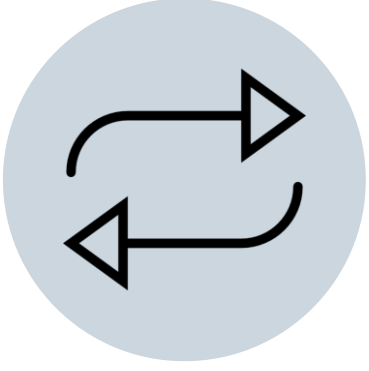
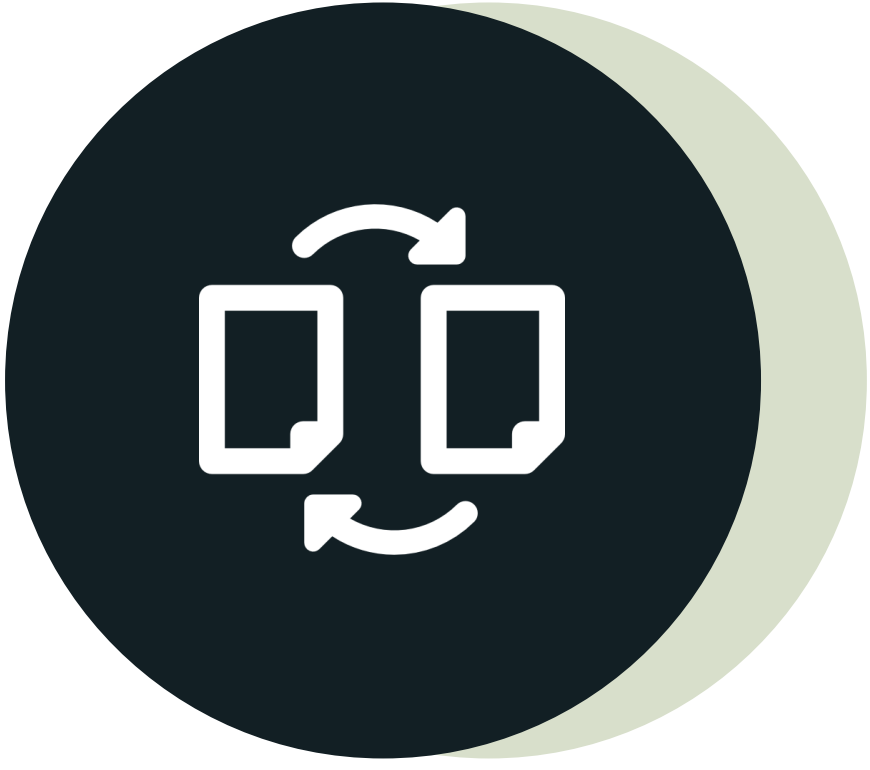
Software Requirement Analysis for Point Of Sale System

