Public Transportation System

2

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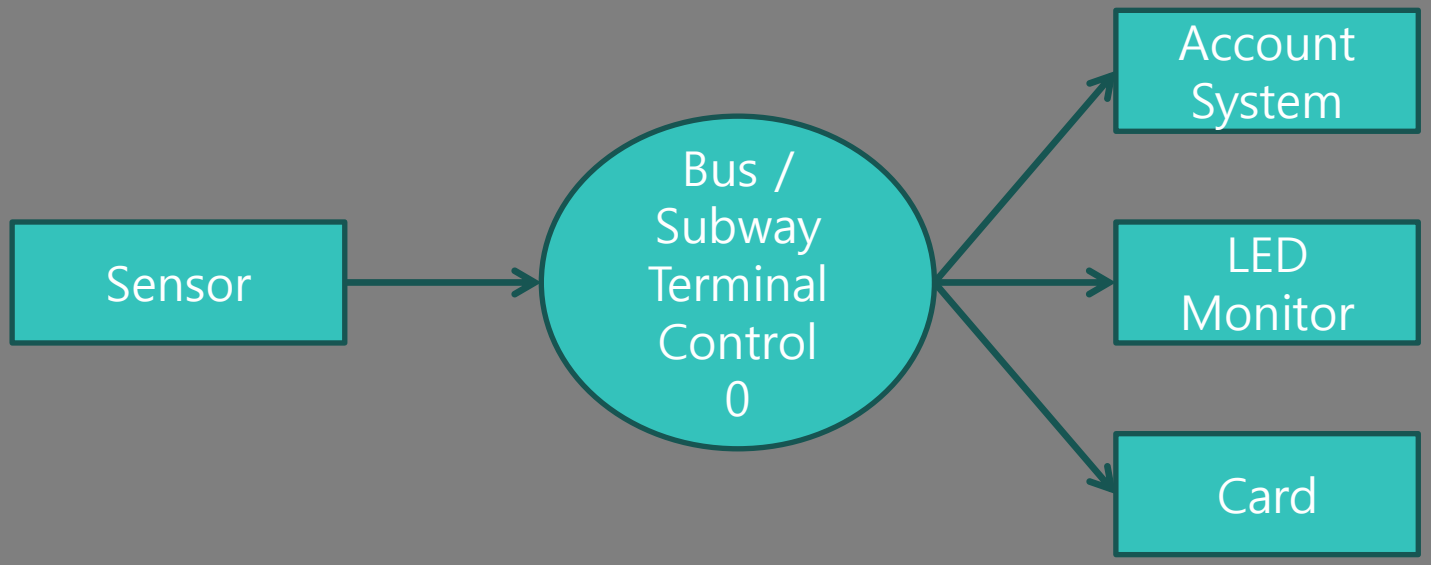
목차

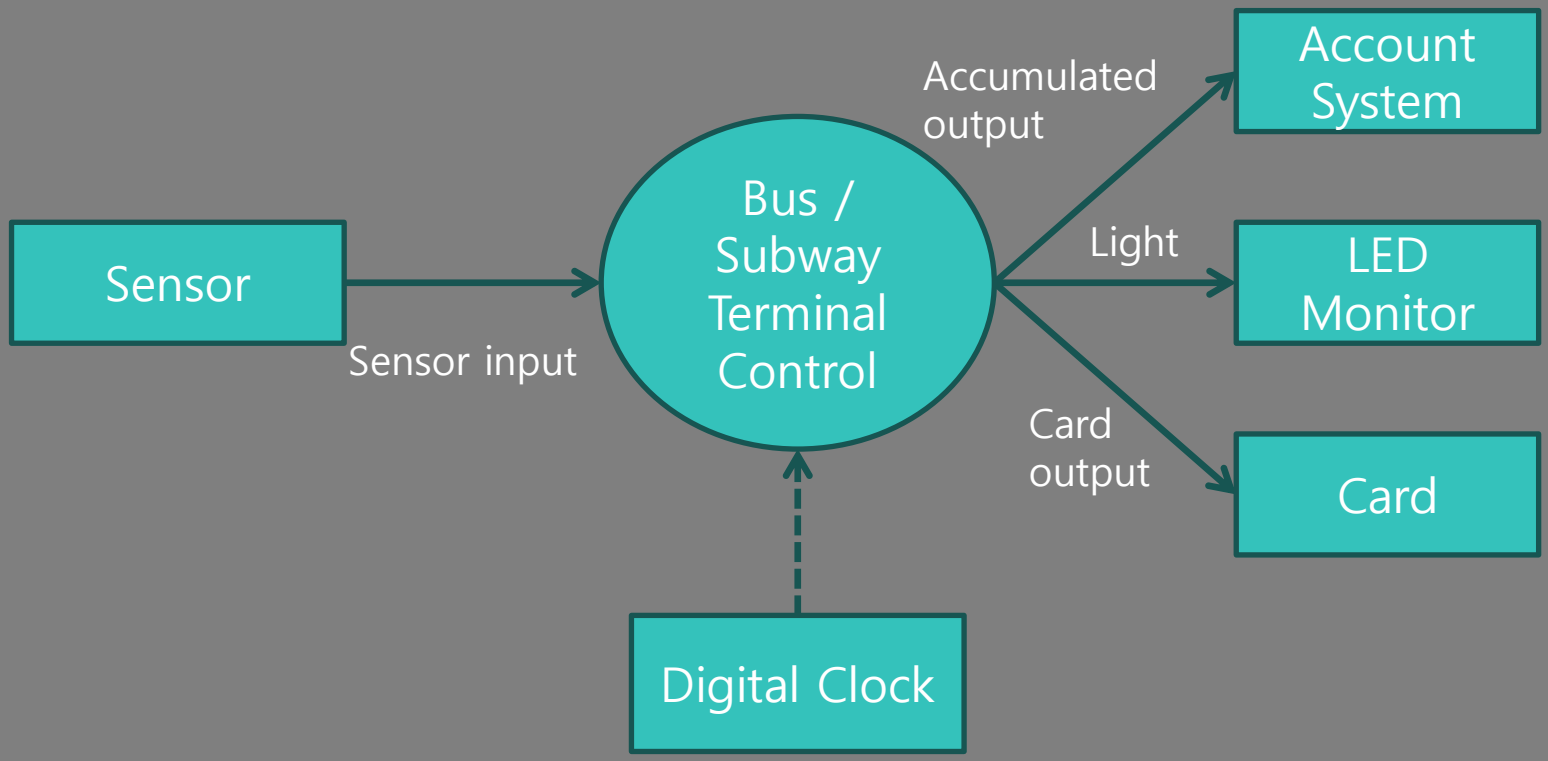
System Context Diagram - Terminal



Event List

Input/Output Event	Description
Sensor Input	When card is tagged, it is transmitted to inform controller of card information
Accumulated Output	transmits the calculated information to Account System
Light	Display commands to the LED Monitor
Card Output	Re-enter the information of the card when it is allowed on bo ard

