

2014 소프트웨어공학설계

Unit Test Plan

201111347 김태호

201111356 박준한

201111360 손준익

201111367 여승훈

Index

PTS System

References

Features to be tested

Features not to be tested

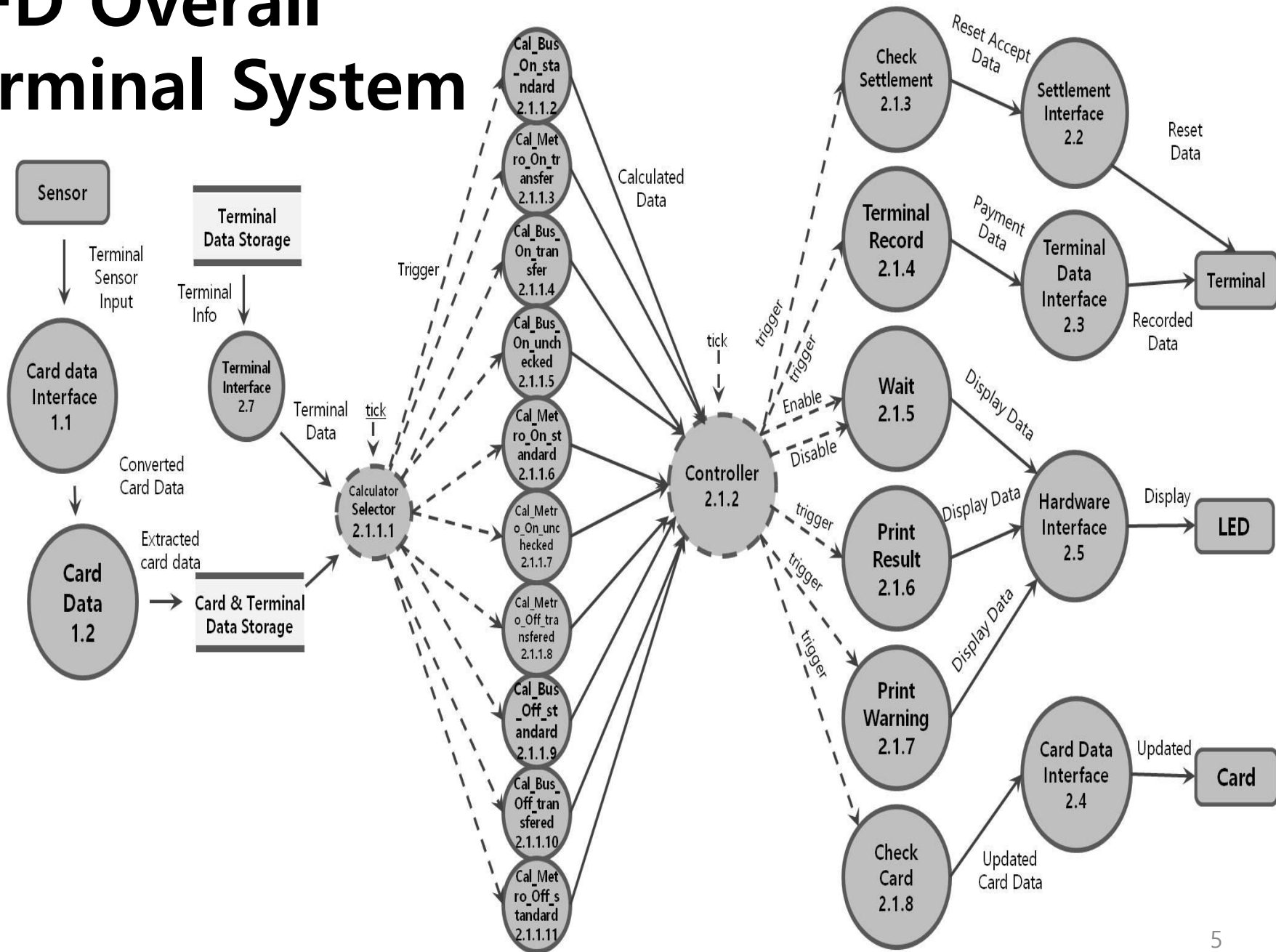
Test Identification

Test Case Specification

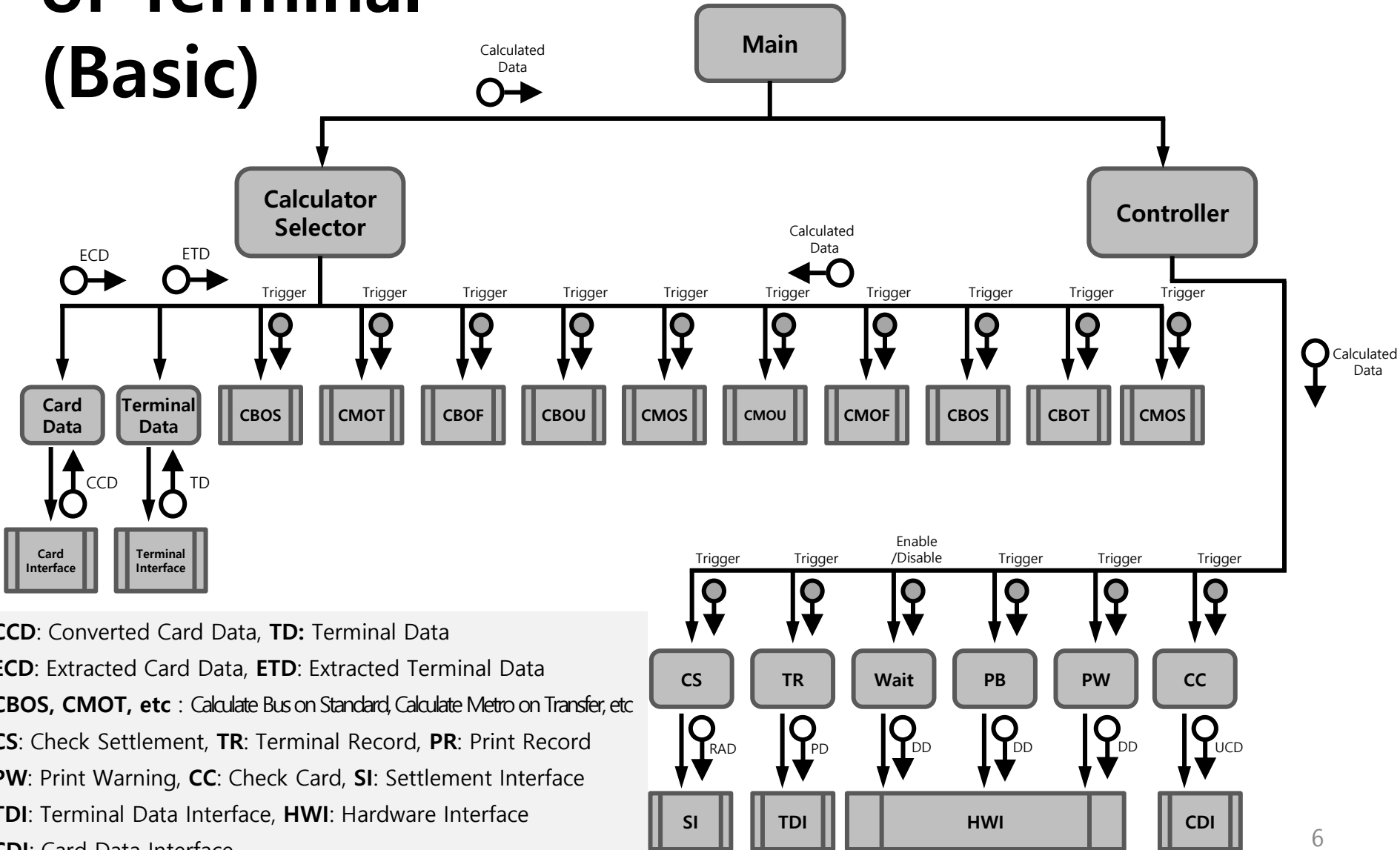
PTS System

Terminal System

DFD Overall Terminal System

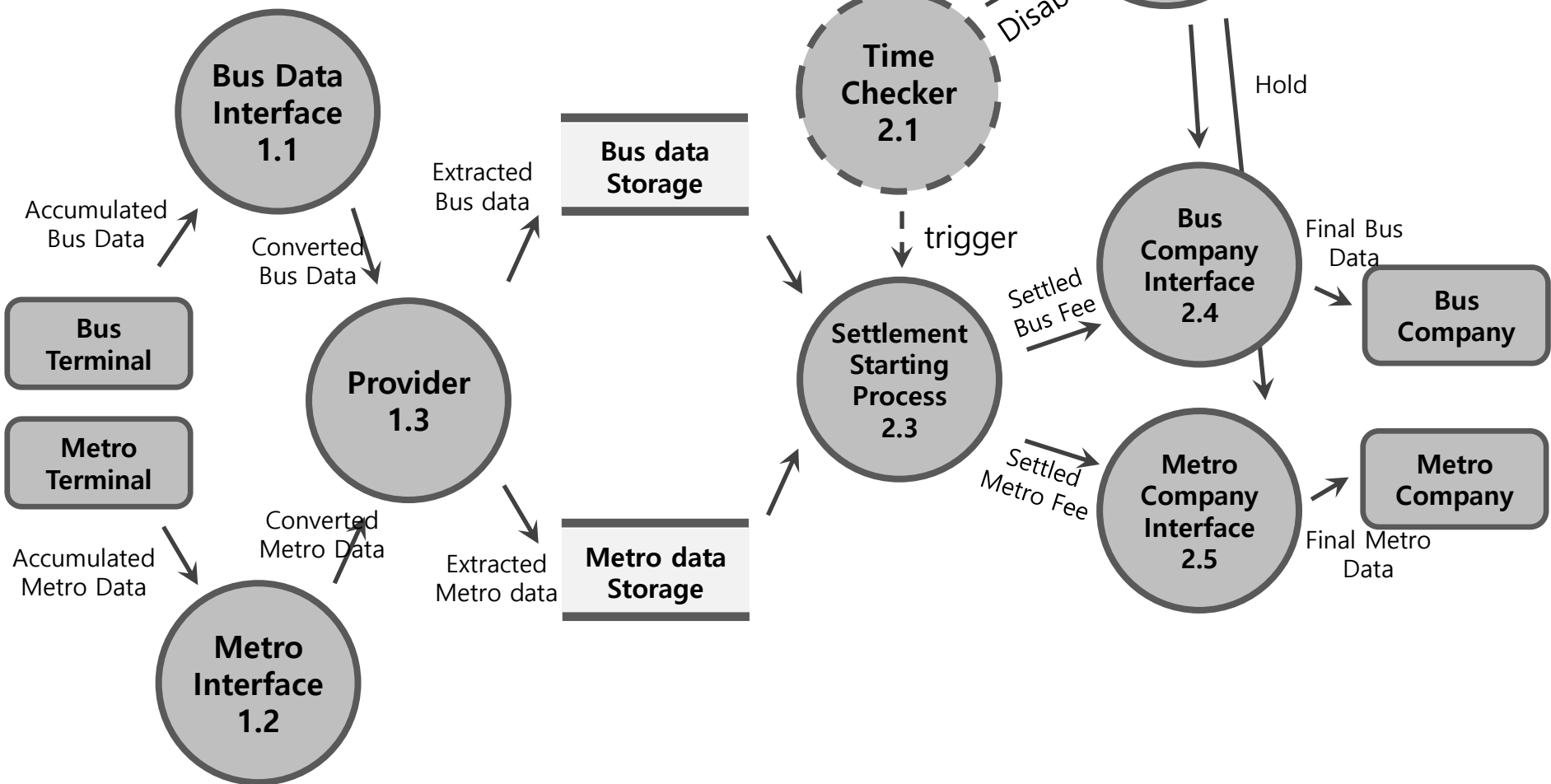


Structured Charts of Terminal (Basic)

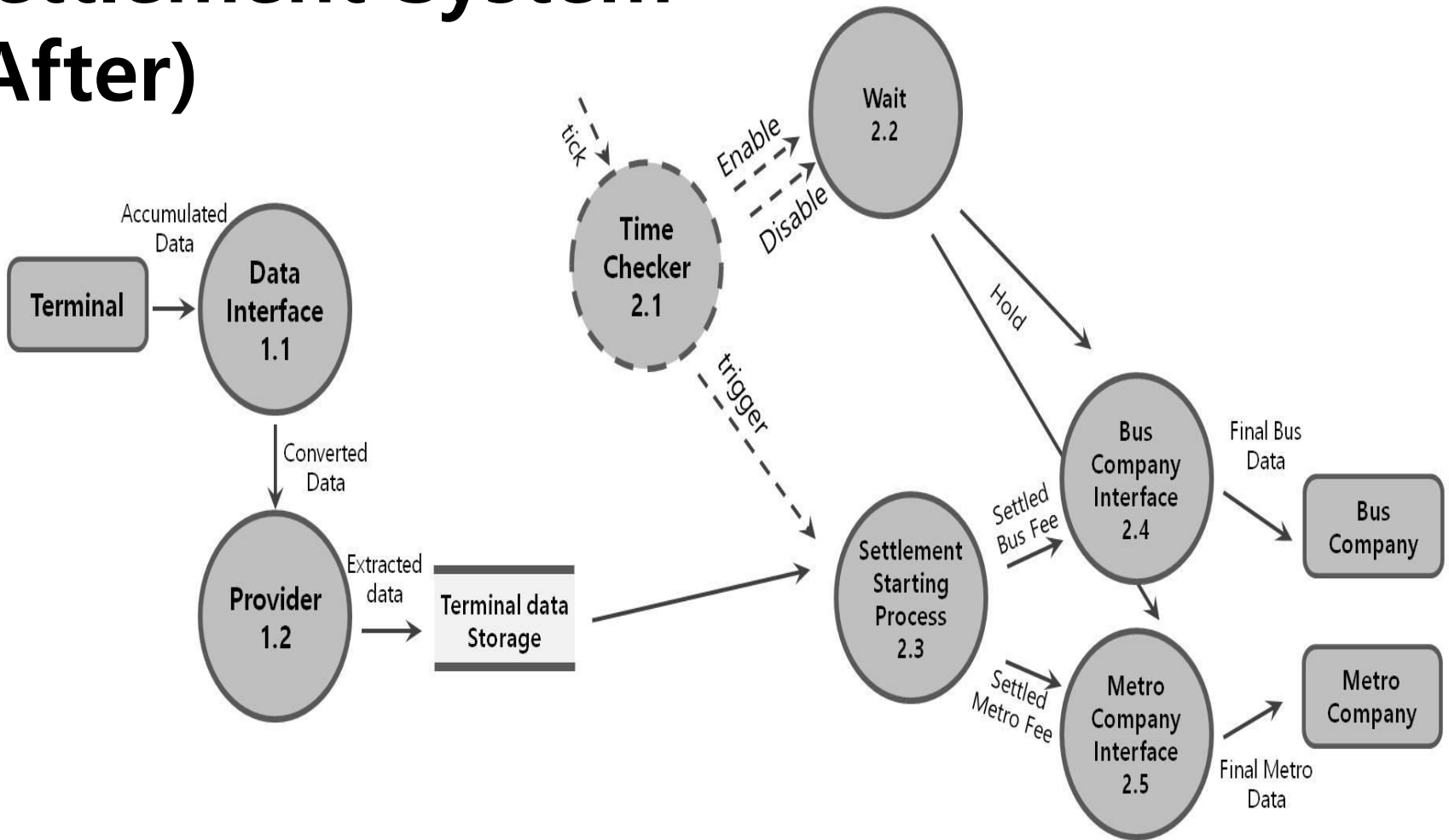