Project Team 5 (손지웅, 조정익, 손하영)
2017. 10. 23

Contents



001



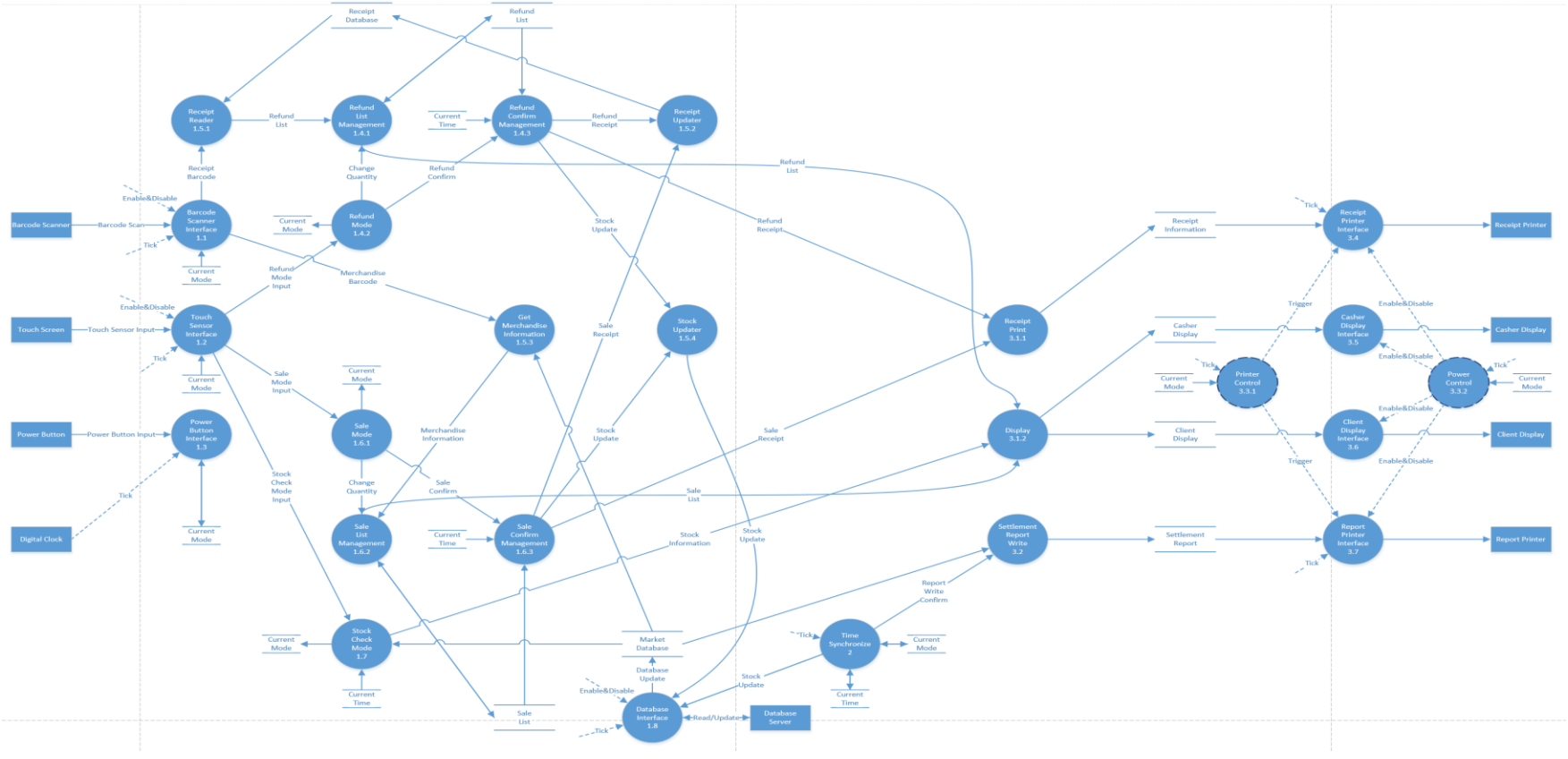
Feedback

01. Original DFD

02. Feedback

03. Revision

01. Original DFD



02. Feedback

- DFD에서 Data흐름이 한 방향으로 흐르지 않는다. (순환이 보임)
- DFD가 너무 세분화되어 알고리즘을 표현한 것 같다.
- Database Server 부분 관련을 다시 생각해야 한다.