DFD (Level 0)


Account System
Accumulated output
Bus / Subway Terminal Control
Sensor
Light
LED Monitor
Sensor input
Card output
Card
Digital Clock

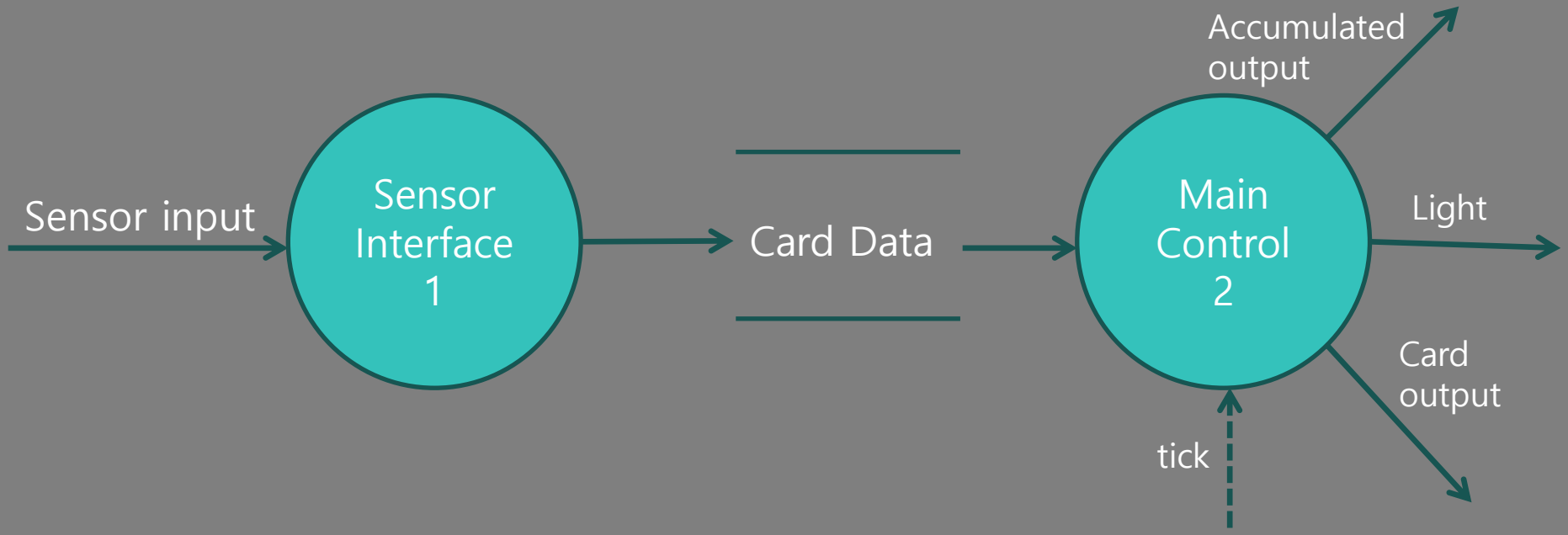
Process Specification

Reference No.	0
Name	Bus / Subway Terminal Control
Input	Sensor Input , Tick
Output	Accumulated Output, Light, Card Output
Process Description	It is main of Terminal System.

Data Dictionary

Input/Output Event	Description	Format/Type
Sensor Input	When card is tagged, it is transmitted to inform Terminal Control	Ture/False,Interrupt
Accumulated Output	transmits the calculated information to Acc ount System	Stirng, double
Light	Display commands to the LED Monitor	True/False,Interrupt
Card Output	Re-enter the information of the card when it is allowed on board	String, double

DFD (Level 1)


Sensor input
Sensor Interface 1
Card Data
Main Control 2
Accumulated output
Light
Card output
tick

Process Specification

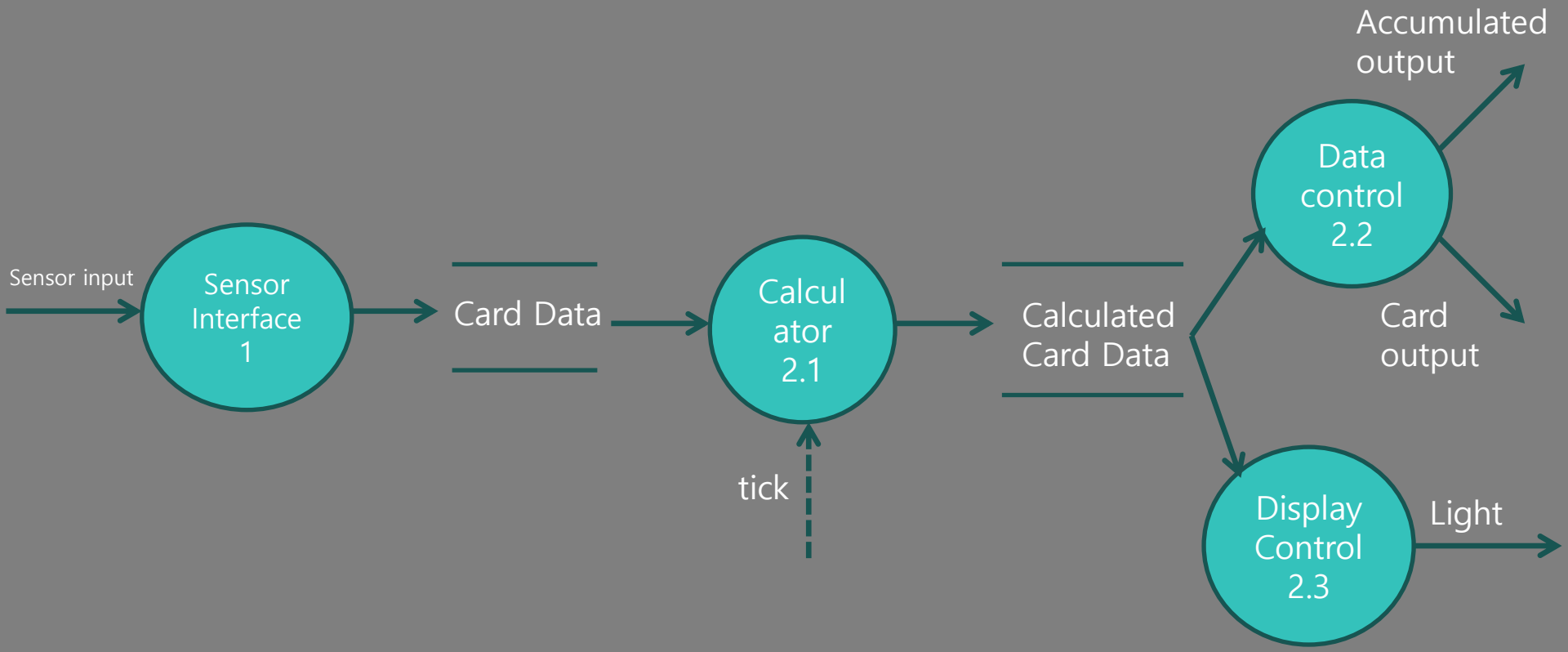
Reference No.	1
Name	Sensor Interface
Input	Sensor Input
Output	Card Data
Process Description	When card is tagged, it is transmitted Card Data to Main Control