Settlement System

DFD Overall Settlement System (Before)

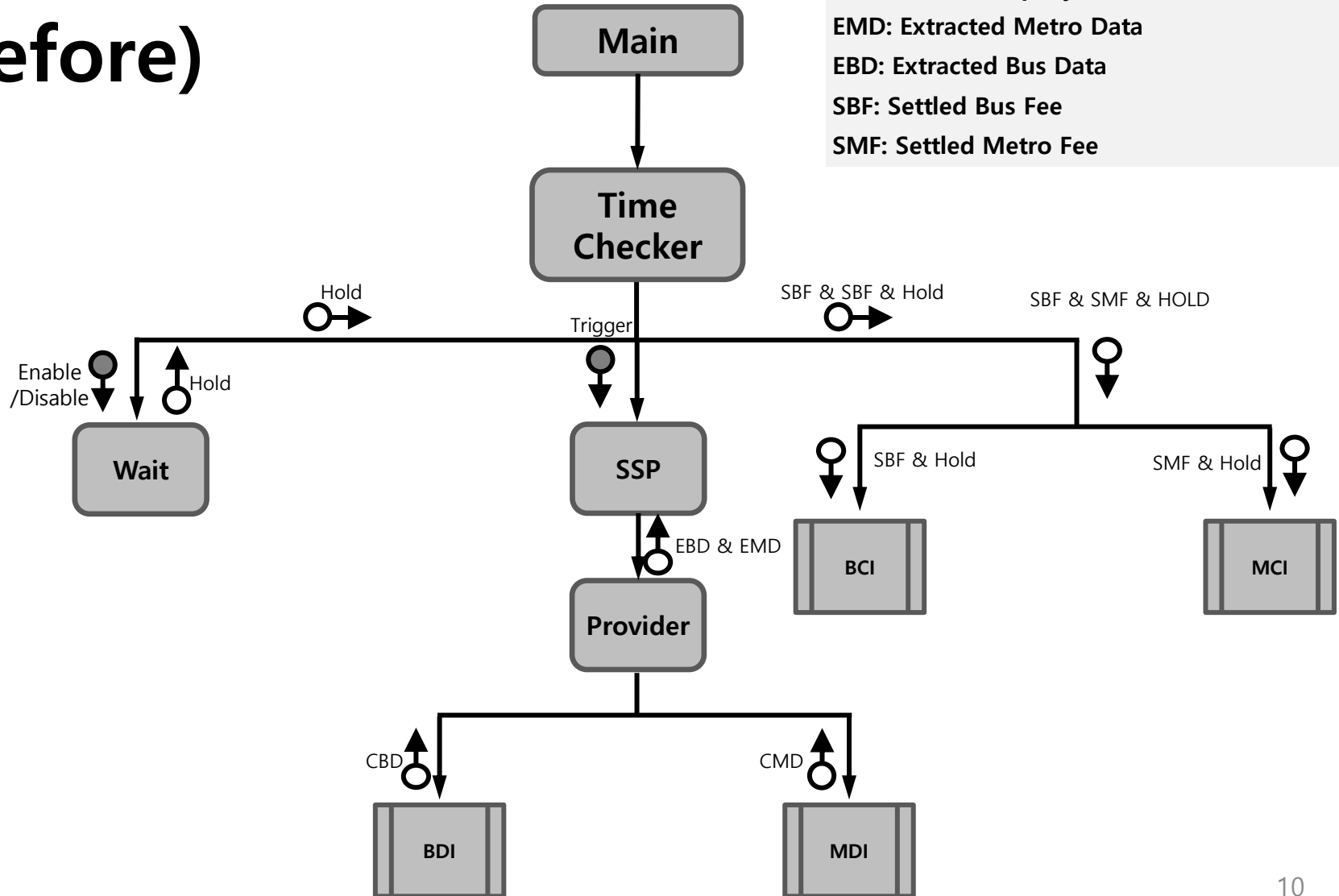


DFD Overall Settlement System (After)



Structured Charts of Settlement (Before)

SSP: Settlement Starting Process
 BDI: Bus Data Interface
 MDI : Metro Data Interface
 BCI: Bus Company Interface
 MCI: Metro Company Interface
 EMD: Extracted Metro Data
 EBD: Extracted Bus Data
 SBF: Settled Bus Fee
 SMF: Settled Metro Fee



Structured Charts of Settlement (After)

