected
	3	MyBot continue with current activity
Alternate Flow – Failed to establish connection via LTE network (1 or 2 times)	**1.1.1**	MyBot unable to establish connection with CC via LTE network
	1.1.2	MyBot shall attempt to reconnect to CC via LTE network
	1.1.3	MyBot establishes a successful connection with CC via LTE network
	1.1.4	LTE network is selected
	1.1.5	Back to Main Flow step 3
Alternate Flow - Failed to establish connection via LTE network (3 times)	**1.2.1**	MyBot unable to establish connection with CC via LTE network for the third time
	1.2.2	MyBot shall switch to alternate HSPA network
	1.2.3	MyBot establishes a successful connection with CC via HSPA network
	1.2.4	HSPA network is selected
	1.2.5	Back to Main Flow step 3
Alternate Flow – Failed to establish connection via HSPA network	**1.3.1**	MyBot unable to establish connection with CC via LTE network for the third time
	1.3.2	MyBot shall switch to alternate HSPA network
	1.3.3	MyBot unable to establish a successful connection with CC via HSPA network
	1.3.4	MyBot shall remain at current location
	1.3.5	MyBot shall send GPS signal to Mission Controller
Rules		
Notes	Unable to establish connection indicates signal strength at 0%	

Table 2.3.7.2a1 MyBot Connection Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-07-001	Main Flow	TCOV-07-008	Main Flow	Strong LTE connection for MyBot
TCON-07-002	Alternate Flow – Failed to establish connection via LTE network (1 or 2 times)	TCOV-07-009	Alternate Flow – Failed to establish connection via LTE network (1 or 2 times)	Weak LTE connection for MyBot
TCON-07-003	Alternate Flow - Failed to establish connection via LTE network (3 times)	TCOV-07-010	Alternate Flow - Failed to establish connection via LTE network (3 times)	Strong HSPA network connection for MyBot
TCON-07-004	Alternate Flow – Failed to establish connection via HSPA network	TCOV-07-011	Alternate Flow – Failed to establish connection via HSPA network	No network connection for MyBot

Table 2.3.7.2b MyBot Connection Use Case Test Conditions & Coverages

2.3.8 FM002 MyBot Status

2.3.8.1 State Transition Testing

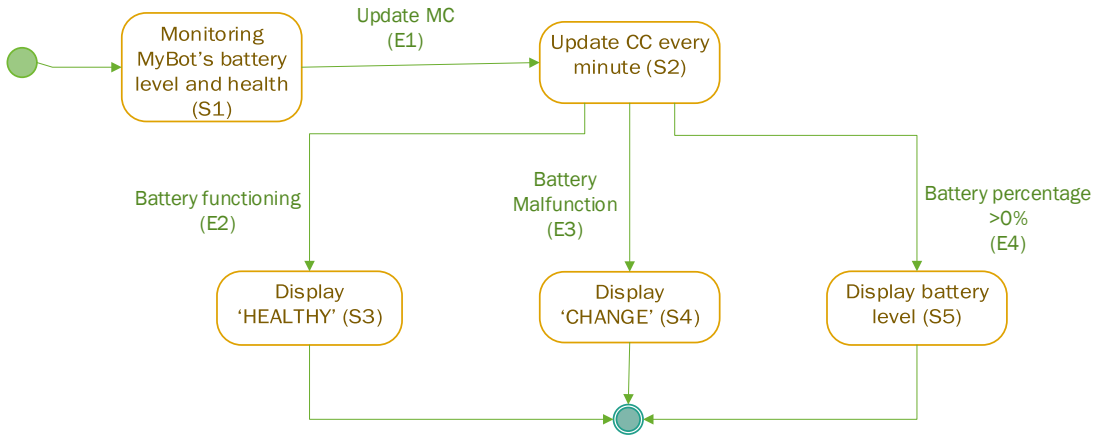


Figure 2.3.8.1 MyBot Status State Transition Diagram

Input / State	E1	E2	E3	E4
S1	S2/TCOV-008-001	S1/-	S1/-	S1/-
S2	S2/-	S3/TCOV- 008-002	S4/TCOV-008-003	S5/TCOV-008-004

Table 2.3.8.1a 3 MyBot Status State Table

Test Coverage ID	Test Coverage
TCOV-008-001	S1 to S2 with input E1
TCOV-008-002	S2 to S3 with input E2
TCOV-008-003	S2 to S4 with input E3
TCOV-008-004	S2 to S5 with input E4

Table 2.3.8.1b 4 MyBot Status State Coverage

2.3.8.2 Use Case Testing

Use Case ID	UC007	
Use Case	FM002 MyBot Status	
Purpose	To allow MyBot to notify CC about current status of battery level and health	
Requirement Traceability	RFM113-1, RFM113-2, RFM113-3, RFM113-4, NFM113-1	
Actor	MyBot, CC	
Trigger		
Precondition	MyBot is turned ON	
Scenario Name	**Step**	**Action**
Main Flow	**1**	BC monitors MyBot's battery level and health
	2	BC updates MC regarding MyBot's battery level and health
	3	MC send status of MyBot to CC
	4	CC will display MyBot's battery level in percentage
	5	CC will display 'HEALTHY' battery health
Alternate Flow – Battery level low	**4.1**	MyBot shall return to CS if battery level low
Alternate Flow – Malfunction battery	**5.1**	CC display CHANGE on battery health
Rules	MyBot status has to be supplied to CC every minute	
Notes		