Reference No.	2
Name	Main Control
Input	Card Data, tick
Output	Accumulated Output, Light, Card Output
Process Description	It is controller that involved in operating about all process. When it loads data value from data repository, it commands a couple of processes to operate some functions on Account System, LED Monitor and Card

Data Dictionary

Data Name	Description
Card Data	It is include Time, Means, In/Out, Balance, Terminal and Transfer Data

DFD (Level 2)


Accumulated output
Data control 2.2
Sensor input
Sensor Interface 1
Card Data
Calcul ator 2.1
Calculated Card Data
Card output
tick
Display Control 2.3
Light

Process Specification

Reference No.	2.1
Name	Calculator
Input	Card Data, Tick
Output	Calculated Card Data, Time data
Process Description	Using the card information and time date calculates the fare and permit boarding. Then, create a new information to restore on the card

Reference No.	2.2
Name	Data Control
Input	Calculated Card Data, Time Data
Output	Accumulated Output, Card Output
Process Description	Sending the Accumulated Data to Account System and the Calculated Card Data to Card.

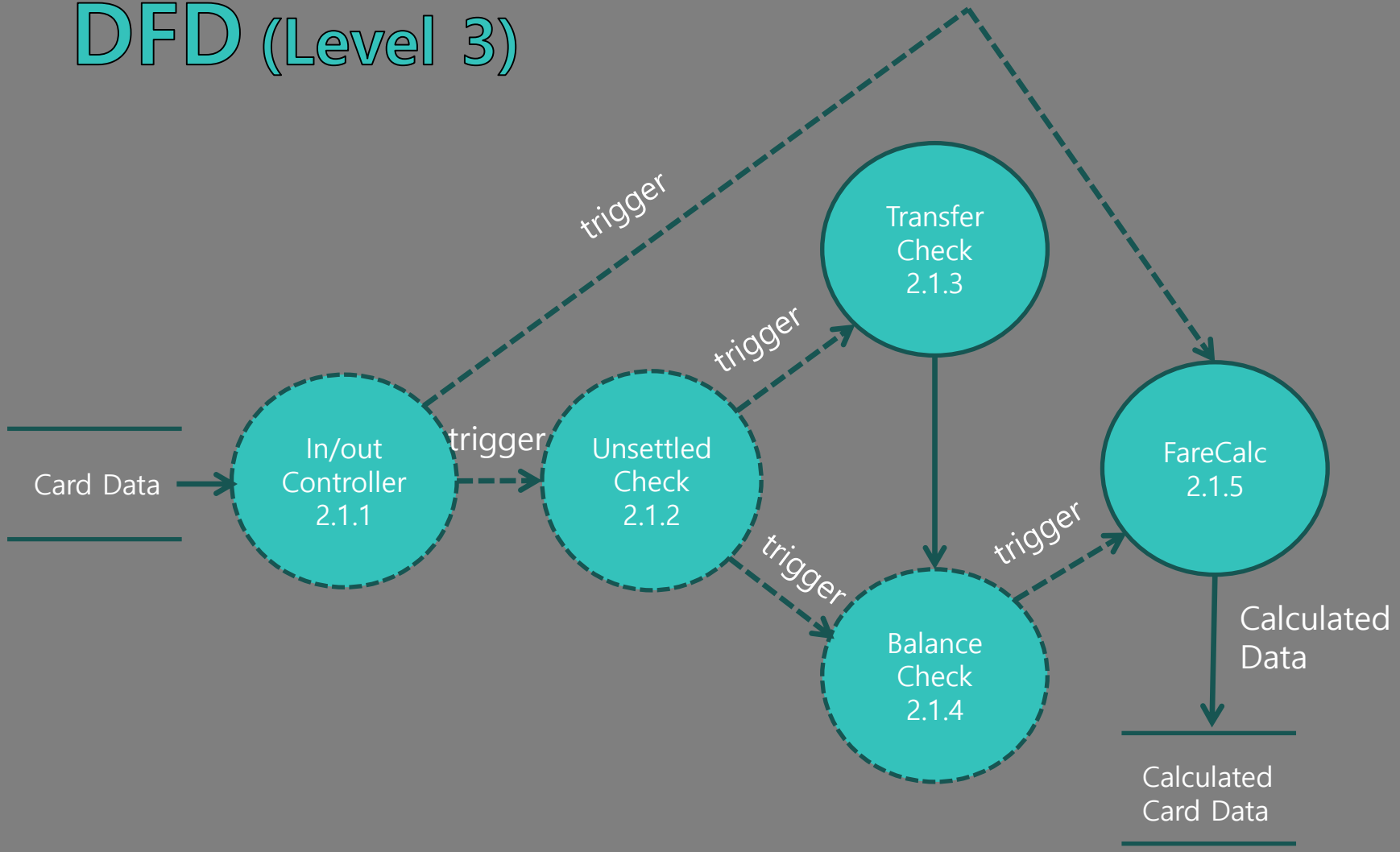
Process Specification

Reference No.	2.3
Name	Display Control
Input	Calculated Card Data, Time Data
Output	Light
Process Description	Using the Calculated Card Data and Time Data send the information to be output to the LED Monitor