SSP: Settlement Starting Process

DI: Data Interface

BCI: Bus Company Interface

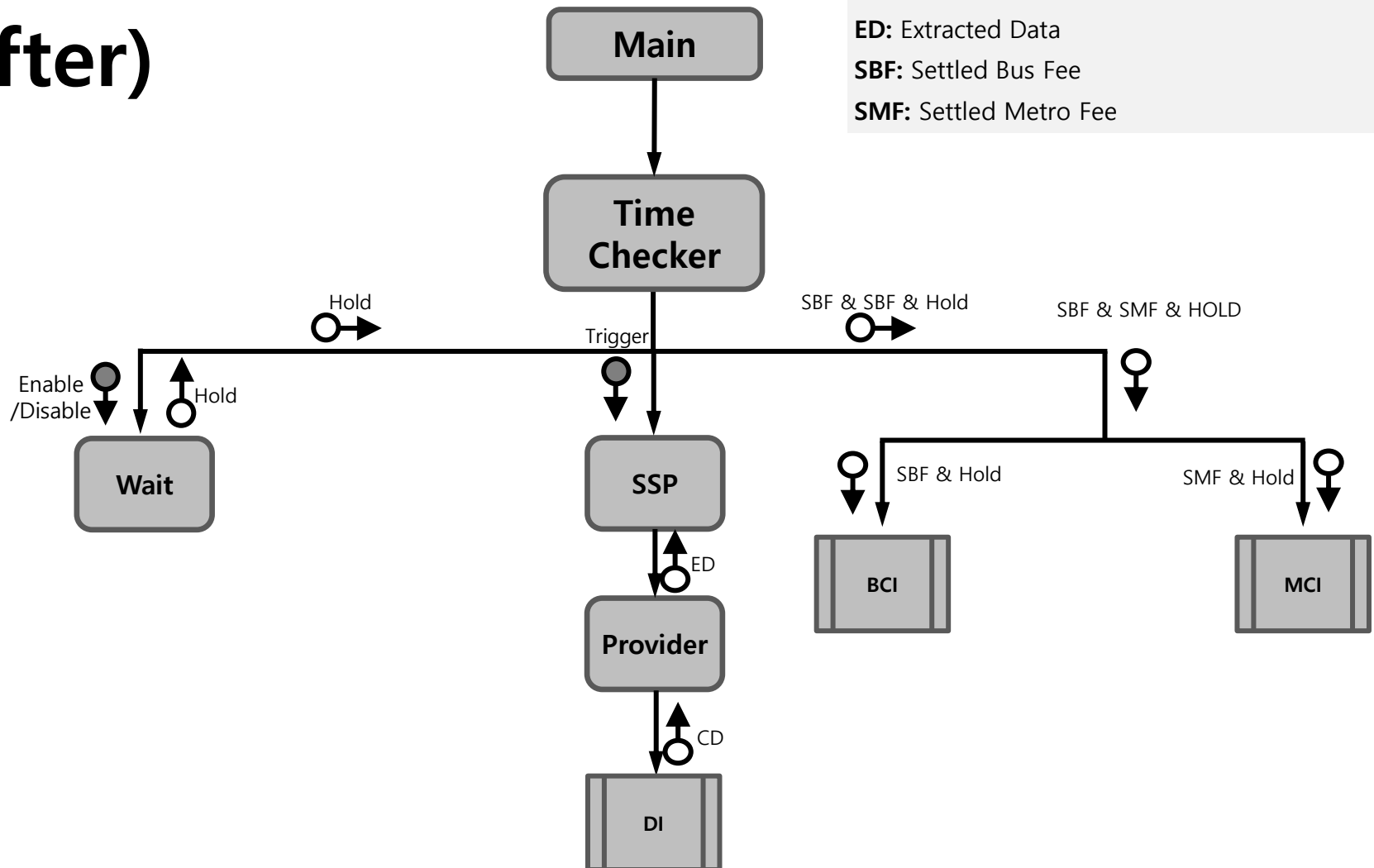
MCI: Metro Company Interface

CD: Converted Data

ED: Extracted Data

SBF: Settled Bus Fee

SMF: Settled Metro Fee



References

Team1-2014.SRA.VER3.0

- **Process specification**
- **DFD**
- **State Transition Diagram**

Team1-2014.SDS.VER2.0

- **Process specification**
- **Structure chart**

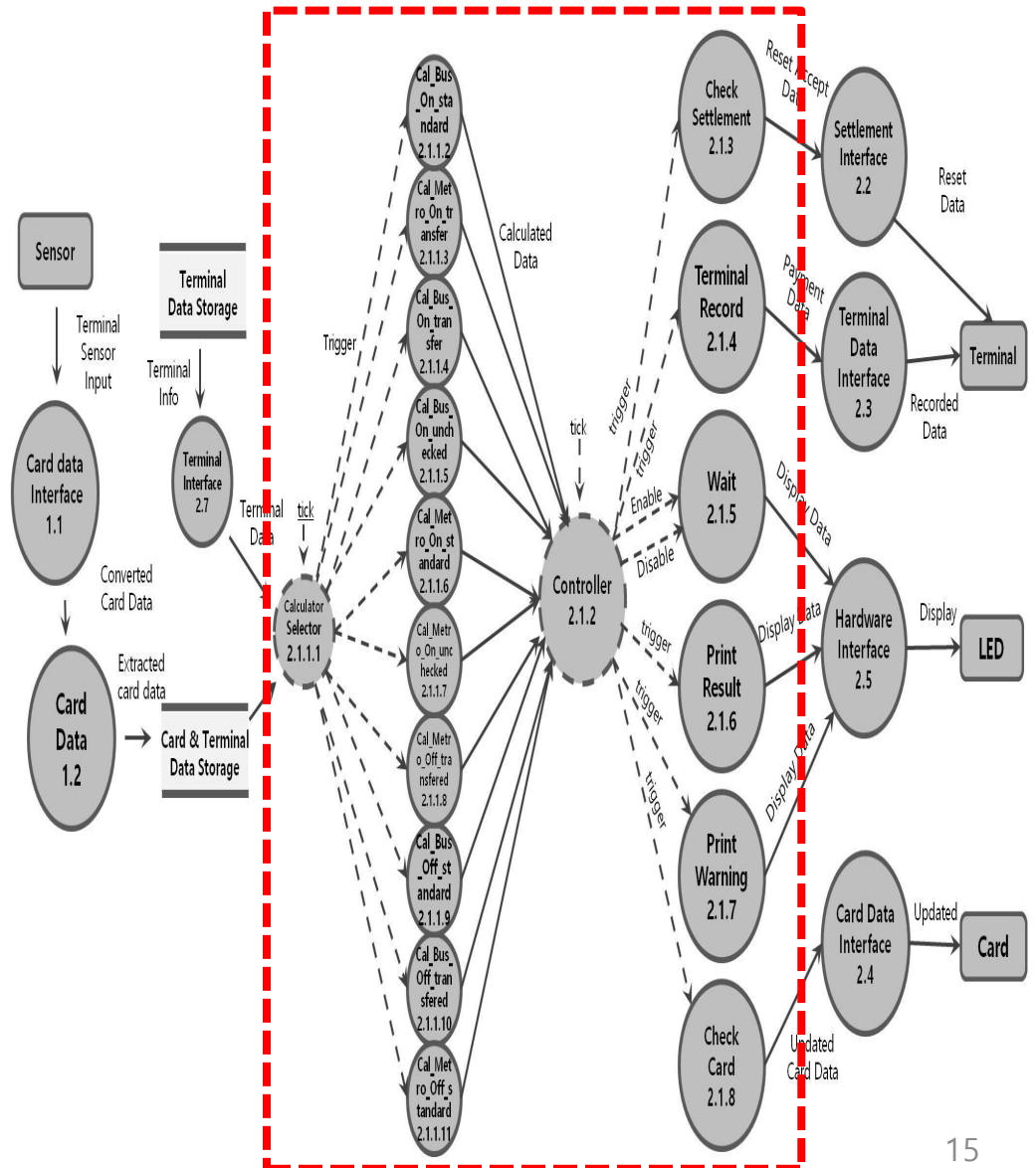
Features to be tested

Terminal System

Features to be tested

Terminal System

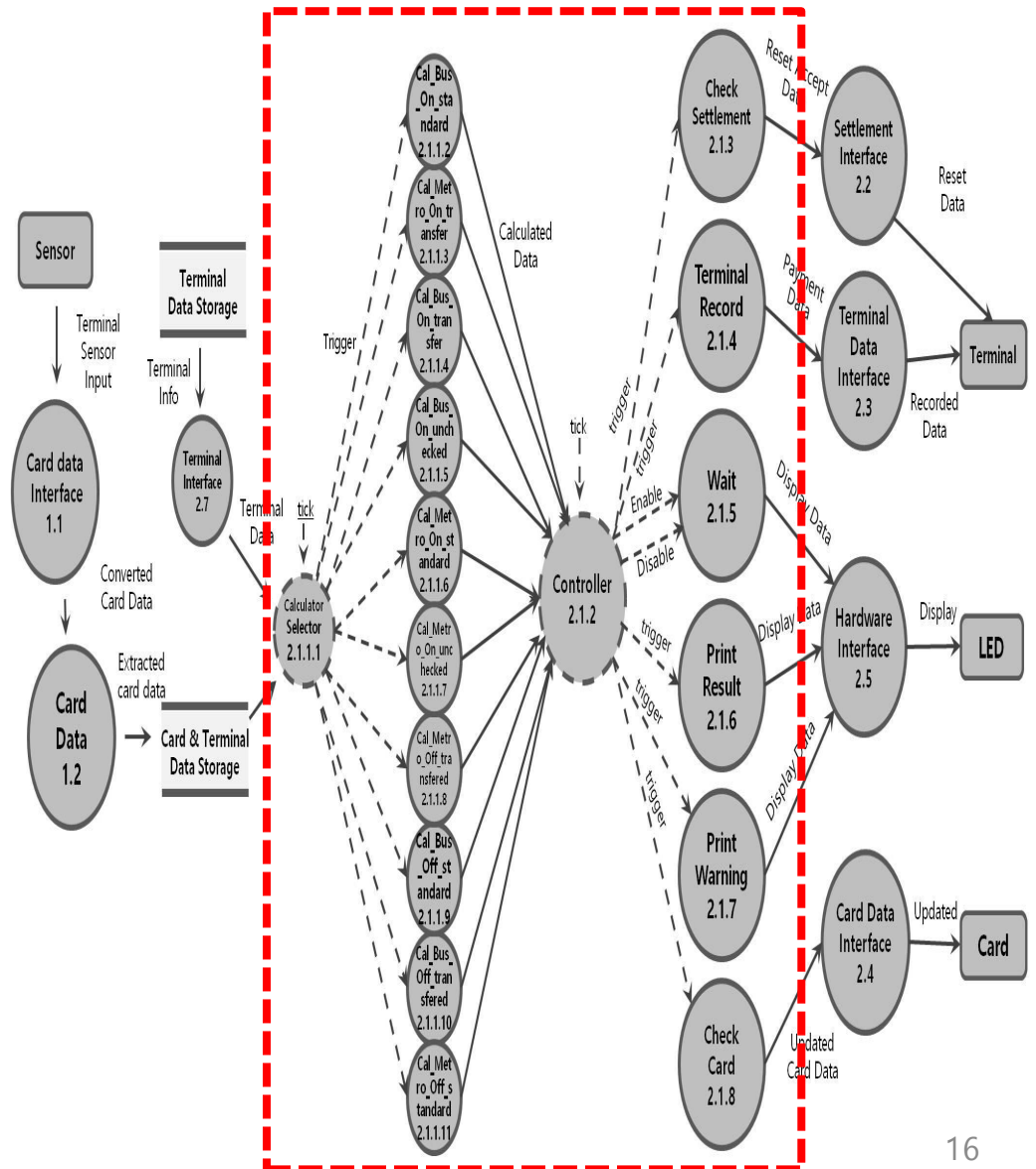
ID	Name
2.1.1.1	Calculator Selector
2.1.1.2	Cal_Bus_On_Standard
2.1.1.3	Cal_Bus_On_Transfer
2.1.1.4	Cal_Bus_On_Unchecked
2.1.1.5	Cal_Metro_On_Standard
2.1.1.6	Cal_Metro_On_Transfer