03. Revision

- ~~DFD에서 Data흐름이 한 방향으로 흐르지 않는다. (순환이 보임)~~

⇒ Data가 한방향으로 흐르도록 수정

- ~~DFD가 너무 세분화되어 알고리즘을 표현한 것 같다.~~

⇒ DFD를 좀 더 간략하게 만들고 STD로 알고리즘을 표현

- ~~Database Server 부분 관련 다시 생각해야 한다.~~

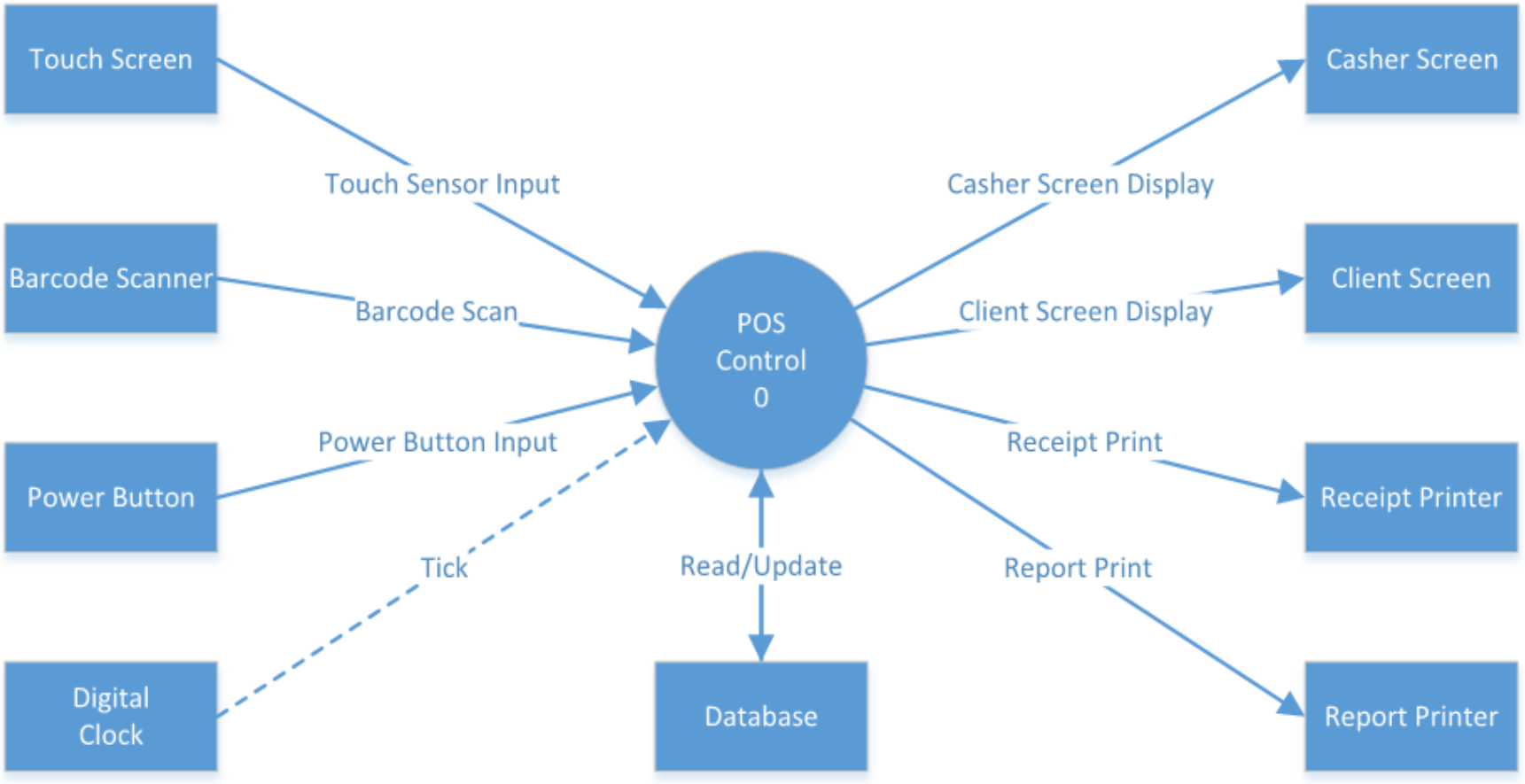
⇒ Database Server 부분 수정

002

DFD

01. DFD Level 0
02. DFD Level 1
03. DFD Level 2
04. DFD Level 3

01. DFD Level 0



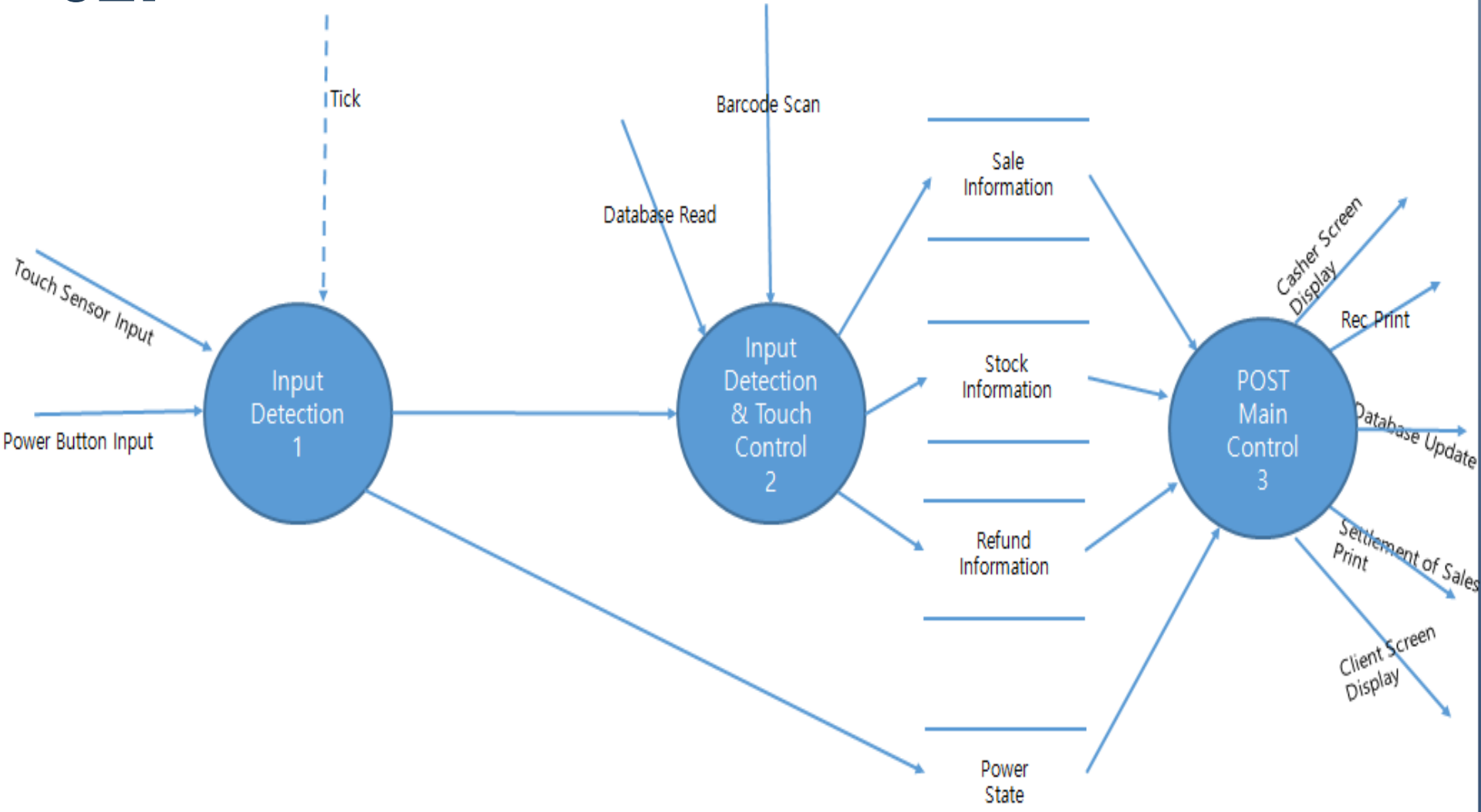
Data Dictionary

Input / Output Event	Description	Format/Type
Touch Sensor Input	터치 센서 입력	Int[][] touch;
Barcode Scan	바코드 스캔 정보	String barcode
Power Button Input	파워 버튼 입력	Boolean power_input
Read	데이터 베이스 읽기	Struct db_data{ struct item[] t; string[] barcode;}
Casher Screen Display	캐셔 화면 출력	String casher_screen
Client Screen Display	고객 화면 출력	String client_screen