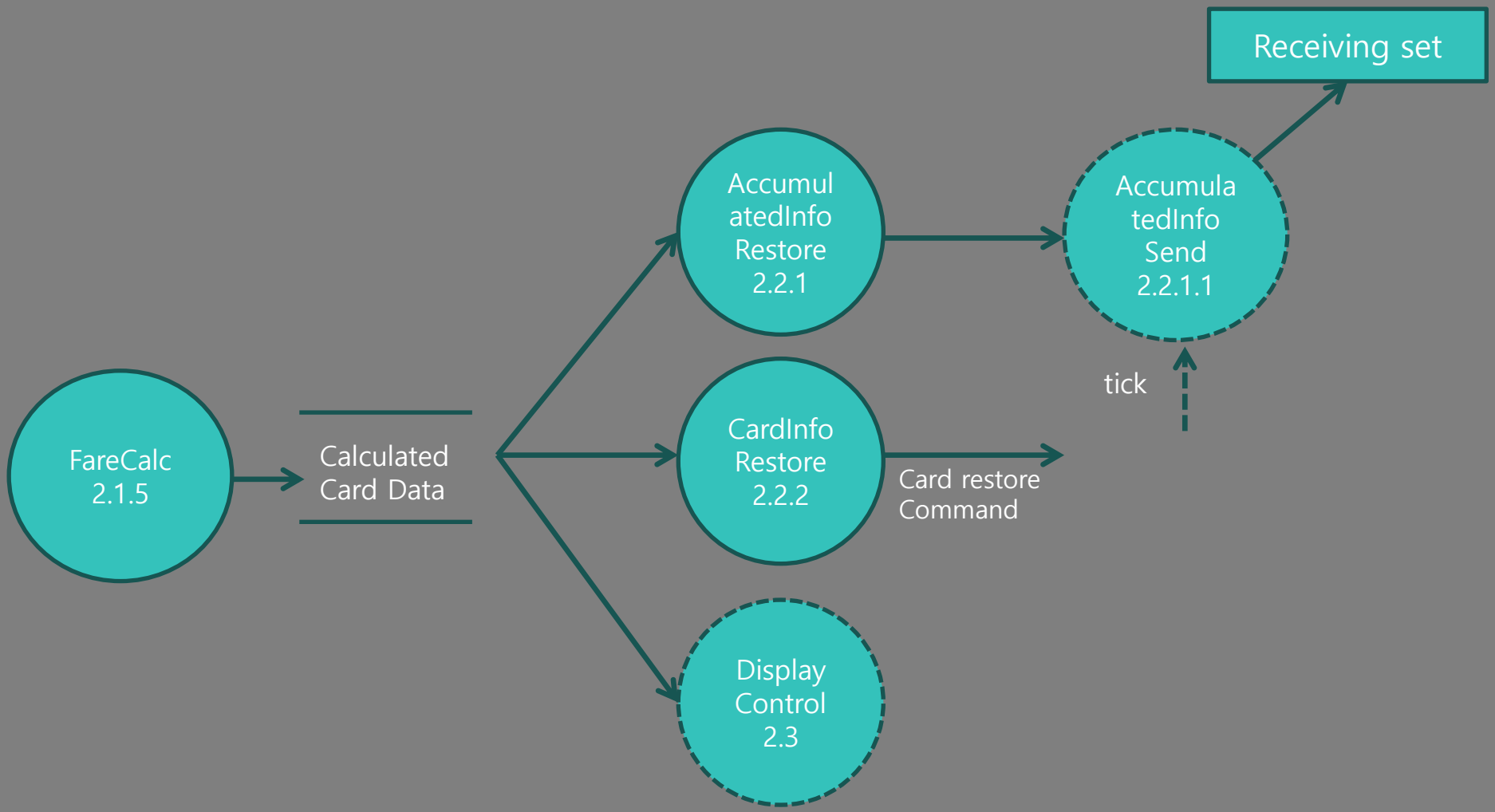
Data Dictionary

Data Name	Description
Calculated Card Data	It is calculated the card data includes Time, Means, In/Out, Balance, Terminal and Transfer Data

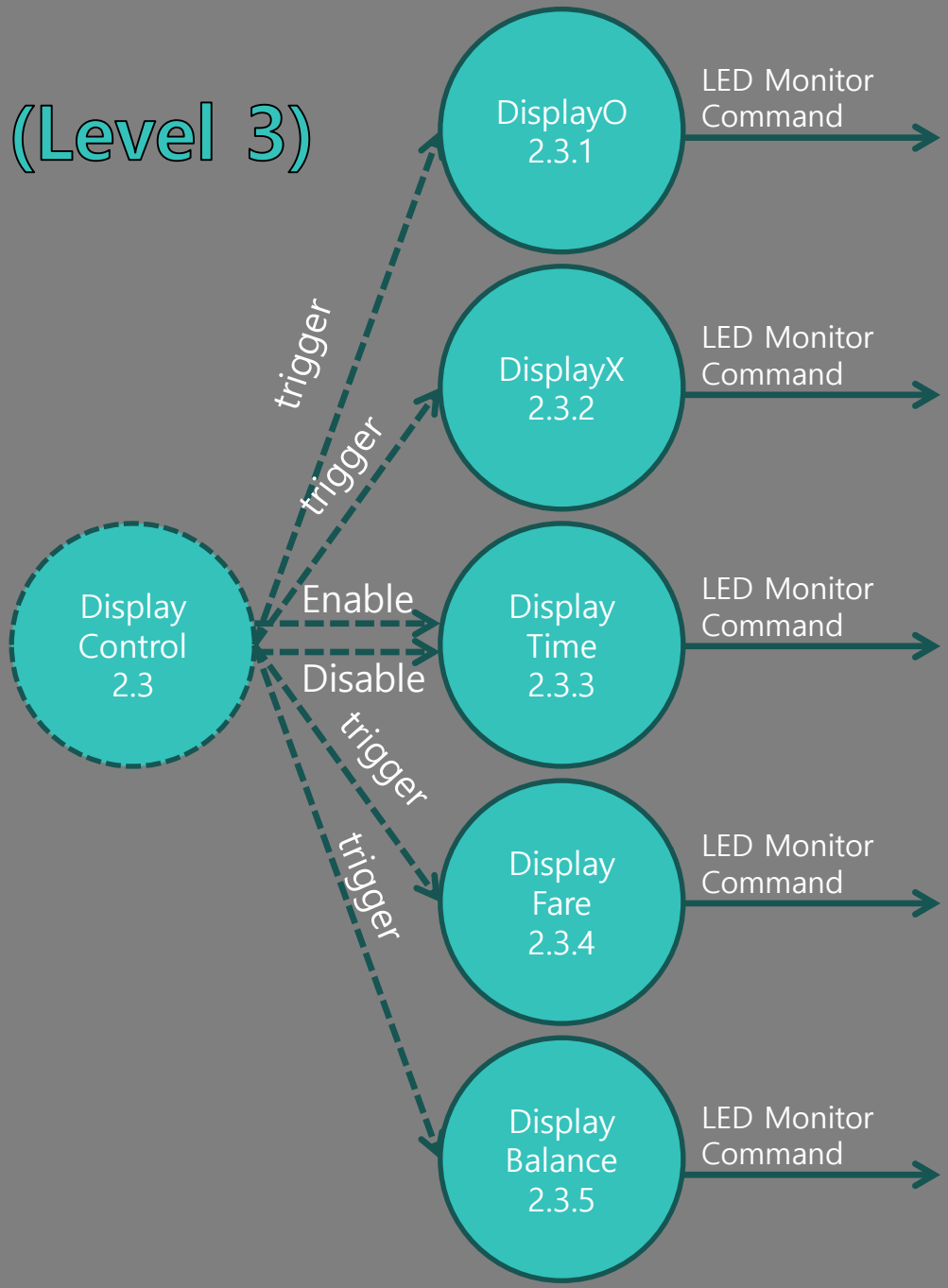
DFD (Level 3)