Table 2.3.8.2a MyBot Status Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-008-001	Main Flow	TCOV-008-005	Main Flow	MyBot with sufficient battery level and health
TCON-008-002	Alternate Flow – Battery level low	TCOV-008-006	Alternate Flow – Battery level low	MyBot with battery level at 8%
TCON-008-003	Alternate Flow – Malfunction battery	TCOV-008-007	Alternate Flow – Malfunction battery	MyBot with malfunctioning battery

Table 2.3.8.2b MyBot Status Use Case Test Conditions & Coverages

2.3.9 FM003 Automatic Charging

2.3.9.1 State Transition Testing

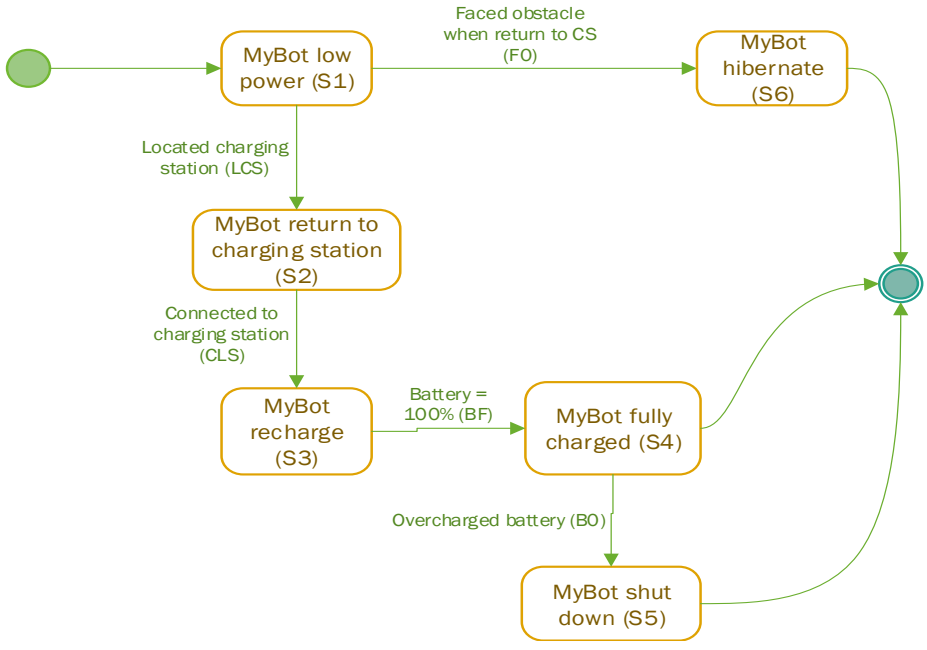


Figure 2.3.9.1 Automatic Charging State Transition Diagram

Input / State	LCS	CLS	BF	BO	FO
S1	S2/TCOV-09-001	S1/-	S1/-	S1/-	S6/ TCOV-09-005
S2	S2/-	S3/TCOV-09-002	S2/-	S2/-	S2/-
S3	S3/-	S3/-	S4/ TCOV-09-003	S3/-	S3/-
S4	S4/-	S4/-	S4/-	S5/ TCOV-09-004	S4/-

Figure 2.3.9.1.a Automatic Charging State Table

Test Coverage ID	Test Coverage
TCOV-09-001	S1 to S2 with input LCS
TCOV-09-002	S2 to S3 with input CLS
TCOV-09-003	S3 to S4 with input BF
TCOV-09-004	S4 to S5 with input BO
TCOV-09-005	S1 to S6 with input FO

Figure 2.3.9.1.b Automatic Charging State Coverage

2.3.9.2 Use Case Testing

Use Case ID	UC008	
Use Case	FM003 Automatic Charging	
Purpose	Allow MyBot to designated charging station for battery recharging	
Requirement Traceability	RFM114-1, RFM111-2, RFM128, RFM129, RFM130, RFM131, RFM132, NFM132, RFM133-1, RFM114-1, RFM133-2, RFM136, RFM137-1, RFM137-2, RFC103-1RFC103-2, RFC103-3,	
Actor	MyBot, Charging Station	
Trigger	Charging indicator of MyBot blinking	
Precondition		
Scenario Name	**Step**	**Action**
Main Flow	**1**	BC send shall send signal to MC to overwrite all preprogramed command
	2	MyBot shall locate its charging station using GPS coordinate
	3	MyBot shall be able to recharge upon connected to the charging station
	4	Charging indicator of MyBot light up permanently indicates MyBot is fully charged
Alternate Flow-Unable to return to charging station	**3.1**	MyBot shall stop moving and hibernate
	3.2	MC shall send alert signal to CC
Alternate Flow-Over-Charging	**5.1**	BC shall overwrite any other command
	5.2	BC shall shut down MyBot
Rules	MyBot shall return to charging station within 10 minutes	
Notes	Send alert signal through FC004	

Table 2.3.9.2a Automatic Charging Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-09-001	Main Flow	TCOV-09-007	Main Flow	Valid GPS coordinate of the charging station Return time = 5 minutes
TCON-09-002	Alternate Flow-Unable to return to charging station	TCOV-09-008	Alternate Flow-Unable to return to charging station	Return time = 11 minutes

TCON-09-003	Alternate Flow-Over-Charging	TCOV-09-009	Alternate Flow-Over-Charging	Keep charging the MyBot after the battery is at 100%