Data Dictionary

Input / Output Event	Description	Format/Type
Update	데이터베이스 업데이트	Struct db_data{ struct item[] t; string[] barcode;}
Receipt Print	영수증 출력	String receipt_info
Report Print	정산 보고서 출력	String report_info

02. DFD Level 1



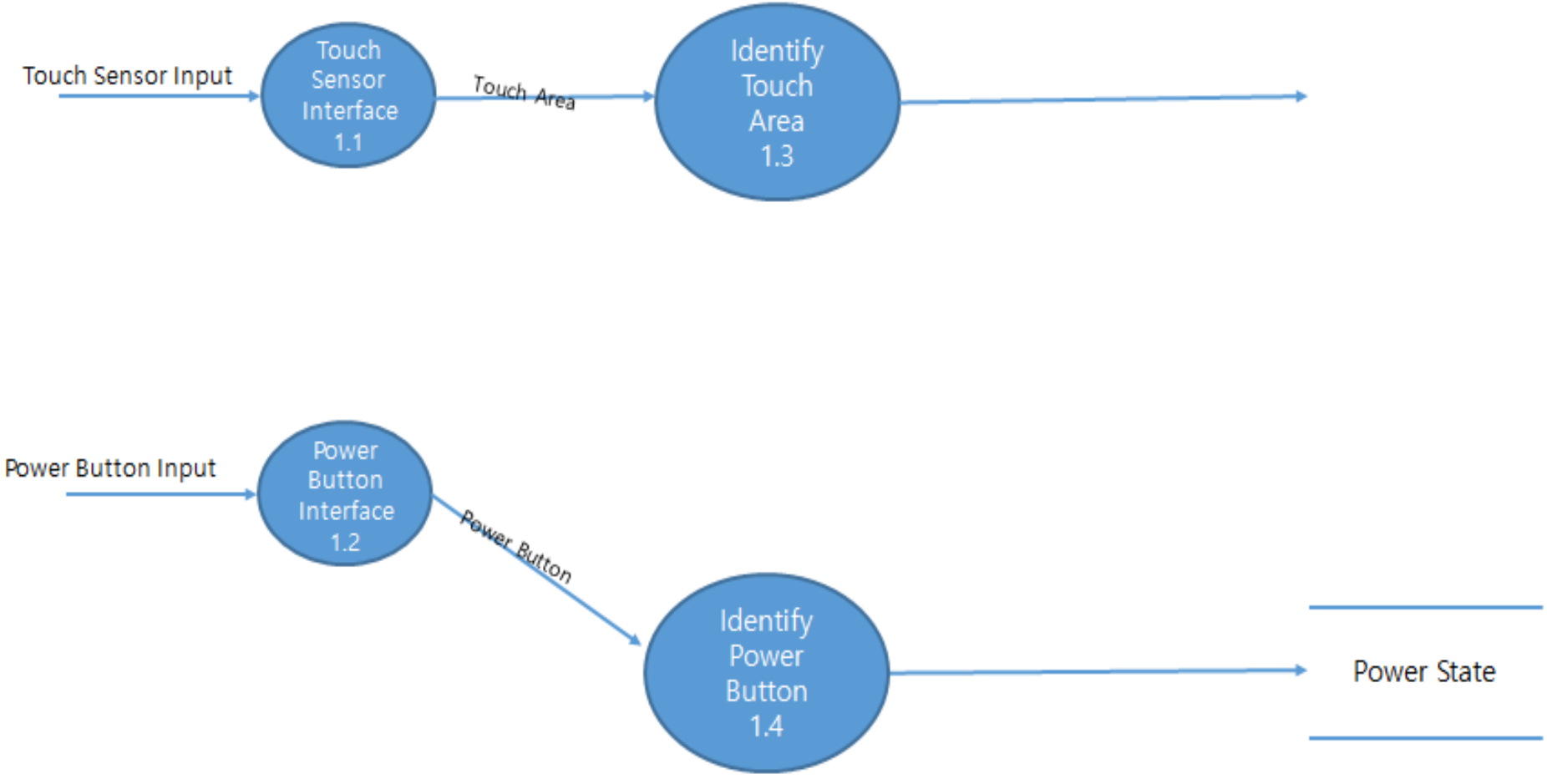
Data Dictionary

Input / Output Event	Description	Format/Type
Touch Sensor Input	터치 센서 입력	Int[][] touch;
Barcode Scan	바코드 스캔 정보	String barcode
Power Button Input	파워 버튼 입력	Boolean power_input
Database Read	데이터 베이스 읽기	Struct db_data{ struct item[] t; string[] barcode;}
Casher Screen Display	캐셔 화면 출력	String casher_screen
Client Screen Display	고객 화면 출력	String client_screen