2.1.1.7	Cal_Metro_On_Unchecked
2.1.1.8	Cal_Bus_Off_Standard
2.1.1.9	Cal_Bus_Off_Transfer
2.1.1.10	Cal_Metro_Off_Standard
2.1.1.11	Cal_Metro_Off_Transfer



Features to be tested

Terminal System

ID	Name
2.1.2	Controller
2.1.3	Check Settlement
2.1.4	Terminal Record
2.1.6	Print Result
2.1.7	Print Warning
2.1.8	Check Card

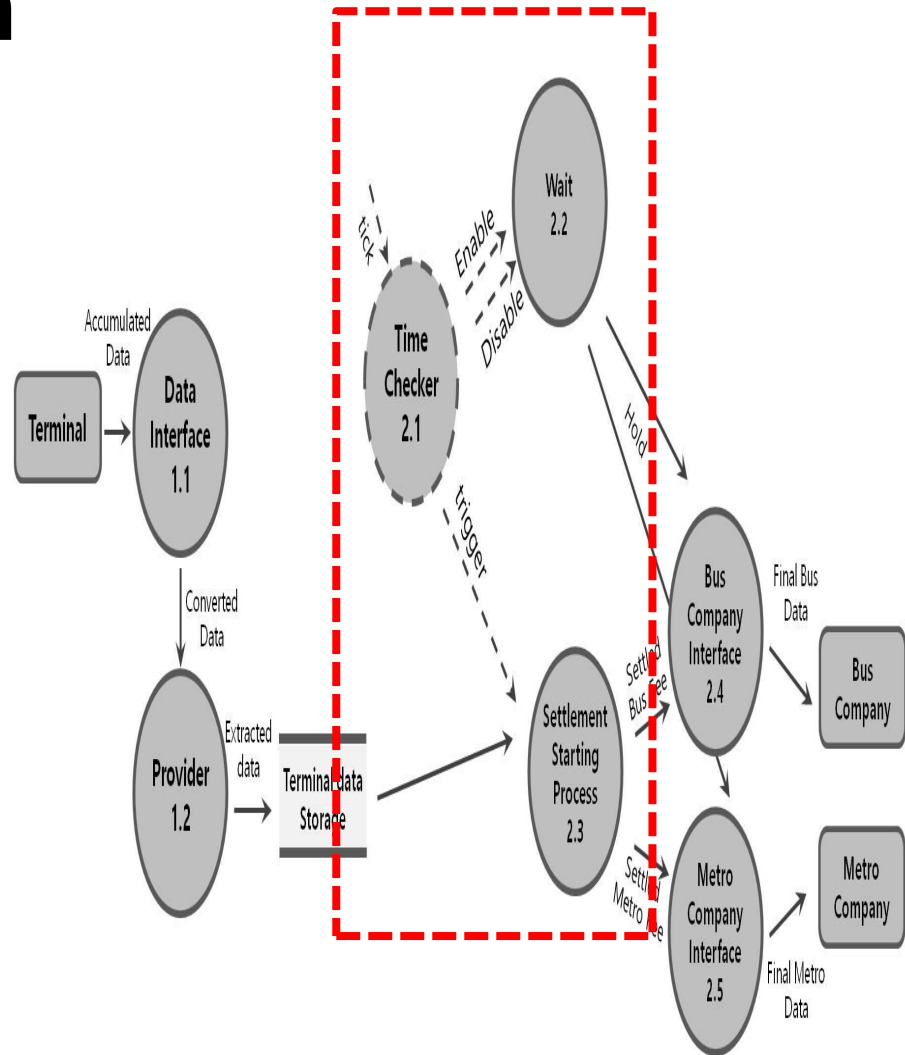


Settlement System

Features to be tested

Settlement System

ID	Name
2.1	Time Checker
2.2	Wait
2.3	Settlement Starting Process



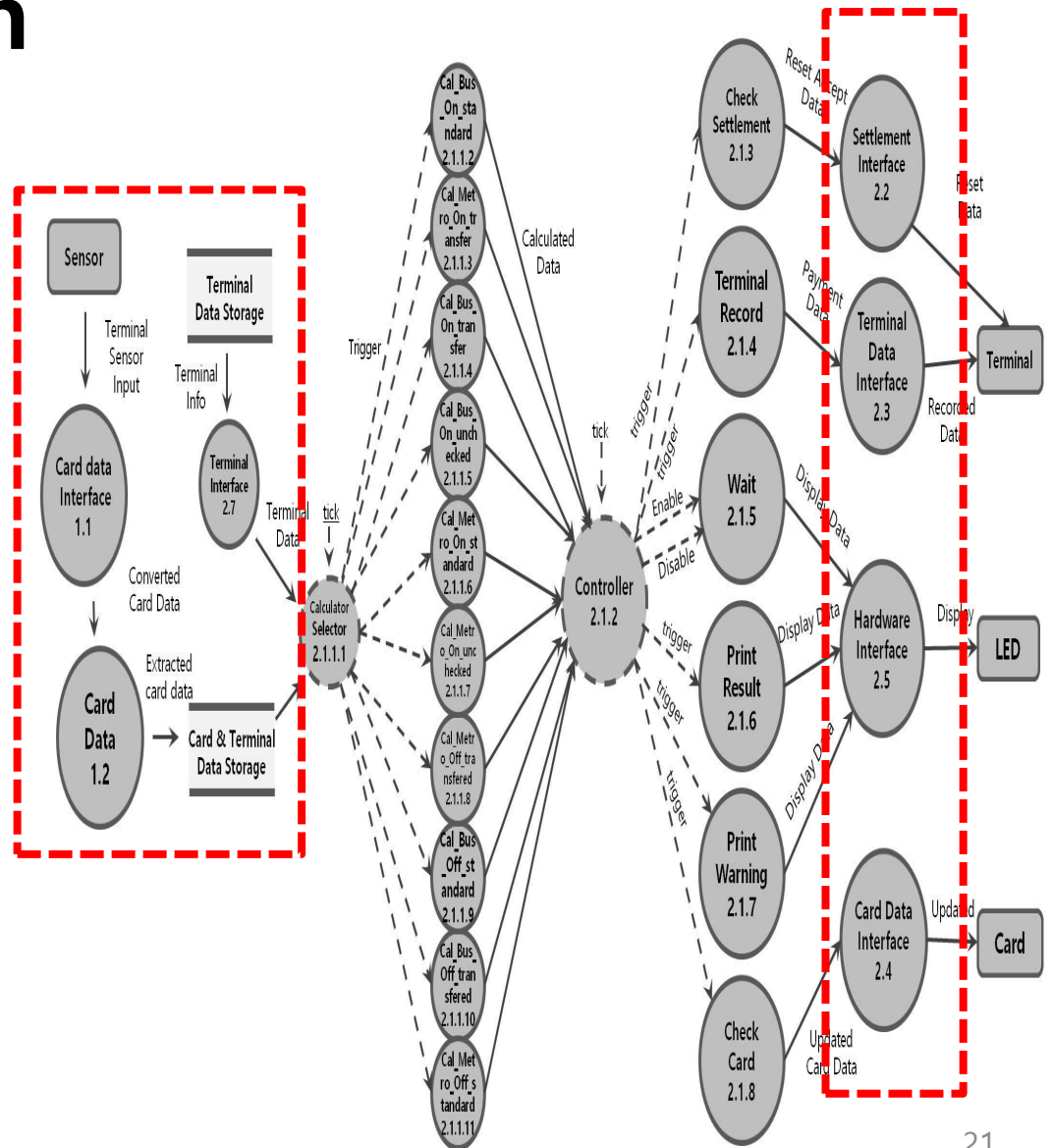
**Features
not to be tested**

Terminal System

Features not to be tested

Terminal System

ID	Name
1.1	Card Data Interface
1.2	Card Data
2.2	Settlement Interface
2.3	Terminal Interface
2.4	Card Data Interface
2.5	Hardware Interface
2.7	Terminal Interface