Card Data
In/out Controller 2.1.1
trigger
Unsettled Check 2.1.2
trigger
Transfer Check 2.1.3
trigger
trigger
Balance Check 2.1.4
trigger
FareCalc 2.1.5
Calculated Data
Calculated Card Data

DFD (Level 3)


Receiving set
Accumul
atedInfo
Restore
2.2.1
Accumula
tedInfo
Send
2.2.1.1
tick
FareCalc
2.1.5
Calculated
Card Data
CardInfo
Restore
2.2.2
Card restore
Command
Display
Control
2.3

DFD (Level 3)


DisplayO
2.3.1
LED Monitor
Command
DisplayX
2.3.2
LED Monitor
Command
Display
Control
2.3
trigger
trigger
Enable
Disable
Display
Time
2.3.3
LED Monitor
Command
trigger
trigger
Display
Fare
2.3.4
LED Monitor
Command
Display
Balance
2.3.5
LED Monitor
Command

Process Specification

Reference No.	2.1.1
Name	In/Out Controller
Input	Card Data
Output	Trigger
Process Description	Check the card is In/Out and sends True/False data

Reference No.	2.1.2
Name	Unsettled Check
Input	Trigger
Output	Trigger
Process Description	Check the card is unsettled and sends True/False data

Process Specification

Reference No.	2.1.3
Name	Transfer Check
Input	Trigger
Output	Transfer Data(include Card Data)
Process Description	Check the card is Transfer and sends the Transfer data

Reference No.	2.1.4
Name	Balance Check
Input	Transfer Data(include Card Data)
Output	Trigger
Process Description	Compare Balance with Fare and sends Trigger Data

Process Specification

Reference No.	2.1.5
Name	FareCalc
Input	Trigger
Output	Calculated Data
Process Description	Caluculate the Fare and sends Calculated Data

Reference No.	2.2.1
Name	Accumulated Info Restore
Input	Calculated Card Data
Output	Accumulated Data
Process Description	Using the Calculated Card Data sends Accumulated Data

Process Specification

Reference No.	2.2.2
Name	Card Info Restore
Input	Calculated Card Data
Output	Card Restore Command
Process Description	Sending the Calculated Card Data to Card

Reference No.	2.2.3
Name	Display Control
Input	Calculated Card Data
Output	Triiger
Process Description	Using the Caculated Card Data and sends Trigger

Process Specification

Reference No.	2.2.1.1
Name	Accumulated Info Send
Input	Accumulated Data, Tick
Output	Accumulated Data
Process Description	When Settlement Time sending Accumulated Date to Account System

Reference No.	2.3.1
Name	DisplayO
Input	Triiger
Output	LED Monitor Command
Process Description	When allowed to boarding sends the command to LED Monitor

Process Specification

Reference No.	2.3.2
Name	DisplayX
Input	Triiger
Output	LED Monitor Command
Process Description	When not allowed to boarding sends the command to LED Monitor

Reference No.	2.3.3
Name	DisplayTime
Input	Enable/Disable
Output	LED Monitor Command
Process Description	After receiving Enable/Disable value from Display Control, it sends LED Monitor Command to LED Monitor Interface in order to show or hide Time.

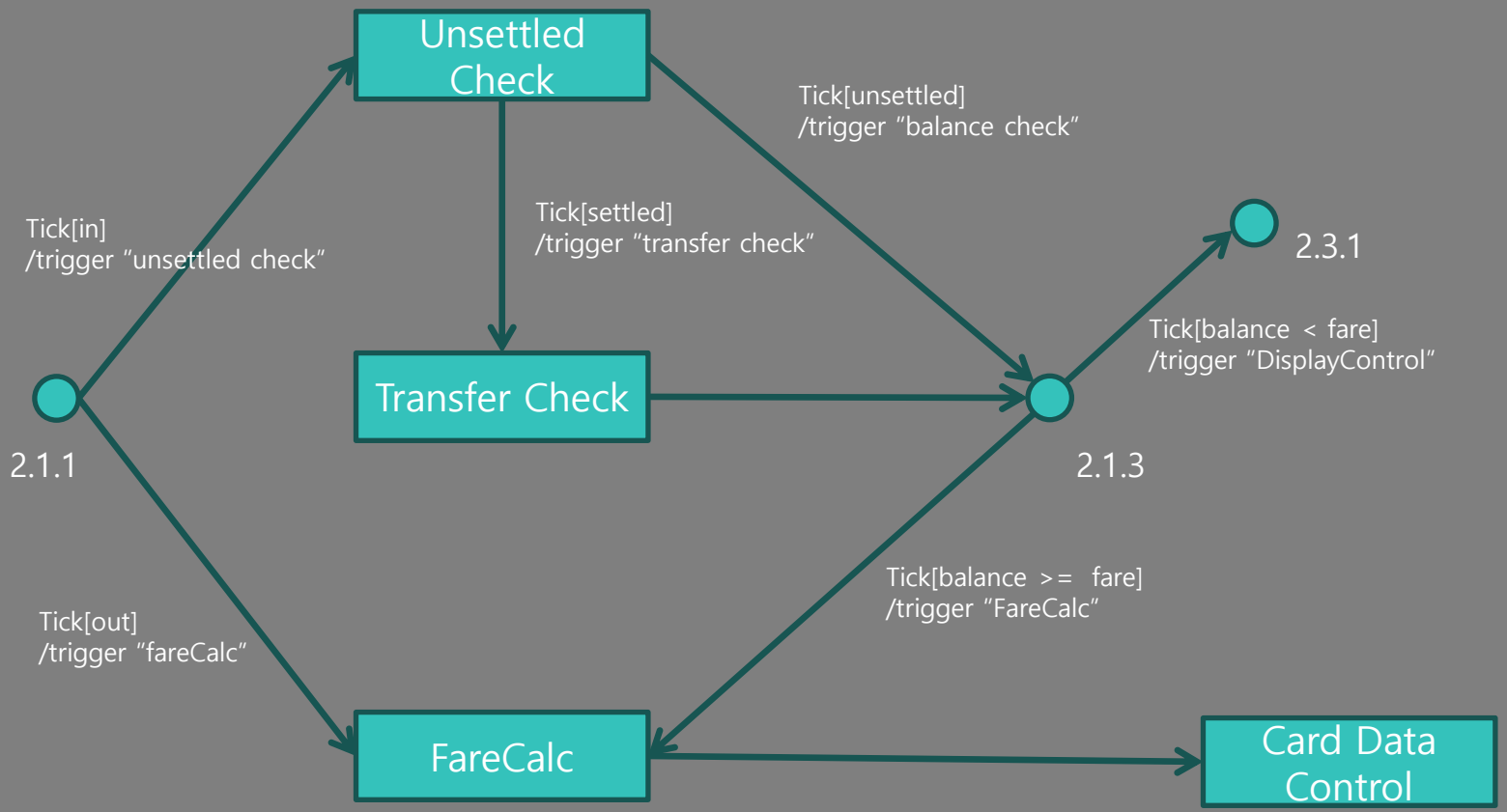
Process Specification

Reference No.	2.3.4
Name	DisplayFare
Input	Triiger
Output	LED Monitor Command
Process Description	When allowed to boarding and leaveing Bus/Subway sends the command to LED Monitor