Data Dictionary

Input / Output Event	Description	Format/Type
Receipt Print	영수증 출력	String receipt_info
Report Print	정산 보고서 출력	String report_info
Sale Information	판매 정보	Struct sale_info{ struct item[] t; int total_price; int recv_money; int snd_money;}
Stock Information	재고 정보	Struct item[] stock info;
Refund Information	환불 정보	Struct refund_info{ sturct item[]t; string barcode;}
Power State	파워 버튼 상태	Boolean power_input

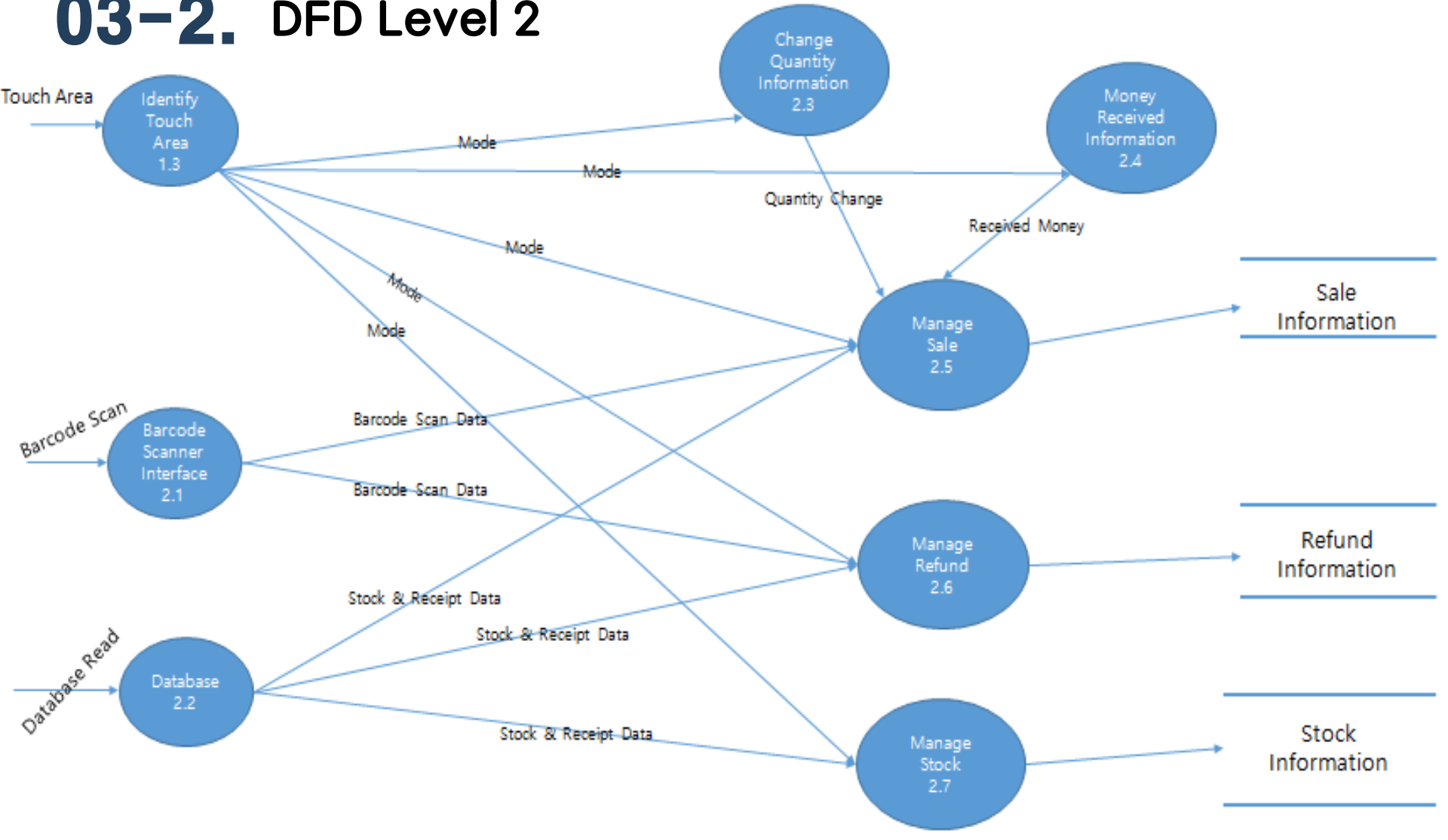
03-1. DFD Level 2



Data Dictionary

Input / Output Event	Description	Format/Type
Touch Sensor Input	터치 센서 입력	Int[][] touch;
Power Button Input	파워 버튼 입력	Boolean power_input
Touch Area	터치된 영역	Int touch_area
Power Button	파워 버튼	Boolean power_input
Mode	현재 POST의 모드	Int mode
Power State	파워 버튼 상태	Boolean power_input