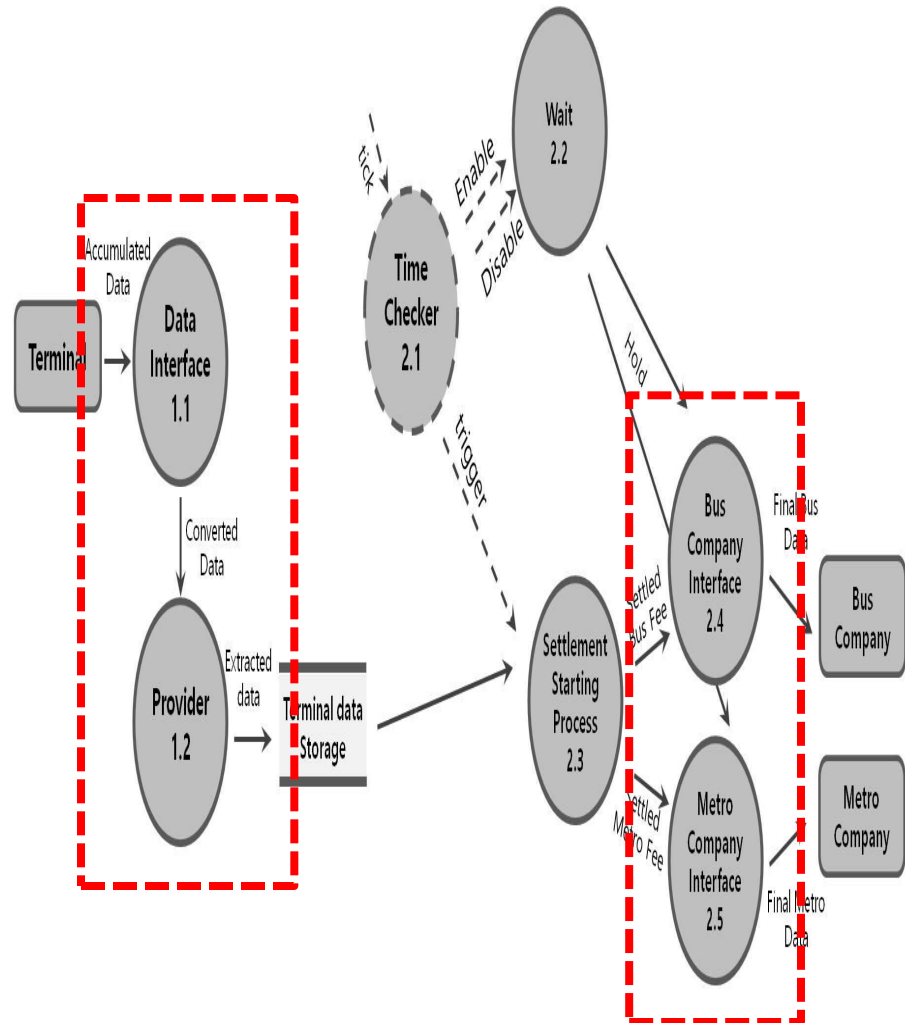


Settlement System

Features not to be tested

Settlement System

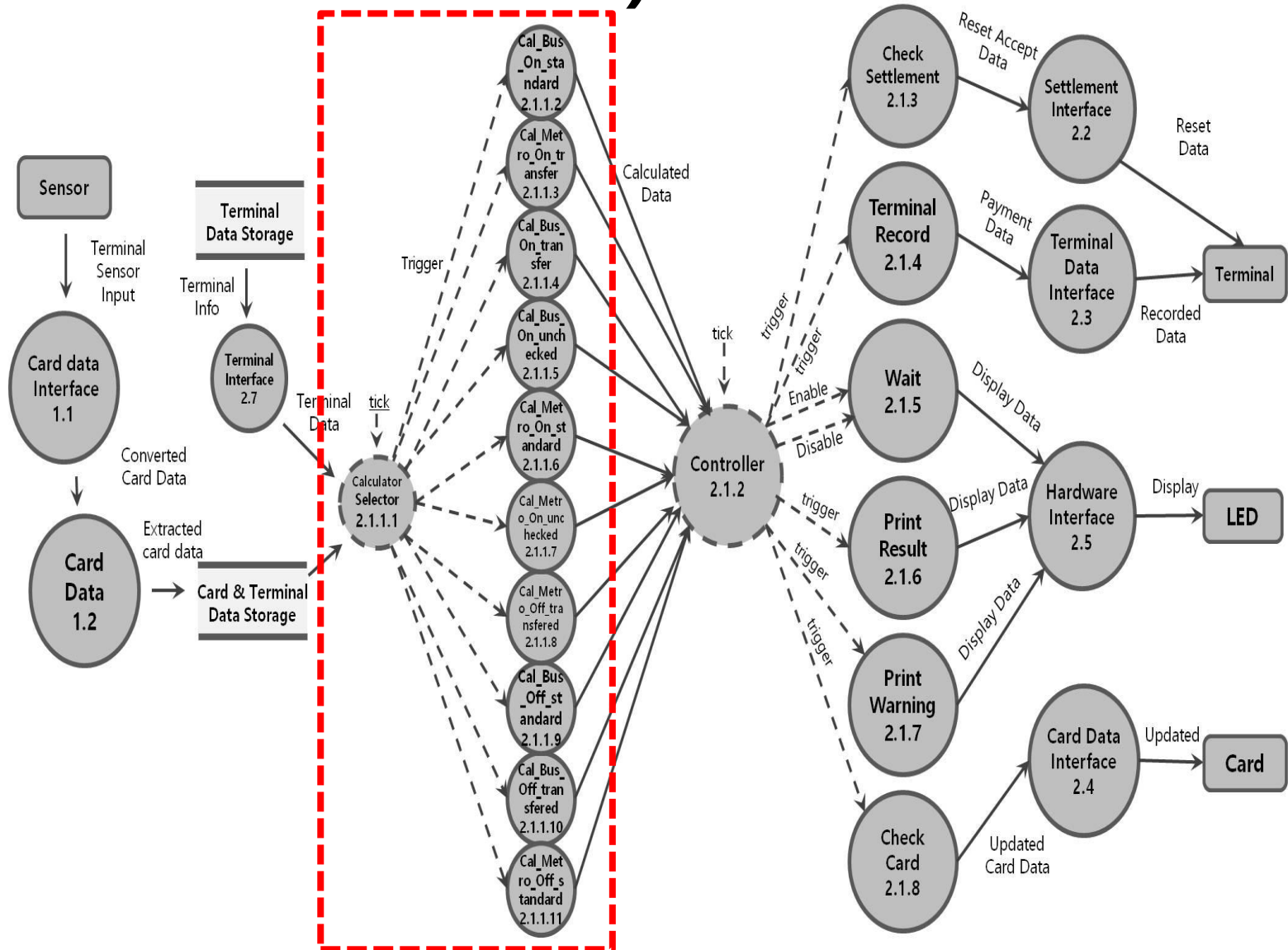
ID	Name
1.1	Data Interface
1.2	Provider
2.4	Bus Company Interface
2.5	Metro Company Interface



Test Identification

Terminal System

Test Identification (Calculator Selector)



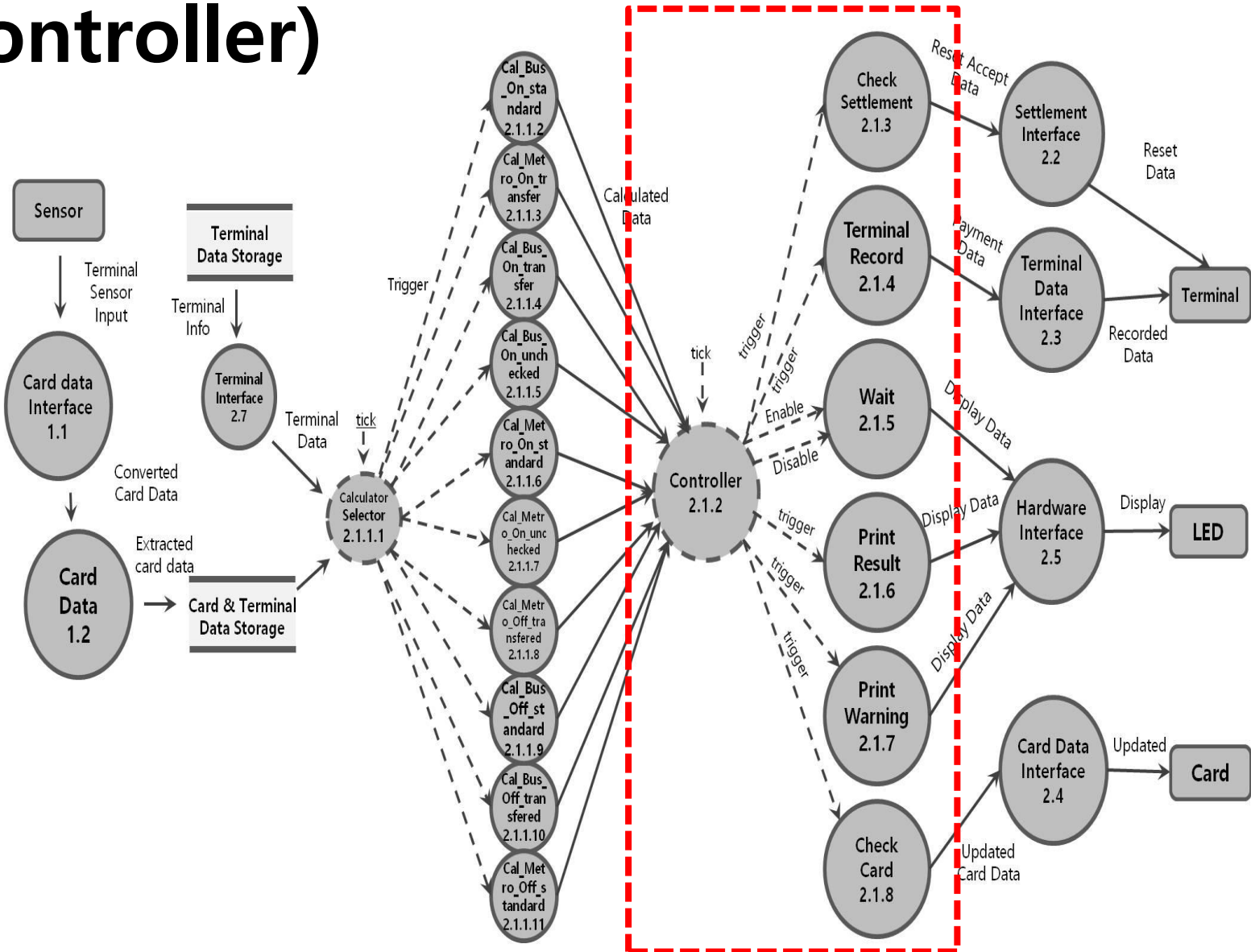
Test Identification (Calculator Selector)