Reference No.	2.2.1
Name	DisplayBalance
Input	Triiger
Output	LED Monitor Command
Process Description	When allowed to boarding and leaveing Bus/Subway sends the command to LED Monitor

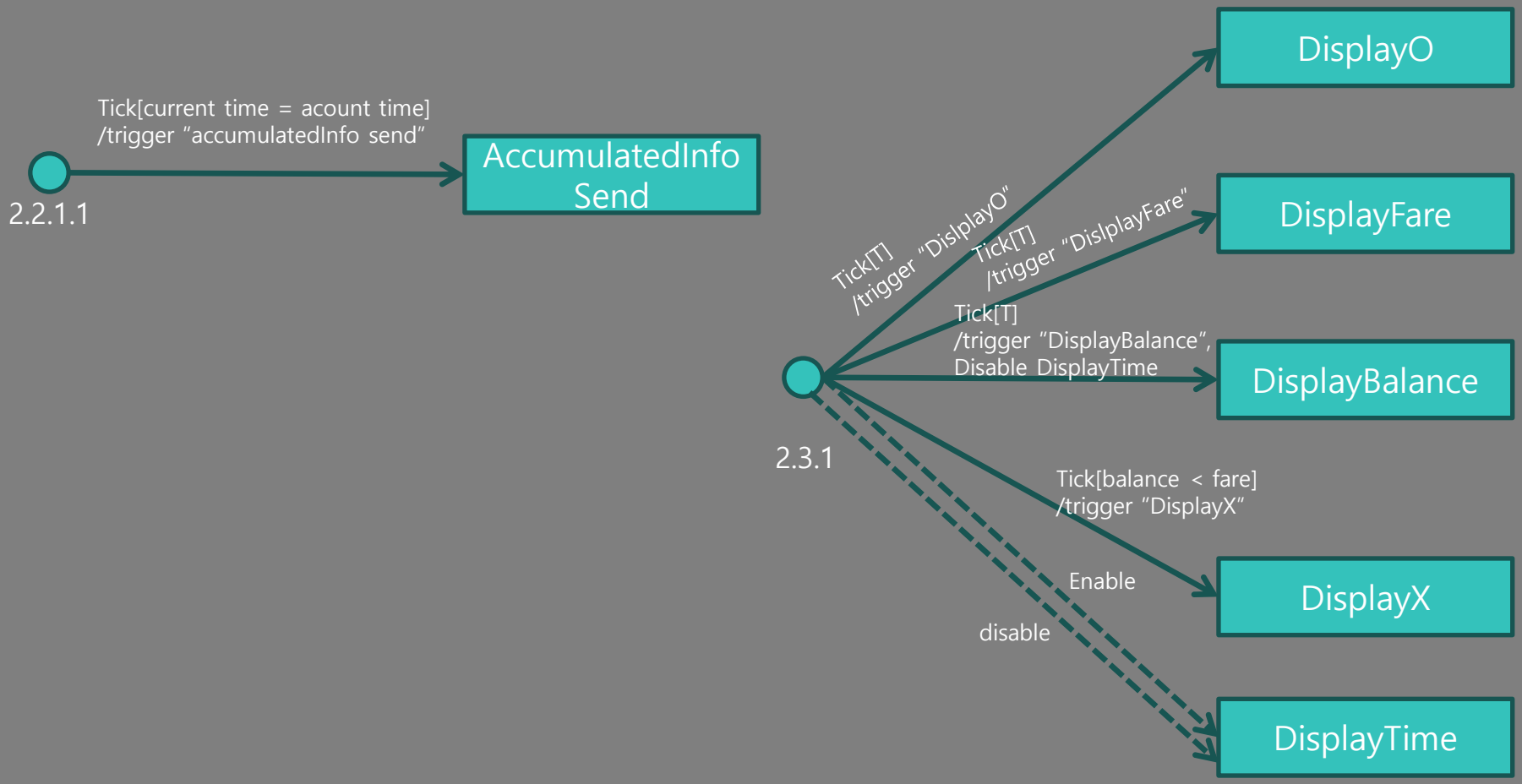
DFD (Level 4)