Table 2.3.9.2b Automatic Charging Use Case Test Conditions & Coverages

2.3.10 FM004 Walking Mode Selection

2.3.10.1 State Transition Testing

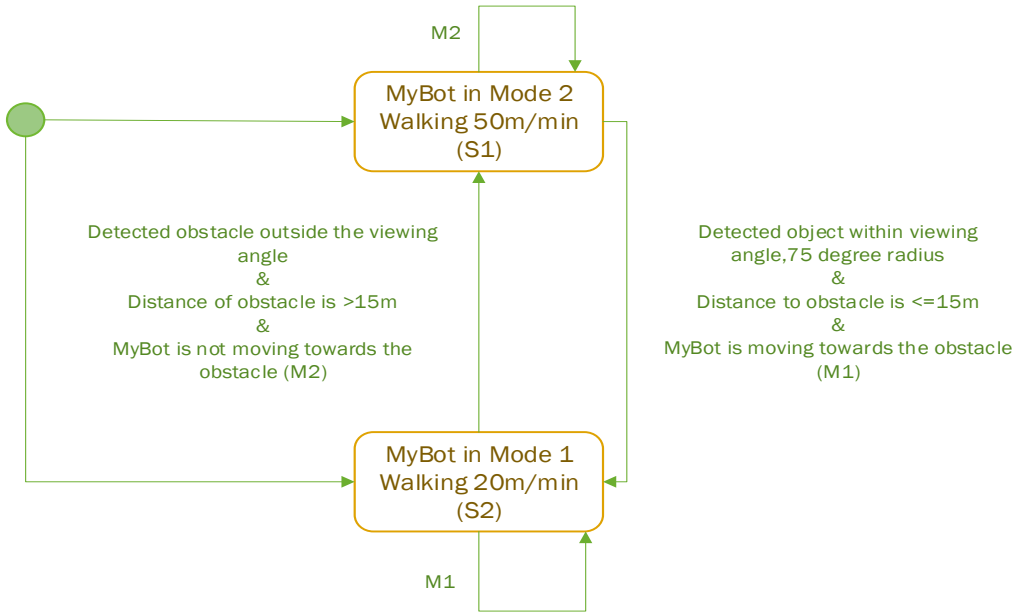


Figure 2.3.10.1 Walking Mode Selection State Transition Diagram

State \ Input	M1	M2
S1	S2/ TCOV-10-001	S1/TCOV-10-003
S2	S2/TCOV-10-004	S1/ TCOV-10-002

Table2.3.10.1a Walking Mode Selection State Table

Test Coverage ID	Test Coverage
TCOV-10-001	S1 to S2 with input M1
TCOV-10-002	S2 to S1 with input M2
TCOV-10-003	S1 to S1 with input M2
TCOV-10-004	S2 to S2 with input M1

Table 2.3.10.1b Walking Mode Selection State Coverage

2.3.10.2 Use Case Testing

Use Case ID	UC009
Use Case	FM004 Walking Mode Selection
Purpose	Allow MyBot to change walking mode
Requirement Traceability	RFM103-1, RFM103-2, RFM103-3, RFM104-1, RFM104-2, RFC103-4, NFC103-1, RFM124, RFM102-1
Actor	MyBot
Trigger	MyBot detected obstacle
Precondition	MyBot is in surveillance mode

Scenario Name	Step	Action
Main Flow	**1**	MyBot shall be able to walk at rate of 50 meters per minute in mode 2
	2	MyBot shall detect obstacle within 75-degree radius and the distance to the obstacle is 15 meter or less and MyBot is moving towards the obstacle
	3	MyBot shall select walking mode 1
	4	MyBot shall change the walking mode to 20 meter per minute in mode 1
Alternate Flow- MyBot starts walking in Mode 1	**1.1**	MyBot shall be able to walk at rate of 20 meters per minute in mode 1
	1.2	MyBot shall detect obstacle outside the viewing angle and the distance to the obstacle is more than 15 meter and MyBot is not moving towards the obstacle
	1.3	MyBot shall select walking mode 2
	1.4	MyBot shall change the walking mode to 50 meter per minute in mode 2
Alternate Flow- MyBot continue walking Mode 1	**4.1**	MyBot shall continue walking in mode 1
Alternate Flow- MyBot continue walking Mode 2	**1.4.1**	MyBot shall continue walking in mode 2
Rules		

Table 2.3.10.2a Walking Mode Selection Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-10-001	Main Flow	TCOV-10-005	Main Flow	Obstacle is detected 50-degree radius, within viewing angle Distance to obstacle 10 meter MyBot is moving towards the obstacle
TCON-10-002	Alternate Flow- MyBot starts walking in mode 1	TCOV-10-006	Alternate Flow- MyBot starts walking in mode 2	Obstacle is detected 80-degree radius, outside viewing angle Distance to obstacle 17 meter MyBot is not moving towards the obstacle
TCON-10-003	Alternate Flow- MyBot continue walking Mode 1	TCOV-10-007	Alternate Flow- MyBot continue walking Mode 1	MyBot detects obstacle again
TCON-10-004	Alternate Flow- MyBot continue walking Mode 2	TCOV-10-008	Alternate Flow- MyBot continue walking Mode 2	MyBot not detects any obstacle