Identifier	Feature(Process ID in DFD)	Valid / Invalid value
TEAM1_PTS_0_000_000	2.1.1.1.1 Calculator Selector	Card_Data Input : 200001014211,B,1,966900,0_30 200001014311,B,0,966900,0_31 Terminal_Data Input : 200001014211,B,1,0,0_30 200001014311,B,0,0,0_31
TEAM1_PTS_0_000_001	2.1.1.1.1 Calculator Selector	Card_Data Input : 200001015011,B,1,963750,0_36 200001015111,B,0,963750,0_37 Terminal_Data Input : 200001015011,B,1,1050,0_36 200001015111,B,0,0,0_37
TEAM1_PTS_0_000_002	2.1.1.1.1 Calculator Selector	Card_Data Input : 200001011111,T,0,983200,0_8 200001011111,T,1,982150,0_9 Terminal_Data Input : 200001010411,B,0,0,0_46 200001010511,M,1,0,1_63
TEAM1_PTS_0_000_003	2.1.1.1.1 Calculator Selector	Card_Data Input : 200001014611,B,0,966900,0_31 200001014711,B,1,965850,0_32 Terminal_Data Input : 200001014611,B,0,0,0_31 200001014711,B,1,1050,0_32

Test Identification (Calculator Selector)

Identifier	Feature(Process ID in DFD)	Valid / Invalid value
TEAM1_PTS_0_001_000	2.1.1.2 Cal_Bus_On_Standard	Data Input : ecd.on_board = 0, ecd.balance = 10000, ecd.Terminal_ID = 0, ecd.time1 = 200001011115, ecd.time2 = 200001011111, ecd.c_time = 200001011530, ecd.transportation = B, ecd.transportation1 = B, ecd.count = 5, etd.transportation = B, etd.Terminal_ID = 0, etd.count = 1
TEAM1_PTS_0_001_001	2.1.1.2 Cal_Bus_On_Standard	Data Input : ecd.on_board = 0, ecd.balance = 10000, ecd.Terminal_ID = 0, ecd.time1 = 200001011115, ecd.time2 = 200001011111, ecd.c_time = 201002011530, ecd.transportation = B, ecd.transportation1 = B, ecd.count = 5, etd.transportation = B, etd.Terminal_ID = 0, etd.count = 1
TEAM1_PTS_0_002_000	2.1.1.3 Cal_Bus_On_Transfer	Data Input : ecd.on_board = 0, ecd.balance = 8000, ecd.Terminal_ID = 3, ecd.time1 = 200001011115, ecd.time2 = 200001011111, ecd.c_time = 200001011530, ecd.transportation = M, ecd.transportation1 = M, ecd.count = 4, etd.transportation = B, etd.Terminal_ID = 0, etd.count = 1
TEAM1_PTS_0_003_000	2.1.1.4 Cal_Bus_On_Unchecked	Data Input : ecd.on_board = 0, ecd.balance = 10000, ecd.Terminal_ID = 3, ecd.time1 = 200001011115, ecd.time2 = 200001011111, ecd.c_time = 200001021530, ecd.transportation = B, ecd.transportation1 = M, ecd.count = 5, etd.transportation = B, etd.Terminal_ID = 0, etd.count = 1
TEAM1_PTS_0_003_001	2.1.1.4 Cal_Bus_On_Unchecked	Data Input : ecd.on_board = 0, ecd.balance = 10000, ecd.Terminal_ID = 3, ecd.time1 = 200001011115, ecd.time2 = 200001011111, ecd.c_time = 200001011530, ecd.transportation = M, ecd.transportation1 = M, ecd.count = 5, etd.transportation = B, etd.Terminal_ID = 0, etd.count = 1

Test Identification (Controller)

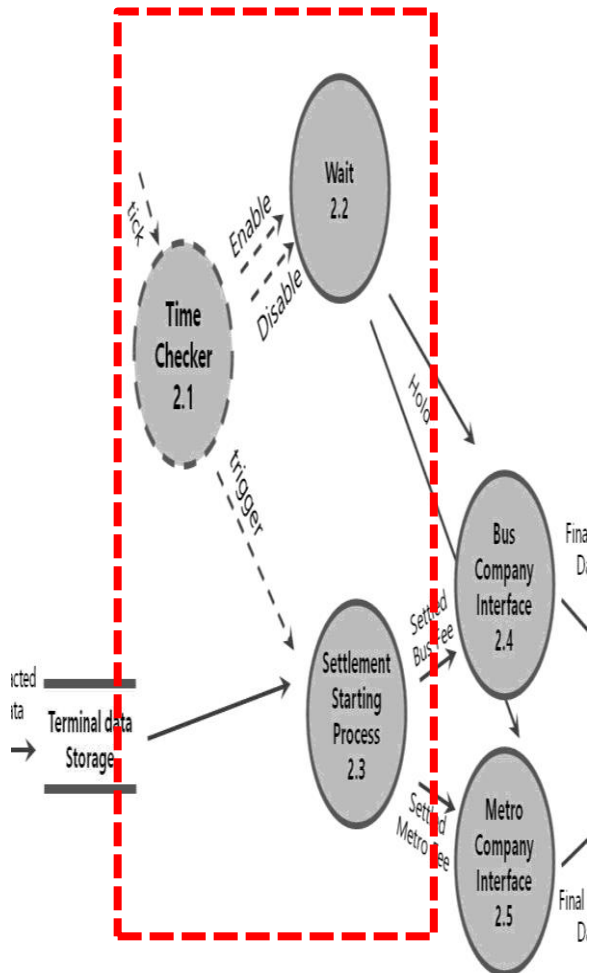


Test Identification (Controller)

Identifier	Feature(Process ID in DFD)	Valid / Invalid value
TEAM1_PTS_0_011_000	2.1.2 Controller	Data Input : hour == 0 && minute == 0
TEAM1_PTS_0_011_001	2.1.2 Controller	Data Input : hour == 0 && minute != 0
TEAM1_PTS_0_011_002	2.1.2 Controller	Data Input : hour != 0 && minute == 0
TEAM1_PTS_0_011_003	2.1.2 Controller	Data Input : hour != 0 && minute != 0
TEAM1_PTS_0_011_004	2.1.2 Controller	Data Input : cd.Calculated_Balance = 3000
TEAM1_PTS_0_011_005	2.1.2 Controller	Data Input : cd.Calculated_Balance = -1000
TEAM1_PTS_0_012_000	2.1.3 Check Settlement	Data Input : 정산 완료되었다는 파일 존재
TEAM1_PTS_0_012_001	2.1.3 Check Settlement	Data Input : 정산 완료되었다는 파일 존재하지 않음
TEAM1_PTS_0_013_000	2.1.4 Terminal Record	Data Input : cd.time = 201411210500, cd.transportation = B, cd.on_board = 1, cd.fee = 500, cd.Terminal_ID = 0, cd.count = 2
TEAM1_PTS_0_013_001	2.1.4 Terminal Record	Data Input : cd.time = 201411210530, cd.transportation = M, cd.on_board = 0, cd.fee = 500, cd.Terminal_ID = 3, cd.count = 1
TEAM1_PTS_0_014_000	2.1.6 Print Result	Data Input : cd.fee = 100, cd.Calculated_Balance = 500
TEAM1_PTS_0_014_001	2.1.6 Print Result	Data Input : cd.fee = 200, cd.Calculated_Balance = -100
TEAM1_PTS_0_015_000	2.1.7 Print Warning	Data Input : cd.fee = 250, cd.Calculated_Balance = 400
TEAM1_PTS_0_015_001	2.1.7 Print Warning	Data Input : cd.fee = 300, cd.Calculated_Balance = -200
TEAM1_PTS_0_016_000	2.1.8 Check Card	Data Input : cd.fee = 700, cd.Calculated_Balance = 0
TEAM1_PTS_0_016_001	2.1.8 Check Card	Data Input : cd.fee = 150, cd.Calculated_Balance = -50

Settlement System

Test Identification (TimeChecker)



Identifier	Feature(Process ID in DFD)	Valid / Invalid value
TEAM1_PTS_1_000_000	2.1 Time_Checker	time = "201411200000" Input
TEAM1_PTS_1_000_001	2.1 Time_Checker	time = "201411200100" Input
TEAM1_PTS_1_000_002	2.1 Time_Checker	time = "201411200008" Input
TEAM1_PTS_1_000_003	2.1 Time_Checker	time = "201411200108" Input
TEAM1_PTS_1_001_000	2.2 Wait	Enable Input
TEAM1_PTS_1_001_001	2.2 Wait	Disable Input
TEAM1_PTS_1_002_000	2.3 Settlement_Starting_Process	trigger , Stack ED={ 201411200008, M, 1, 1050 201411200124, M, 0, 400 201411200400, B, 1, 1050 201411200440, B, 0, 0 201411200600, B, 1, 1050 201411200800, B, 0, 0 } Input
TEAM1_PTS_1_002_001	2.3 Settlement_Starting_Process	trigger , Stack ED={ 201411200008, M, 1, 1050 201411200124, M, 0, 400 201411200400, B, 1, 1050 201411200440, B, 0, 0 201411200504, M, 1, 0 201411200600, M, 0, 300} Input
TEAM1_PTS_1_002_002	2.3 Settlement_Starting_Process	trigger , Stack ED={ 201411200400, B, 1, 1050 201411200440, B, 0, 0 201411200504, M, 1, 0 201411200600, M, 0, 300 201411200640, B, 1, 0 201411201448, B, 0, 200} Input