03-2. DFD Level 2



Data Dictionary

Input / Output Event	Description	Format/Type
Touch Sensor Input	터치 센서 입력	Int[][] touch;
Barcode Scan	바코드 스캔 정보	String barcode
Mode	현재 POST의 모드	Int mode
Database Read	데이터 베이스 읽기	Struct db_data{ struct item[] t; string[] barcode;}
Barcode Scan Data	바코드 Scan 정보	Struct bar_data{ struct item t; struct refund_info I; string barcode;}

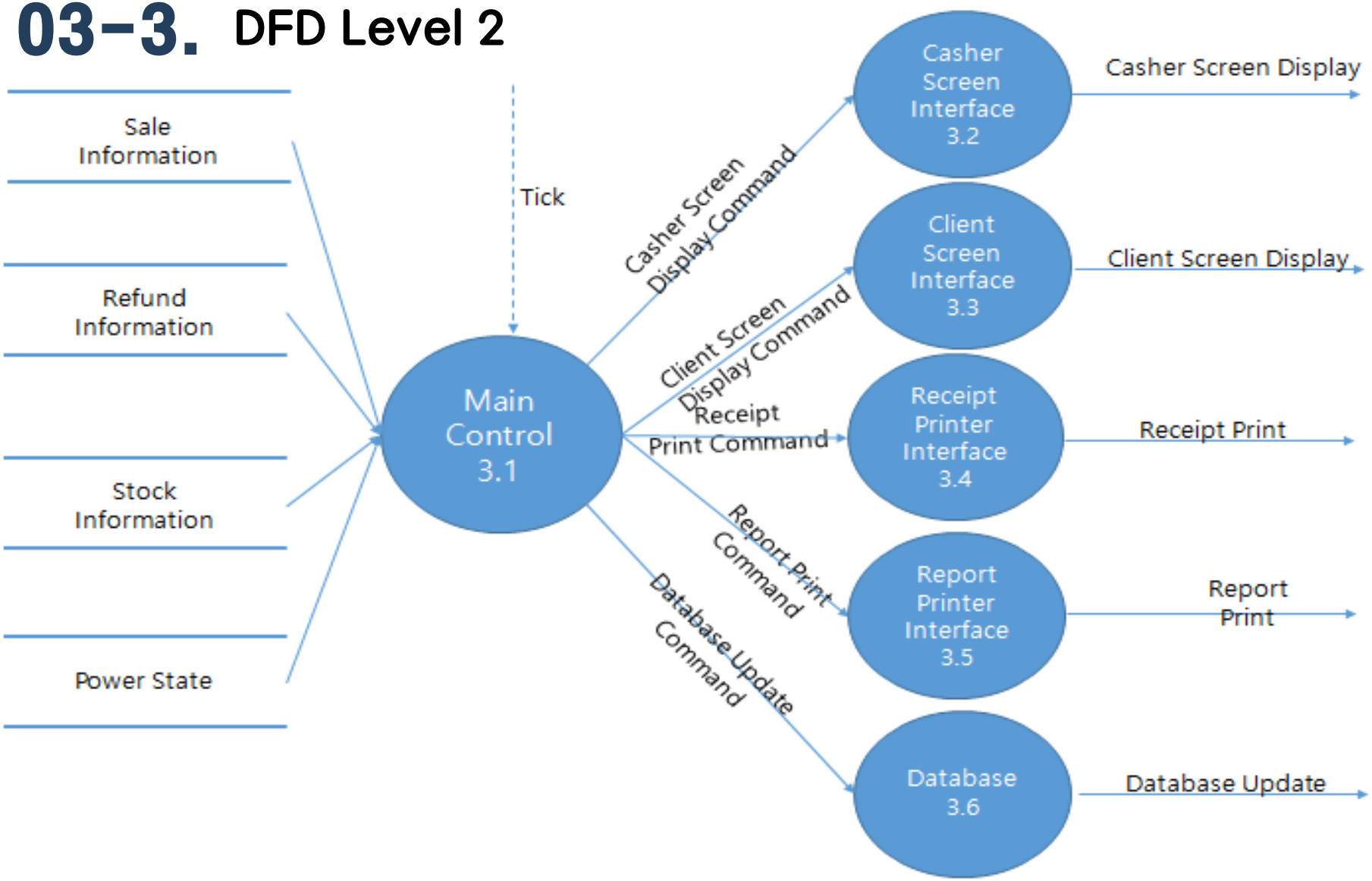
Data Dictionary

Input / Output Event	Description	Format/Type
Stock & Receipt Data	재고와 영수증 정보	Struct db_data{struct item[] t; string[] barcode;}
Quantity Change	수량 변경	Struct item{ string namel; int quantity; int price;}
Received Money	돈 수령 정보	Int recv_money;
Sale Information	판매 정보	Struct sale_info{ struct item[] t; int total_price; int recv_money; int snd_money;}

Data Dictionary

Input / Output Event	Description	Format/Type
Stock Information	재고 정보	Sturct item[] Stock_info;
Refund Information	환불 정보	Sturct refund_info{ struct item[] t; int total_price; string barcode;}