Table 2.3.10.2b Walking Mode Selection Use Case Test Conditions & Coverages

2.3.11 FM005 Object Detection and Tracking

2.3.11.1 State Transition Testing

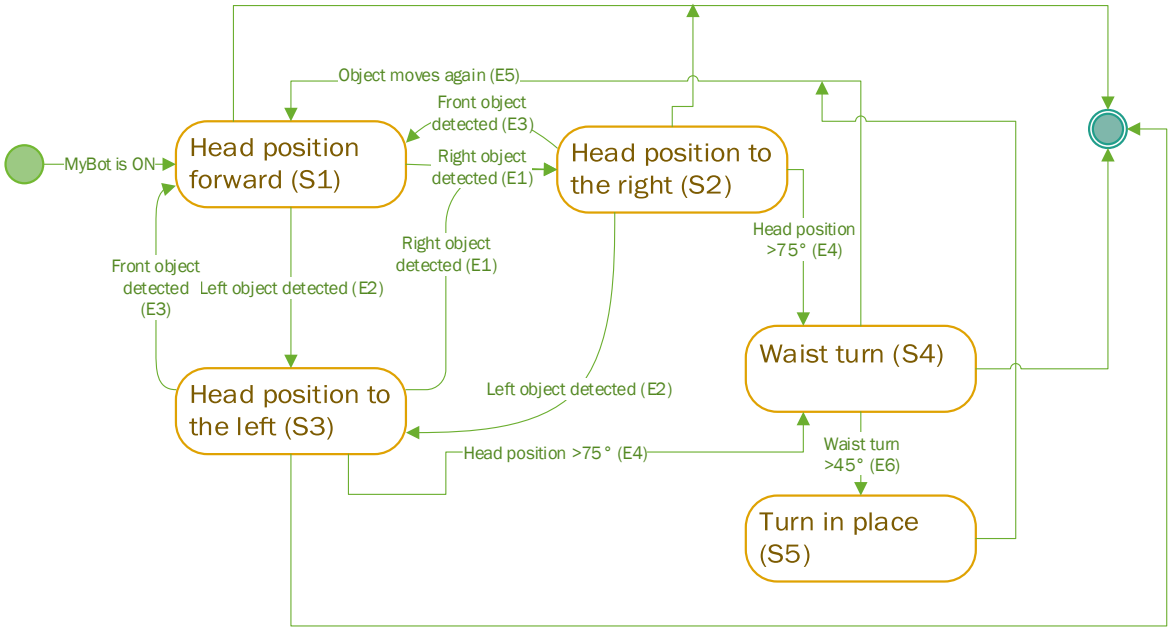


Figure 2.3.11.1 Object Detection and Tracking State Transition Diagram

Input / State	E1	E2	E3	E4	E5	E6
S1	S2/TCOV-011-001	S3/TCOV-011-002	S1/-	S1/-	S1/-	S1/-
S2	S2/-	S3/TCOV-011-003	S1/TCOV-011-004	S4/TCOV-011-005	S2/-	S2/-
S3	S2/TCOV-011-006	S3/-	S1 /TCOV-011-007	S4/TCOV -011-008	S3/-	S3/-
S4	S4/-	S4/-	S4/-	S4/-	S1/TCOV-011-009	S5/TCOV-011-010
S5	S5/-	S5/-	S5/-	S5/-	S1/TCOV-011-011	S5/-

Table 5 Object Detection and Tracking State Table

Test Coverage ID	Test Coverage
TCOV-011-001	S1 to S2 with input E1
TCOV-011-002	S1 to S3 with input E2
TCOV-011-003	S2 to S3 with input E2
TCOV-011-004	S2 to S1 with input E3
TCOV-011-005	S2 to S4 with input E4
TCOV-011-006	S3 to S2 with input E1
TCOV-011-007	S3 to S1 with input E3
TCOV-011-008	S3 to S4 with input E4
TCOV-011-009	S4 to S1 with input E5
TCOV-011-010	S4 to S5 with input E6
TCOV-011-011	S5 to S1 with input E5

Table 2.3.11.1b Object Detection and Tracking State Coverage

2.3.11.2 Use Case Testing

Use Case ID	UC010
Use Case	FM005 Object Detection & Tracking

Requirements Coverage	RFM101-1, RFM101-2, RFM102-2, RFM102-3, RFM102-5, RFM118	
Purpose	To allow MyBot to detect and track object	
Actor	MyBot, CC	
Trigger	Object detected	
Precondition	MyBot is turned "ON"	
Scenario Name	**Step**	**Action**
Main Flow	**1**	MyBot's head position is forward as default
	2	MyBot detects an object in front of MyBot within viewing angle
	3	MyBot tracks the movement of the object within its viewing angle
Alternate Flow – Object to the right of MyBot	**2.1.1**	MyBot rotates its head to the right towards object
	2.1.2	MyBot rotates its waist with respect to the head position
	2.1.3	MyBot turns in place when its waist turn is more than 45°
	2.1.4	Back to Main Flow step 3
Alternate Flow – Object to the left of MyBot	**2.2.1**	MyBot rotates its head to the left
	2.2.2	MyBot rotates its waist with respect to the head position
	2.2.3	MyBot turns in place when its waist turn is more than 45°
	2.2.4	Back to Main Flow step 3
Alternate Flow – No object detected	**2.3.1**	MyBot doesn't detect any object in its viewing angle
	2.3.2	MyBot continues to scan its surrounding for objects
Rules		