-State Transition Diagram for Calculator

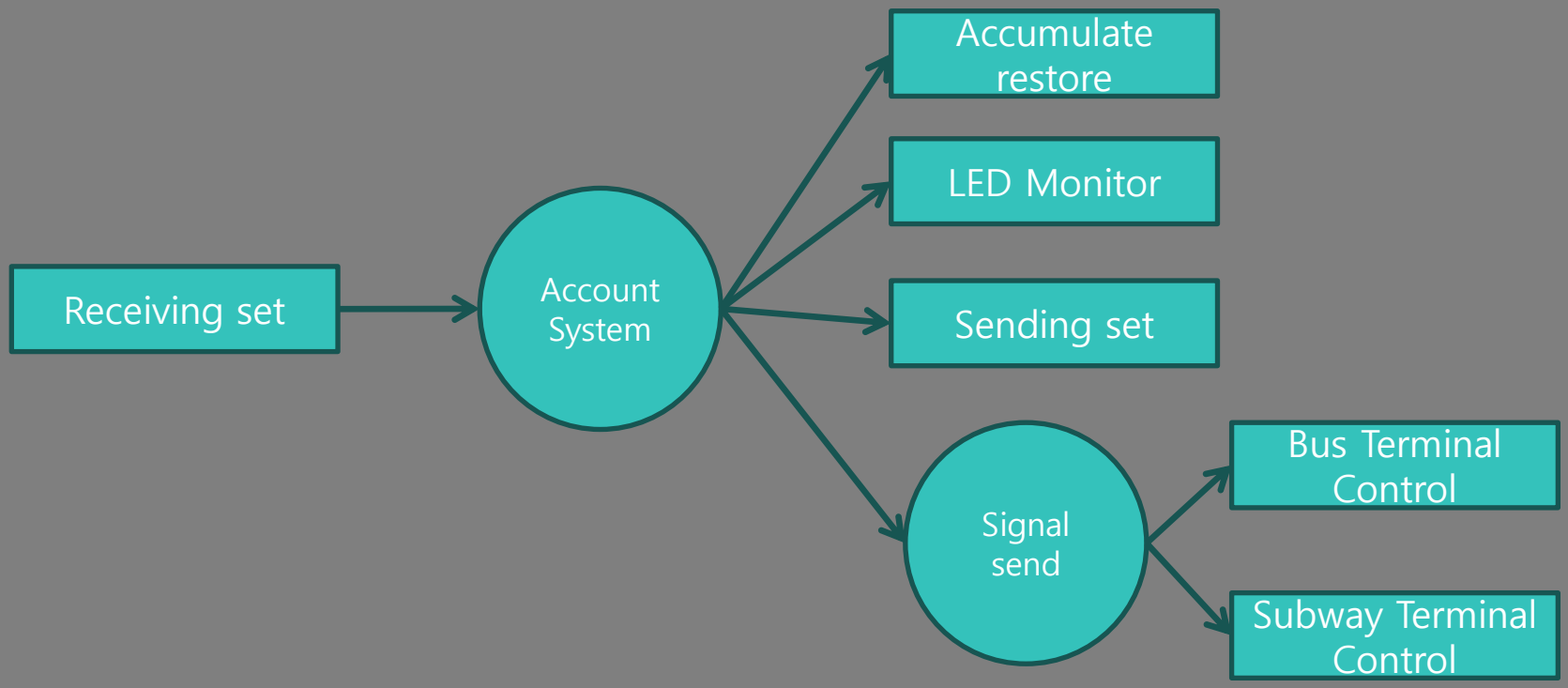


DFD (Level 4)

- State Transition Diagram
  AccumulatedInfo Send and Display Control



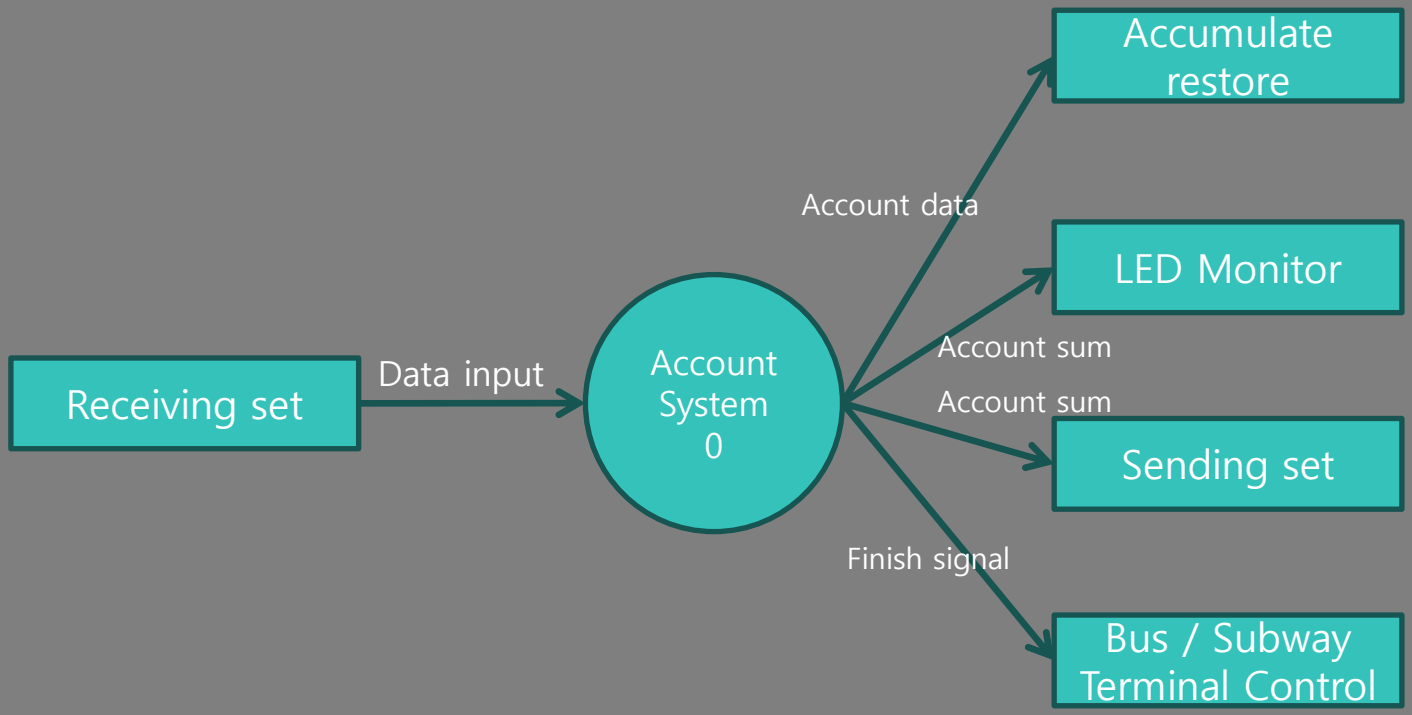
System Context Diagram – Account system



Event List

Input/Output Event	Description
Accumulated Input	Accumulated Data from Bus/SubWay Terminal during a day
Settled Sign	Sending Settled Sign to each terminal
Light	Display to the LED Monitor Settled money
Settled Money	Sending Settled Money to each company(bus,subway)

DFD (Level 0)


Accumulate restore
Account data
LED Monitor
Account sum
Account sum
Receiving set
Data input
Account System 0
Sending set
Finish signal
Bus / Subway Terminal Control