03-3. DFD Level 2



Data Dictionary

Input / Output Event	Description	Format/Type
Sale Information	판매 정보	Struct sale_info{ struct item[] t; int total_price;}
Stock Information	재고 정보	Struct item[] stock_info;
Refund Information	환불 정보	Sturct refund_info{ sturct item[] t; int total_price; String barcode;}
Power State	파워 버튼 상태	Boolean power_input
Database Update Command	Database Update 명령	Struct db_data{ struct item[] t; string[] barcode;}

Data Dictionary

Input / Output Event	Description	Format/Type
Casher Screen Display Command	Sale 혹은 Refund, Stock정보를 화면에 출력 명령, Flag로 결정	Struct sale_int{struct item[] t; int total_price; int recv_money; int snd_money} or struct refund _info{struct item[] t; string barcode;} or struct item[] stock_info;
Client Screen Display Command	Sale 혹은 Refund 정보를 화면에 출력 명령, Flag로 결정	Struct sale_info{ struct item[] t; int total_pricel int recv_money; int snd_money;} or struct refund_info{ struct item[] t; string barcode}

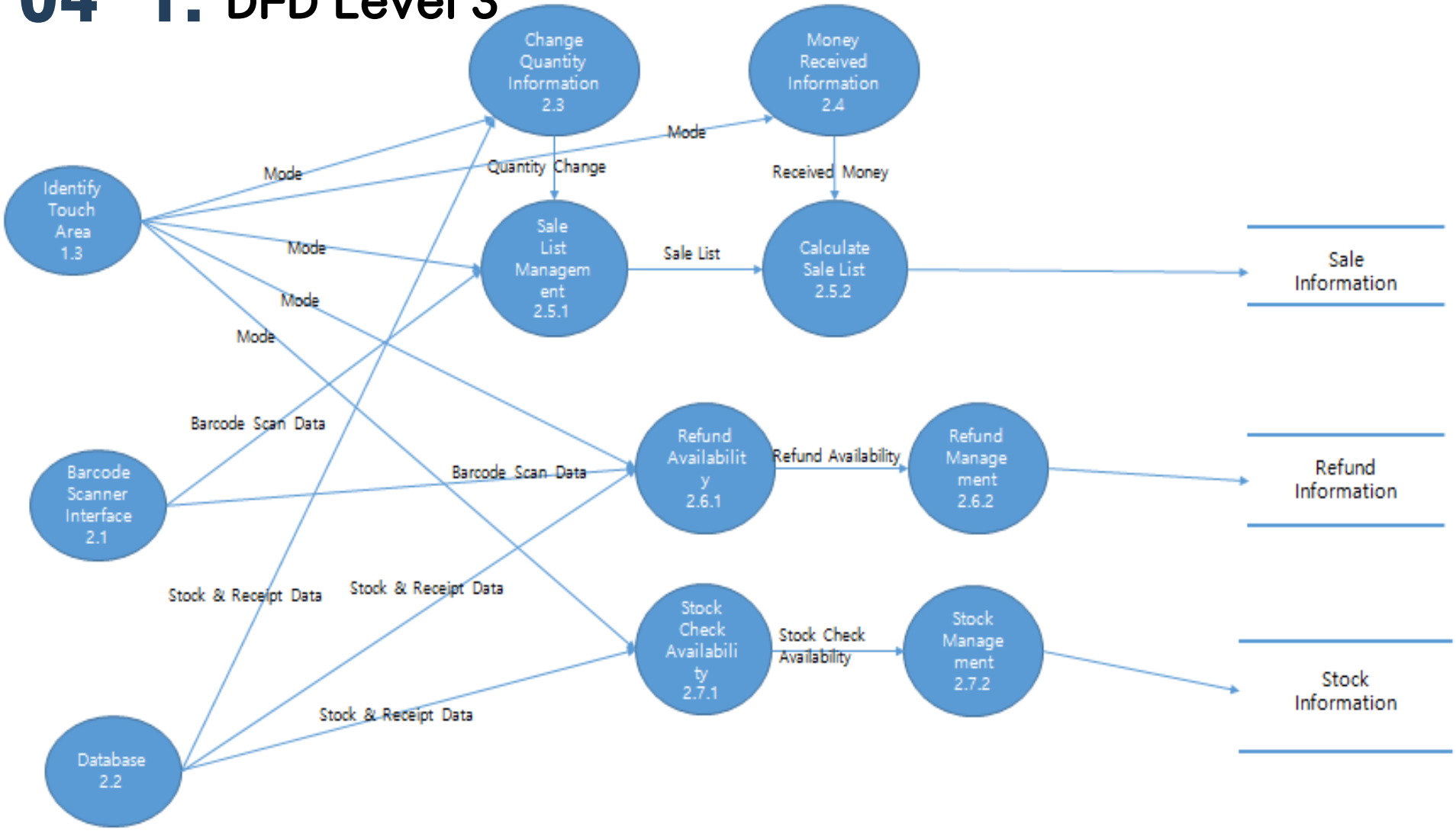
Data Dictionary

Input / Output Event	Description	Format/Type
Receipt Print Command	영수증 출력 명령, Flag 로 결정	Struct sale_info{ struct item[] t; int total_price; int recv_money; int snd_money;} or struct refund_info{struct item[] t; string barcode;}
Report Print Command	정산 및 정산보고서 출력 명령	Struct db_data{ struct item[] t; string[] barcode;}
Database Update	데이터베이스 업데이트	Struct db_data{ struct item[] t; string[] barcode;}