Table 2.3.11.2a Object Detection and Tracking Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-11-001	Main Flow	TCOV-11-012	Main Flow	Moving object placed within viewing angle of MyBot
TCON-11-002	Alternate Flow – Object to the right of MyBot	TCOV-11-013	Alternate Flow – Object to the right of MyBot	Moving object that moves beyond viewing angle to the right of MyBot
TCON-11-003	Alternate Flow – Object to the left of MyBot	TCOV-11-014	Alternate Flow – Object to the left of MyBot	Moving object that moves beyond viewing angle to the left of MyBot
TCON-11-004	Alternate Flow – No object detected	TCOV-11-015	Alternate Flow – No object detected	No object placed around MyBot in 100m radius

Table 3.11.2b Object Detection and Tracking Use Case Test Conditions & Coverages

2.3.12 FM006 Obstacle Detection and Avoidance (less than 0.5m)

2.3.12.1 State Transition Testing

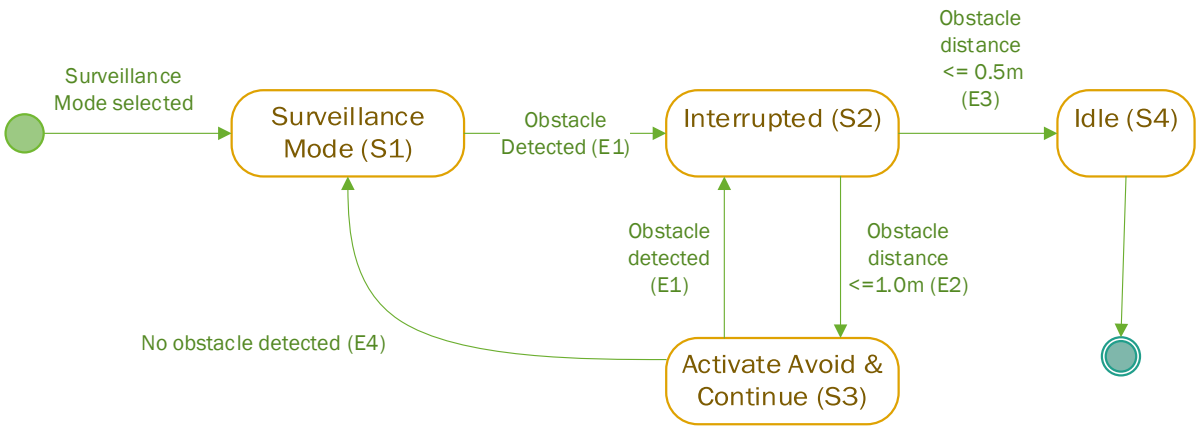


Figure 2.3.12.1. Obstacle Detection and Avoidance State Transition Diagram

Input / State	E1	E2	E3	E4	E5
S1	S2/TCOV-012-001	S1/-	S1/-	S1/-	S1/-
S2	S2/-	S3/TCOV-012-002	S4/TCOV- 012-003	S2/-	S2/-
S3	S2/TCOV-012-004	S3/-	S3/-	S1/TCOV-012-005	S3/-

Table 2.3.12.1a Obstacle Detection and Avoidance State Table

Test Coverage ID	Test Coverage
TCOV-012-001	S1 to S2 with input E1
TCOV-012-002	S2 to S3 with input E2
TCOV-012-003	S2 to S4 with input E3
TCOV-012-004	S3 to S2 with input E1
TCOV-012-005	S3 to S1 with input E4

Table 2.3.12.1b Obstacle Detection and Avoidance State Coverage

2.3.12.2 Use Case Testing

Use Case ID	UC011	
Use Case	FM006 Obstacle Detection & Avoidance	
Purpose	To allow MyBot to successfully manoeuvre obstacles	
Requirement Traceability	RFM117, RFM109, RFM108-1, RFM108-2, RFM108-3, RFM108-4, RFM110-1, RFM110-2, RFM107-1, RFM107-2, NFM107-1, RFC103-2, RFM134, RFM119	
Actor	MyBot, CC	
Trigger	Obstacle detected	
Precondition	MyBot in Surveillance Mode	
Scenario Name	**Step**	**Action**
Main Flow	**1**	MyBot detect obstacle within 1 meter
	2	MyBot shall evaluate both clearance area and land slope on the left and right of the obstacle
	3	MyBot shall move to the left if clearance area is more than right and land slope is less than 20°
Alternate Flow – Right path is selected	**3.1**	MyBot shall move to the right if clearance area is more than left and land slope is less than 20°
Alternate Flow – Clearance Area Equal	**3.2**	MyBot shall choose the area with less land slope if clearance area or left and right are equal
Alternate Flow – MyBot Stop Operation	**3.3.1**	MyBot shall stop if land slope more than 20° and obstacle is less than 0.5m in front of MyBot
	3.3.2	MyBot shall send alert signal to CC regarding status of MyBot
Rules		

Table 2.3.12.2a Obstacle Detection and Avoidance Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-012-001	Main Flow	TCOV-012-006	Main Flow	Obstacle with clearance on the left
TCON-012-002	Alternate Flow – Right path selected	TCOV-012-007	Alternate Flow – Right path selected	Obstacle with clearance on the right
TCON-012-003	Alternate Flow – Clearance area equal	TCOV-012-008	Alternate Flow – Clearance area equal	Obstacle with different left or right land slope and under 20°

TCON-012-004	Alternate Flow –MyBot stop operation	TCOV-012-009	Alternate Flow – MyBot stop operation	Obstacle placed less than 0.5m in front of MyBot

Table 2.3.12.2b Obstacle Detection and Avoidance Use Case Test Conditions & Coverages