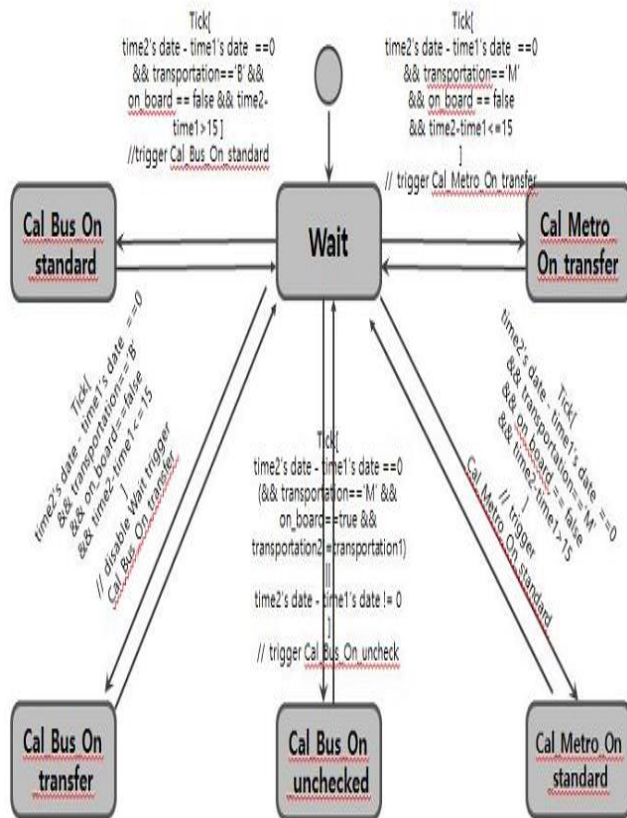
Test Identification (TimeChecker)

Identifier	Feature(Process ID in DFD)	Valid / Invalid value
TEAM1_PTS_1_002_003	2.3 Settlement_Starting_Process	trigger , Stack ED={ 201411200016, M, 1, 1050 201411200040, M, 0, 200 201411200232, B, 1, 0 201411201224, B, 0, 200 201411201400, M, 1, 0 201411201408, M, 0, 600 201411201416, B, 1, 0 201411201824, B, 0, 200} Input
TEAM1_PTS_1_002_004	2.3 Settlement_Starting_Process	trigger , Stack ED={ 201411200016, B, 1, 1050 201411200216, B, 0, 0 201411200616, B, 1, 1050 201411200624, B, 0, 0 201411200632, B, 1, 1050 201411200640, B, 0, 0} Input
TEAM1_PTS_1_002_005	2.3 Settlement_Starting_Process	trigger , Stack ED={ 201411200016, M, 1, 1050 201411200216, M, 0, 0 201411200616, M, 1, 1050 201411200624, M, 0, 0 201411200632, M, 1, 1050 201411200640, M, 0, 0} Input
TEAM1_PTS_1_002_006	2.3 Settlement_Starting_Process	trigger , Stack ED={ 201411200008, M, 1, 1050 201411200124, M, 0, 400 201411200400, B, 1, 1050 201411200440, B, 0, 0 201411200504, M, 1, 0} Input
TEAM1_PTS_1_002_007	2.3 Settlement_Starting_Process	trigger , Stack ED={ 201411200400, B, 1, 1050 201411200440, B, 0, 0 201411200504, M, 1, 0 201411200600, M, 0, 300 201411200640, B, 1, 0} Input

Test Case Specification

Terminal System

Test Case Specification (Calculator Selector)

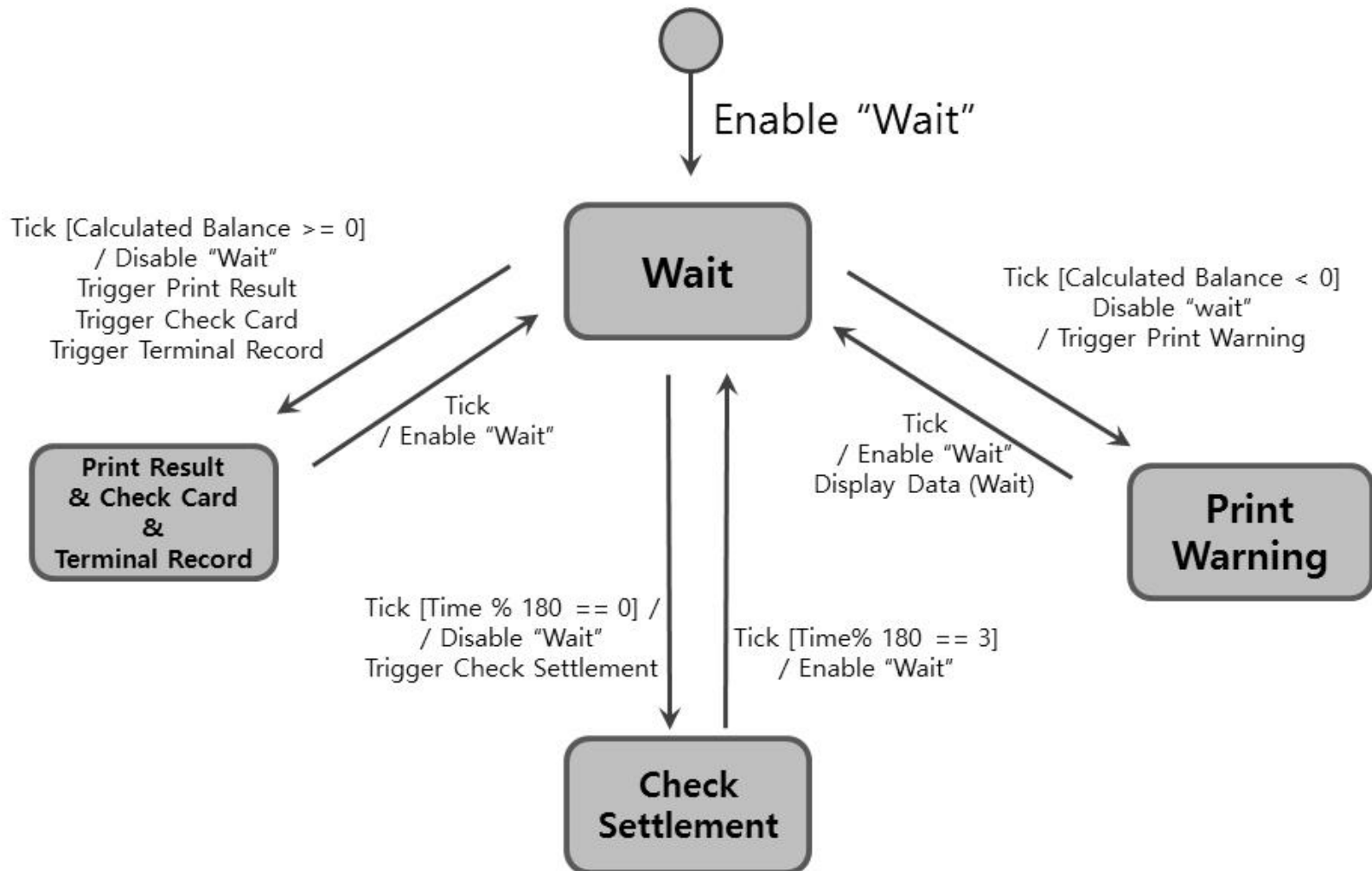


Test Case Identifier	Input Specification	Output Specification
TEAM1_PTS_0_000_000	Card_Data Input : 200001014211,B,1,966900,0_30 200001014311,B,0,966900,0_31 Terminal_Data Input : 200001014211,B,1,0,0_30 200001014311,B,0,0,0_31	Cal_Bus_On_Standard() 실행
TEAM1_PTS_0_000_001	Card_Data Input : 200001015011,B,1,963750,0_36 200001015111,B,0,963750,0_37 Terminal_Data Input : 200001015011,B,1,1050,0_36 200001015111,B,0,0,0_37	Cal_Bus_On_Standard() 실행
TEAM1_PTS_0_000_002	Card_Data Input : 200001011111,T,0,983200,0_8 200001011111,T,1,982150,0_9 Terminal_Data Input : 200001010411,B,0,0,0_46 200001010511,M,1,0,1_63	어떠한 함수도 실행되지 않음
TEAM1_PTS_0_000_003	Card_Data Input : 200001014611,B,0,966900,0_31 200001014711,B,1,965850,0_32 Terminal_Data Input : 200001014611,B,0,0,0_31 200001014711,B,1,1050,0_32	Cal_Bus_Off_Standard() 실행

Test Case Specification (Calculator Selector)