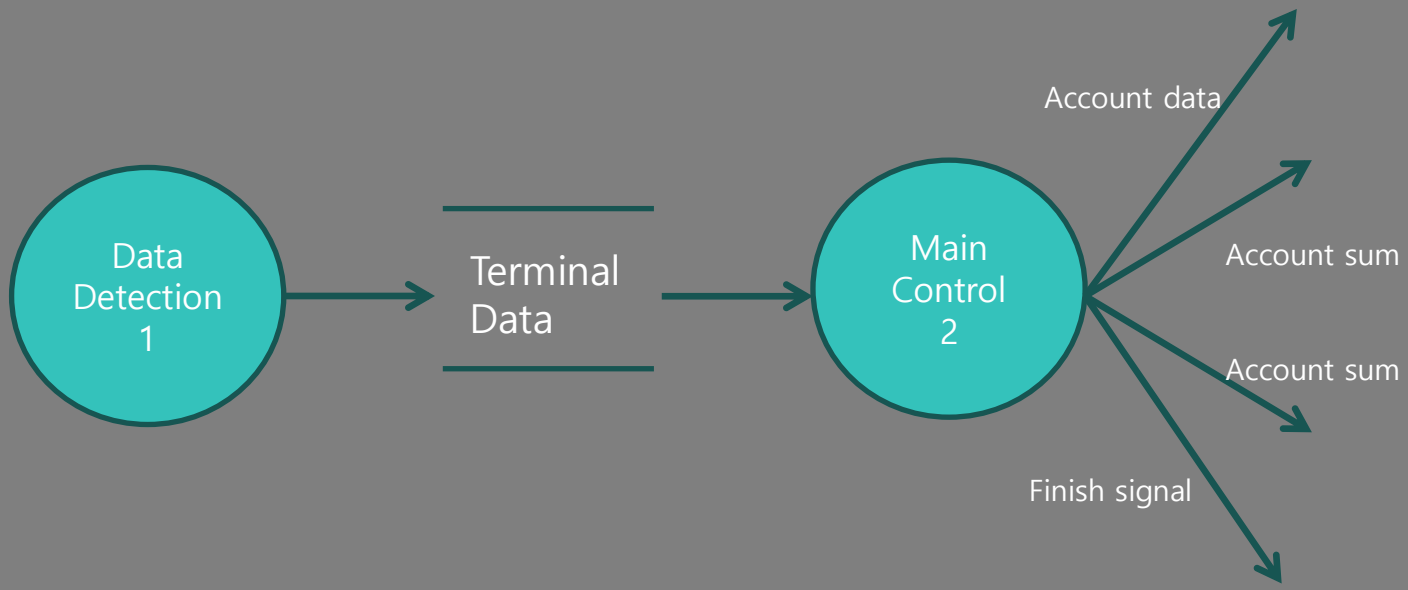
Process Specification

Reference No.	0
Name	Account System
Input	Accumulated Data
Output	Account Data, Account Sum, Finish Signal
Process Description	It is main of Account System.

Data Dictionary

Input/Output Event	Description	Format/Type
Accumulated Data	When card is tagged, it is transmitted to inform Terminal Control	Stirng, double
Account Data	Settlement is completed data	Stirng, double
Account Sum	Settlement is completed money	double
Finish Signal	Settlement is completed sing	True/False, Interrupt
Light	Display commands to the LED Monitor	True/False, Interrupt

DFD (Level 1)

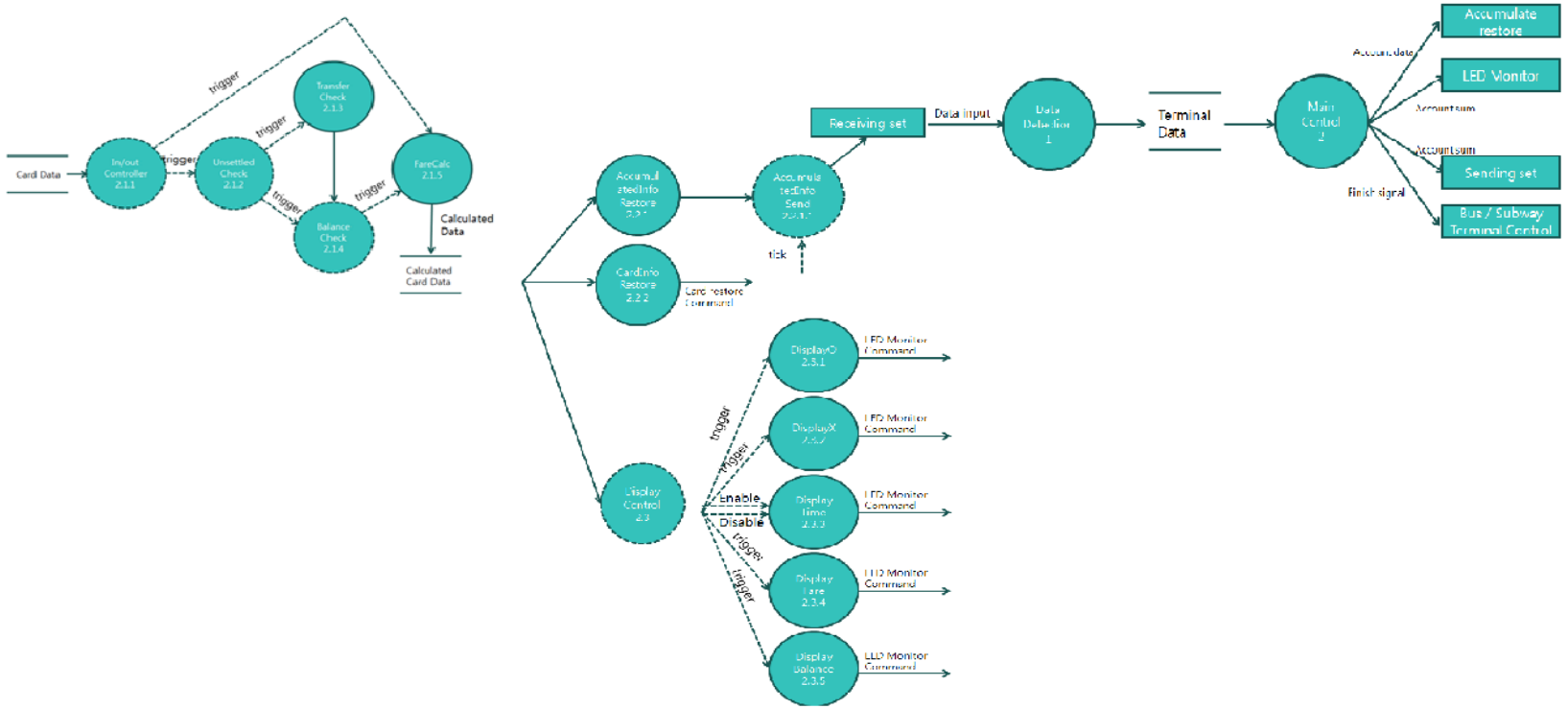

Data
Detection
1
Terminal
Data
Main
Control
2
Account data
Account sum
Account sum
Finish signal

Process Specification

Reference No.	1
Name	Data Detection
Input	Accumulated Data
Output	Terminal Data
Process Description	When Settled data receive, it is transmitted Accumulated Data to Ma in Control

Reference No.	2
Name	Main Control
Input	Terminal
Output	Account Data, Account Sum, Finish Signal
Process Description	Seperating Terminal Data and sending each data

Overall


Card Data
In/out Controller 2.1.1
trigger
Unsettled Check 2.1.2
Transfer Check 2.1.3
Balance Check 2.1.4
FareCalc 2.1.5
Calculated Data
Calculated Card Data
Receiving set
Data Input
Data Detection 1
Terminal Data
Main Control 2
Accumulate restore
LED Monitor
Sending set
Bus / Subway Terminal Control
Finish signal
AccumulatedInfo Restore 2.2.1
AccumulatedInfo Send 2.2.2
tick
CardInfo Restore 2.2.3
Display Control 2.3
DisplayO 2.3.1
DisplayX 2.3.2
Display Time 2.3.3
Display Fare 2.3.4
Display Balance 2.3.5
LED Monitor Command
Enable
Disable

Q&A

감사합니다