2.3.12.3 Decision Table Testing

Test Condition ID	Test Condition
TCON-012-010	Clearance Area Left < Right
TCON-012-011	Clearance Area Left > Right
TCON-012-012	Clearance Area Left = Right
TCON-012-013	Degree of Land Slope Left < Right
TCON-012-014	Degree of Land Slope Left > Right
TCON-012-015	Degree of Slope > 20°

Table 2.3.12.3a Obstacle Detection and Avoidance Decision table Test Conditions

			TCOV-012-010	TCOV-012-010	TCOV-012-011	TCOV-012-012	TCOV-012-012
Conditions	**Clearance Area**	Left < Right	-	N	Y	-	-
		Left > Right	-	Y	N	-	-
		Left = Right	-	-	-	Y	Y
	Degree of Slope	Left < Right	-	-	-	Y	N
		Left > Right	-	-	-	N	Y
		Slope < 20°	N	Y	Y	Y	Y
Actions	**Path Selected**	Left	-	X	-	X	-
		Right	-	-	X	-	X
		Stop	X	-	-	-	-

Table 2.3.12.3b Obstacle Detection and Avoidance Decision Table

2.3.13 FM007 Fall Recovery

2.3.13.1 State Transition Testing

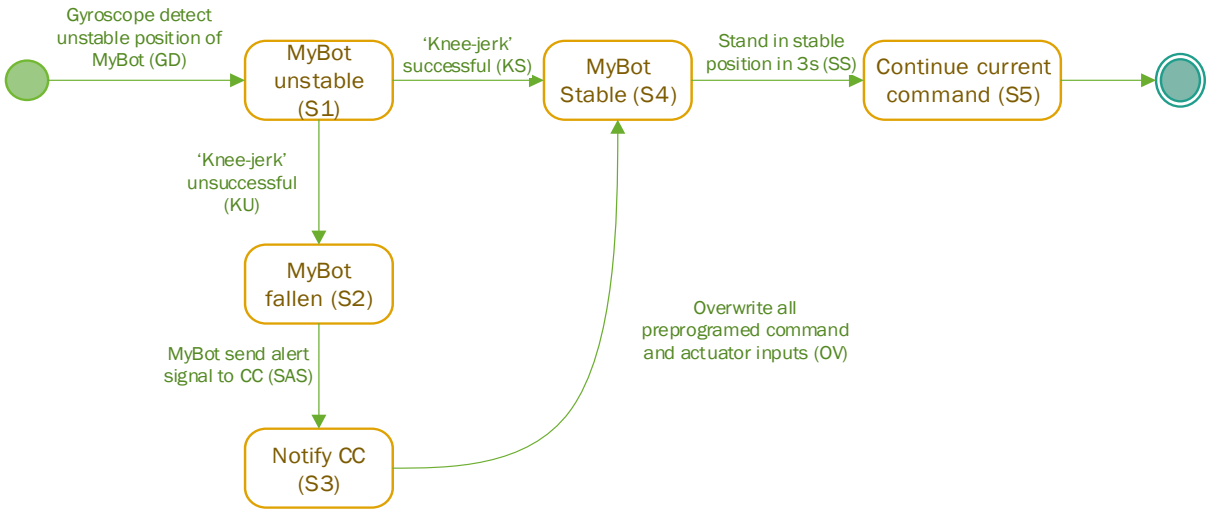


Figure 2.3.13.1 Fall Recovery State Transition Diagram

Input / State	GD	KU	SAS	OV	SS	KS
S1	S1/-	S2/ TCOV-13-001	S1/-	S1/-	S1/-	S4/ TCOV-13-005
S2	S2/-	S2/-	S3/ TCOV-13-002	S2/-	S2/-	S2/-
S3	S3/-	S3/-	S3/-	S4/ TCOV-13-003	S3/-	S3/-
S4	S4/-	S4/-	S4/-	S4/-	S5/ TCOV-13-004	S4/-

Table 2.3.13.1.a Fall Recovery State Table

Test Coverage ID	Test Coverage
TCOV-13-001	S1 to S2 with input KU
TCOV-13-002	S2 to S3 with input SAS
TCOV-13-003	S3 to S4 with input OV
TCOV-13-004	S4 to S5 with input SS
TCOV-13-005	S1 to S4 with input KS

Table 2.3.13.1b Fall Recovery State Coverage

2.3.13.2 Use Case Testing

Use Case ID	UC012	
Use Case	FM007 Fall Recovery	
Purpose	To ensure MyBot is at an upright standing position	
Requirement Traceability	RFM105-1, RFM105-2, RFM106, RFM111-1, RFM111-2, RFM111-3, RFC101-2	
Actor	MyBot, CC	
Trigger	Gyroscope detect unbalance position	
Precondition	MyBot is in "Idle" or "Surveillance" state	
Scenario Name	**Step**	**Action**
Main Flow	**1**	Gyroscope in the MyBot detects unbalance position of the MyBot
	2	MyBot activates predefined "knee-jerk" action
	3	MyBot stands in stable position
	4	MyBot continues the current command
Alternate Flow- MyBot Fall Over	**3.1**	BC sends and stores GPS location and existing command to MC when MyBot falls over
	3.2	MC sends alert signal to CC
	3.3	BC overwrites all the preprogramed command and actuator inputs until MyBot has returned to stable standing position
Rules	MyBot have to stand in stable standing position for 3 seconds before continuing current command	
Notes	Sends alert signal through FC004	