Test Case Identifier	Input Specification	Output Specification
TEAM1_PTS_0_001_000	Data Input : ecd.on_board = 0, ecd.balance = 10000, ecd.Terminal_ID = 0, ecd.time1 = 200001011115, ecd.time2 = 200001011111, ecd.c_time = 200001011530, ecd.transportation = B, ecd.transportation1 = B, ecd.count = 5, etd.transportation = B, etd.Terminal_ID = 0, etd.count = 1	cd.time = 200001011530, cd.transportation = B, cd.on_board = 1, cd.balance = 10000, cd.fee = 1050, cd.Calculated_Balance = 8950, cd.Terminal_ID = 0, cd.count = 1
TEAM1_PTS_0_001_001	Data Input : ecd.on_board = 0, ecd.balance = 10000, ecd.Terminal_ID = 0, ecd.time1 = 200001011115, ecd.time2 = 200001011111, ecd.c_time = 201002011530, ecd.transportation = B, ecd.transportation1 = B, ecd.count = 5, etd.transportation = B, etd.Terminal_ID = 0, etd.count = 1	Calculated Data가 생성되지 않음
TEAM1_PTS_0_002_000	Data Input : ecd.on_board = 0, ecd.balance = 8000, ecd.Terminal_ID = 3, ecd.time1 = 200001011115, ecd.time2 = 200001011111, ecd.c_time = 200001011530, ecd.transportation = M, ecd.transportation1 = M, ecd.count = 4, etd.transportation = B, etd.Terminal_ID = 0, etd.count = 1	cd.time = 200001011530, cd.transportation = B, cd.on_board = 1, cd.balance = 8000, cd.fee = 0, cd.Calculated_Balance = 8000, cd.Terminal_ID = 0, cd.count = 1
TEAM1_PTS_0_003_000	Data Input : ecd.on_board = 0, ecd.balance = 10000, ecd.Terminal_ID = 3, ecd.time1 = 200001011115, ecd.time2 = 200001011111, ecd.c_time = 200001021530, ecd.transportation = B, ecd.transportation1 = M, ecd.count = 5, etd.transportation = B, etd.Terminal_ID = 0, etd.count = 1	cd.time = 200001021530, cd.transportation = B, cd.on_board = 1, cd.balance = 10000, cd.fee = 700, cd.Calculated_Balance = 9300, cd.Terminal_ID = 0, cd.count = 1
TEAM1_PTS_0_003_001	Data Input : ecd.on_board = 0, ecd.balance = 10000, ecd.Terminal_ID = 3, ecd.time1 = 200001011115, ecd.time2 = 200001011111, ecd.c_time = 200001011530, ecd.transportation = M, ecd.transportation1 = M, ecd.count = 5, etd.transportation = B, etd.Terminal_ID = 0, etd.count = 1	cd.time = 200001011530, cd.transportation = B, cd.on_board = 1, cd.balance = 10000, cd.fee = 700, cd.Calculated_Balance = 9300, cd.Terminal_ID = 0, cd.count = 1

Test Case Specification (Controller)

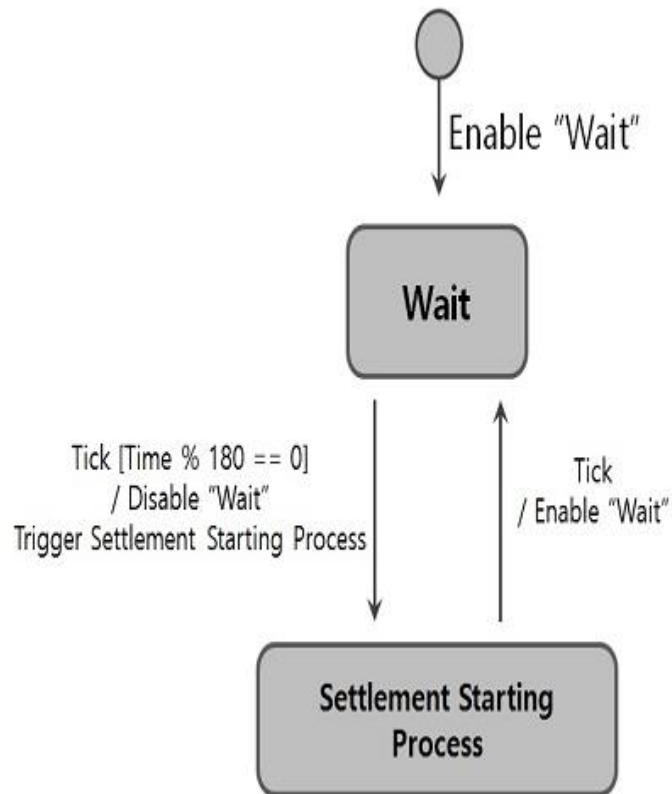


Test Case Specification (Controller)

Test Case Identifier	Input Specification	Output Specification
TEAM1_PTS_0_011_000	Data Input : hour == 0 && minute == 0	Check_Settlement() 실행
TEAM1_PTS_0_011_001	Data Input : hour == 0 && minute != 0	Wait() 실행
TEAM1_PTS_0_011_002	Data Input : hour != 0 && minute == 0	Wait() 실행
TEAM1_PTS_0_011_003	Data Input : hour != 0 && minute != 0	Wait() 실행
TEAM1_PTS_0_011_004	Data Input : cd.Calculated_Balance = 3000	Terminal_Record(), Print_Result(), Check_Card() 실행
TEAM1_PTS_0_011_005	Data Input : cd.Calculated_Balance = -1000	Print_Warning() 실행
TEAM1_PTS_0_012_000	Data Input : 정산 완료되었다는 파일 존재	rad.reset = 1
TEAM1_PTS_0_012_001	Data Input : 정산 완료되었다는 파일 존재하지 않음	rad.reset = 0
TEAM1_PTS_0_013_000	Data Input : cd.time = 201411210500, cd.transportation = B, cd.on_board = 1, cd.fee = 500, cd.Terminal_ID = 0, cd.count = 2	pd.time = 201411210500, pd.transportation = B, pd.on_board = 1, pd.fee = 500, pd.Terminal_ID = 0, pd.count = 2
TEAM1_PTS_0_013_001	Data Input : cd.time = 201411210530, cd.transportation = M, cd.on_board = 0, cd.fee = 500, cd.Terminal_ID = 3, cd.count = 1	pd.time = 201411210530, pd.transportation = M, pd.on_board = 0, pd.fee = 500, pd.Terminal_ID = 3, pd.count = 1
TEAM1_PTS_0_014_000	Data Input : cd.fee = 100, cd.Calculated_Balance = 500	fee = 100 Balance = 500
TEAM1_PTS_0_014_001	Data Input : cd.fee = 200, cd.Calculated_Balance = -100	Display Data 생성되지 않음
TEAM1_PTS_0_015_000	Data Input : cd.fee = 250, cd.Calculated_Balance = 400	Display Data 생성되지 않음
TEAM1_PTS_0_015_001	Data Input : cd.fee = 300, cd.Calculated_Balance = -200	“잔액이 부족합니다.”
TEAM1_PTS_0_016_000	Data Input : cd.fee = 700, cd.Calculated_Balance = 0	ucd.time = 201411210500, ucd.transportation = B ucd.on_board = 1, ucd.balance= 0, ucd.Terminal_ID = 0, ucd.count = 3;
TEAM1_PTS_0_016_001	Data Input : cd.fee = 150, cd.Calculated_Balance = -50	Updated Card Data 생성되지 않음

Settlement System

Test Case Specification (TimeChecker)



Test Case Identifier	Input Specification	Output Specification
TEAM1_PTS_1_000_000	time = "201411200000" Input	Settlement Start Process(), Wait() 실행
TEAM1_PTS_1_000_001	time = "201411200100" Input	Wait() 실행
TEAM1_PTS_1_000_002	time = "201411200008" Input	Wait() 실행
TEAM1_PTS_1_000_003	time = "201411200108" Input	Wait() 실행
TEAM1_PTS_1_001_000	Enable Input	Hold=true(1) Output
TEAM1_PTS_1_001_001	Disable Input	Hold=false(0) Output
TEAM1_PTS_1_002_000	trigger , Stack ED={ 201411200008, M, 1, 1050 201411200124, M, 0, 400 201411200400, B, 1, 1050 201411200440, B, 0, 0 201411200600, B, 1, 1050 201411200800, B, 0, 0 } Input	SF = { 201411200800, 201411200124, 2100, 1400 }Output
TEAM1_PTS_1_002_001	trigger , Stack ED={ 201411200008, M, 1, 1050 201411200124, M, 0, 400 201411200400, B, 1, 1050 201411200440, B, 0, 0 201411200504, M, 1, 0 201411200600, M, 0, 300} Input	SF = { 201411200440, 201411200600, 591, 2209 }Output
TEAM1_PTS_1_002_002	trigger , Stack ED={ 201411200400, B, 1, 1050 201411200440, B, 0, 0 201411200504, M, 1, 0 201411200600, M, 0, 300 201411200640, B, 1, 0 201411201448, B, 0, 200} Input	SF = { 201411201448, 201411200600, 976, 574 }Output

Test Case Specification (TimeChecker)

Test Case Identifier	Input Specification	Output Specification
TEAM1_PTS_1_002_003	trigger , Stack ED={ 201411200016, M, 1, 1050 201411200040, M, 0, 200 201411200232, B, 1, 0 201411201224, B, 0, 200 201411201400, M, 1, 0 201411201408, M, 0, 600 201411201416, B, 1, 0 201411201824, B, 0, 200} Input	SF = { 201411201824, 201411201408, 1042, 1408 }Output
TEAM1_PTS_1_002_004	trigger , Stack ED={ 201411200016, B, 1, 1050 201411200216, B, 0, 0 201411200616, B, 1, 1050 201411200624, B, 0, 0 201411200632, B, 1, 1050 201411200640, B, 0, 0} Input	SF = { 201411200640, NULL, 3150, NULL }Output
TEAM1_PTS_1_002_005	trigger , Stack ED={ 201411200016, M, 1, 1050 201411200216, M, 0, 0 201411200616, M, 1, 1050 201411200624, M, 0, 0 201411200632, M, 1, 1050 201411200640, M, 0, 0} Input	SF = { NULL, 201411200640, NULL, 3150 }Output
TEAM1_PTS_1_002_006	trigger , Stack ED={ 201411200008, M, 1, 1050 201411200124, M, 0, 400 201411200400, B, 1, 1050 201411200440, B, 0, 0 201411200504, M, 1, 0} Input	SF = { 201411200440, 201411200504, 1050, 1450 }Output
TEAM1_PTS_1_002_007	trigger , Stack ED={ 201411200400, B, 1, 1050 201411200440, B, 0, 0 201411200504, M, 1, 0 201411200600, M, 0, 300 201411200640, B, 1, 0} Input	SF = { 201411200640, 201411200600, 591, 759 }Output

Q & A