Table 2.3.13.2a Fall Recovery Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-13-001	Main Flow	TCOV-13-006	Main Flow	Successful 'knee-jack' action Stable stand for 3s
TCON-13-002	Alternate Flow- MyBot Fall Over	TCOV-13-007	Alternate Flow- MyBot Fall Over	Unsuccessful 'knee-jack'

Table 2.3.13.2b Fall Recovery Test Condition & Coverage

2.3.14 FM008 Image and Video Seeding

2.3.14.1 State Transition Testing

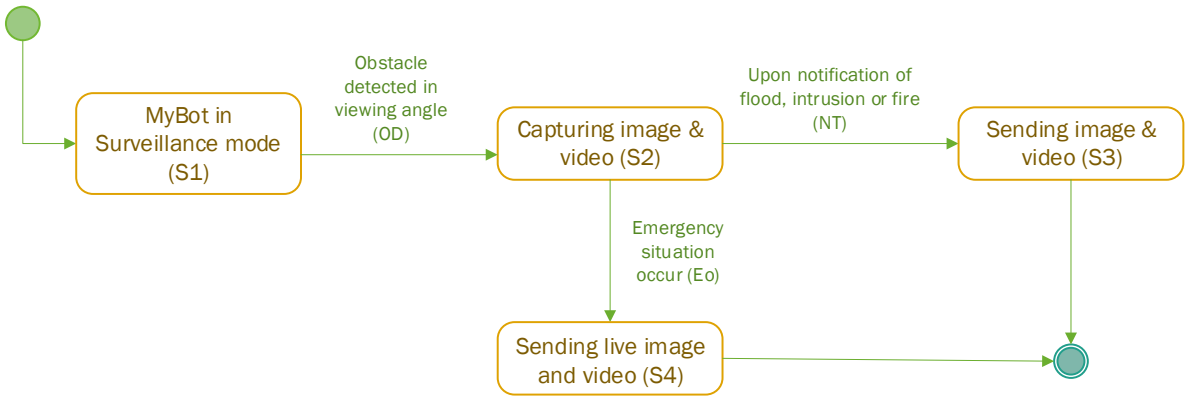


Figure 2.3.14.1 Image and Video Seeding State Transition Diagram

State \ Input	OD	NT	Eo
S1	S2/ TCOV-14-001	S1/-	S1/-
S2	S3/-	S3/TCOV-14-002	S4/TCOV-14-003

Table 2.3.14.1a Image and Video Seeding State Table

Test Coverage ID	Test Coverage
TCOV-14-001	S1 to S2 with input OD
TCOV-14-002	S2 to S3 with input NT
TCOV-14-003	S2 to S4 with input Eo

Table 2.3.14.1b Image and Video Seeding State Coverage

2.3.14.2 Use Case Testing

Use Case ID	UC013	
Use Case	FM008 Images & Video Seeding	
Purpose	Allows MyBot to create 'real-world representation' and supply data to operator for decision making	
Requirement Traceability	RFM116, RFM121, RFM122, RFM123, NFC102-1, NFC104-1	
Actor	MyBot, CC, Operator	
Trigger	Operator selection	
Precondition	MyBot in surveillance mode	
Scenario Name	**Step**	**Action**
Main Flow	**1**	MyBot shall detect obstacle in viewing angle of the predefine path
	2	MyBot shall capture the image and video, and store it in MyBot internal memory
	3	MyBot shall send images and videos to CC upon notification of flood, intrusion, or fire
Alternate Flow- Real-time image and video	**3.1**	MyBot shall send live image and videos when emergency occur

Rules	
Notes	

Table 2.3.14.2a Images & Video Seeding Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-14-001	Main Flow	TCOV-14-004	Main Flow	MyBot detects obstacle in 50-degree viewing angle
TCON-14-002	Alternate Flow- Real-time image and video	TCOV-14-005	Alternate Flow- Real-time image and video	MyBot's sensors detect emergency

Table 2.3.14.2b Images & Video Seeding Use Case Test Conditions & Coverages

2.3.15 FM009 Emergency Notification

2.3.15.1 State Transition Testing

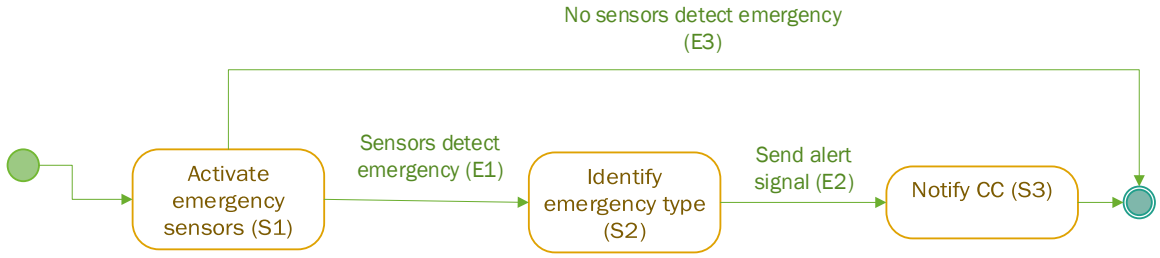


Figure 2.3.15.1 Emergency Notification State Transition Diagram

Input / State	E1	E2	E3
S1	S2/TCOV-015-001	S1/-	S1/-
S2	S2/-	S3/TCOV- 015-002	S3/-

Table 2.3.15.1a Emergency Notification State Table

Test Coverage ID	Test Coverage
TCOV-015-001	S1 to S2 with input E1
TCOV-015-002	S2 to S3 with input E2

Table 2.3.15.1b Emergency Notification State Coverage

2.3.15.2 Use Case Testing

Use Case ID	UC014	
Use Case	FM009 Emergency Notification	
Purpose	To allow MyBot to notify CC during emergencies	
Requirement Traceability	RFM120, RFM125, RFM126, RFM127-1, RFM127-2, RFM127-3, NFM127-1, NFC105-1	
Actor	MyBot, CC	
Trigger		
Precondition	MyBot in surveillance mode	
Scenario Name	**Step**	**Action**
Main Flow	**1**	MyBot activate sensors related to emergency detection
	2	MyBot shall identify emergency type
	3	MyBot shall send alert signal to CC
Alternate Flow – Fire Detected	**2.1.1**	Infrared camera detected fire through thermal images
	2.1.2	MyBot identifies emergency as fire
	2.1.3	Back to Main Flow step 3

Alternate Flow – Flood Detected	**2.2.1**	Water level sensor detected flood through measurement of liquid level
	2.2.2	MyBot identifies emergency as flood
	2.2.3	Back to Main Flow step 3
Alternate Flow – Intrusion Detected	**2.3.1**	Moving heat signatures detected in thermal video
	2.3.2	MyBot sounds alarm and turn on light
	2.3.3	MyBot identifies emergency as intrusion
	2.3.4	Back to Main Flow step 3
Alternate Flow – No emergency detected	**2.4.1**	MyBot doesn't detect any emergency through its sensors
Rules		
Notes	Every alert signal contains GPS location of MyBot with image and video of the situation	

Table 2.3.15.2a Emergency Notification Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-015-001	Main Flow	TCOV-015-003	Main Flow	Environment with fire present
TCON-015-002	Alternate Flow – Flood Detected	TCOV-015-004	Alternate Flow – Flood Detected	MyBot's leg placed in pool of water
TCON-015-003	Alternate Flow – Intrusion Detected	TCOV-015-005	Alternate Flow – Intrusion Detected	A moving person is placed in front of MyBot
TCON-015-004	Alternate Flow – No emergency detected	TCOV-015-006	Alternate Flow – No emergency detected	MyBot is placed in an empty environment without any hazards

Table 2.3.15.2b Emergency Notification Use Case Test Conditions & Coverages

2.3.16 FM010 Object Movement

2.3.16.1 State Transition Testing

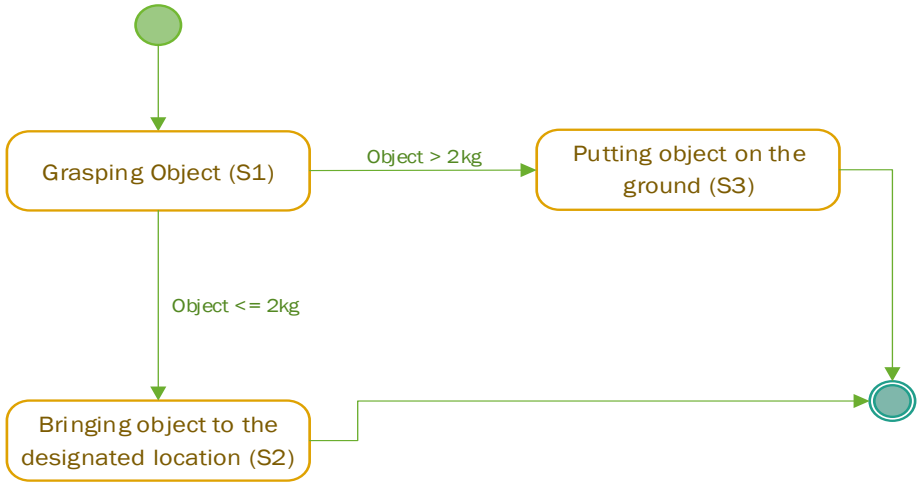


Figure 2.3.16.1 Object Movement State Transition Diagram

Input / State	OB	OA
S1	S2/ TCOV-16-001	S1/-
S2	S2/-	S3/ TCOV-16-002

***Table 2.3.16.1a* Object Movement State Table**

Test Coverage ID	Test Coverage
TCOV-16-001	S1 to S2 with input OB
TCOV-16-002	S1 to S3 with input OA

Table 2.3.16.1b Object Movement State Coverage

2.3.16.2 Use Case Testing

Use Case ID	UC015	
Use Case	FM011 Moving Object	
Purpose	Allow MyBot to move an object	
Requirement Traceability	RFM112-1, RFM112-2, RFM135	
Actor	MyBot	
Trigger	Object is in front of MyBot	
Precondition	Detect object in viewing angle	
Scenario Name	**Step**	**Action**
Main Flow	**1**	MyBot shall grasp an object
	2	MyBot shall bring the object to designated location
Alternate Flow- Object exceed 2kg	**2.1**	MyBot shall slowly put the object on the ground
Rules	The object must below or equal to 2 kg	
Notes		

Table 2.3.16.2a Object Movement Use Case

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Test Data
TCON-16-001	Main Flow	TCOV-16-003	Main Flow	Object = 1.5kg Location= 1.679483,103.536784
TCON-16-002	Alternate Flow- Object exceed 2kg	TCOV-16-004	Alternate Flow- Object exceed 2kg	Object = 4kg Location=10.894530, 98.904286

Table 2.3.16.2b Object Movement Use Case Test Conditions & Coverages

2.4 Traceability

Requirement Coverage