Data Dictionary

Input / Output Event	Description	Format/Type
Receipt Print	영수증 출력	String receipt_info
Report Print	정산 보고서 출력	String report_info
Casher Screen Display	캐셔 화면 출력	String casher_screen
Client Screen Display	고객 화면 출력	String client_screen

04-1. DFD Level 3



Data Dictionary

Input / Output Event	Description	Format/Type
Mode	현재 Post의 모드	Int mode
Barcode Scan Data	바코드 스캔 정보	Struct bar_data{ struct item t; struct refund_info I; string barcode;}
Stock & Receipt Data	재고와 영수증 정보	Struct db_data{struct item[] t; string[] barcode;}
Quantity Change	수량 변경	Struct item{string name; int quantity; int price;}

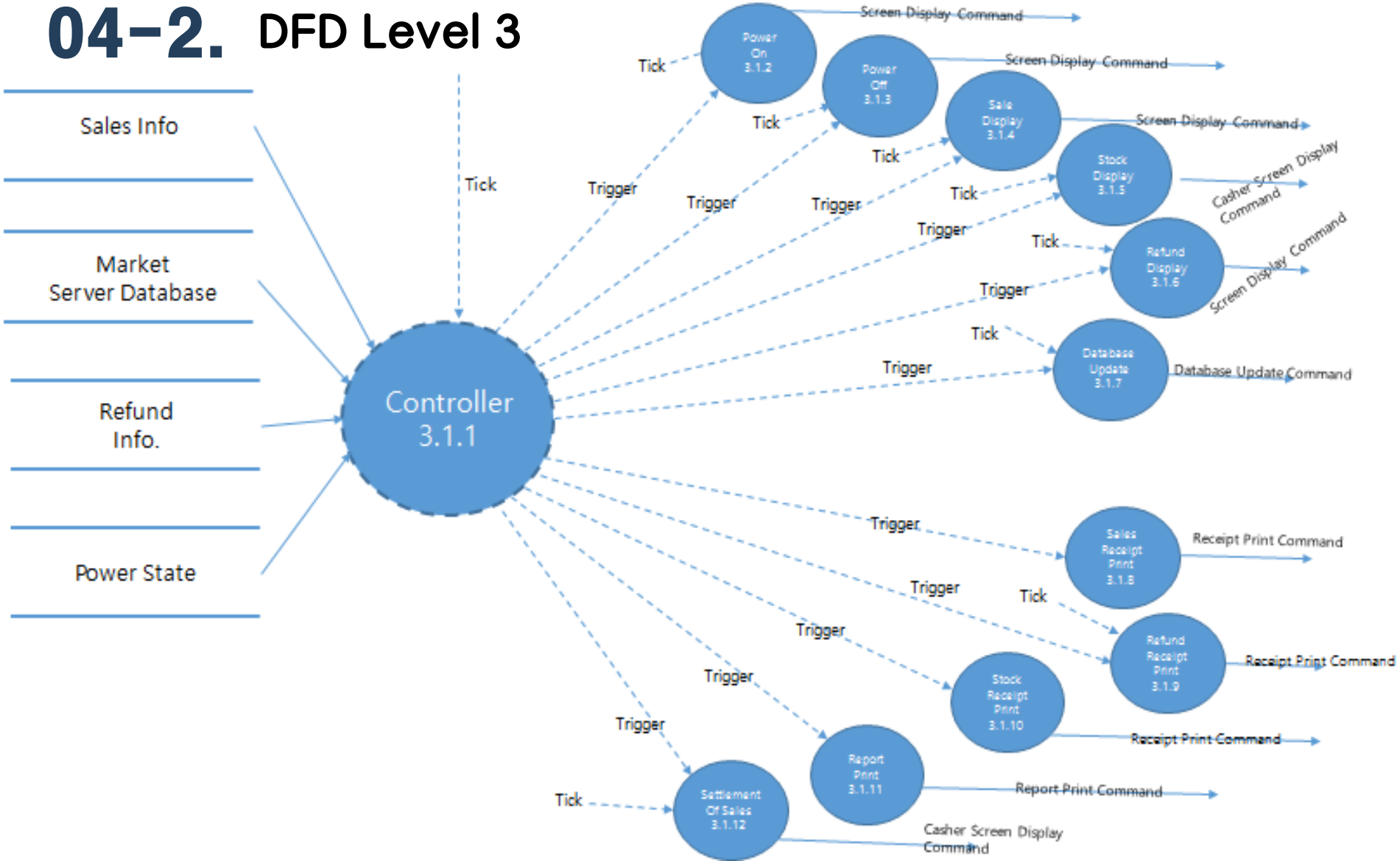
Data Dictionary

Input / Output Event	Description	Format/Type
Received Money	돈 수령 정보	Int recv_money;
Sale List	총 담긴 판매 리스트 정보	Struct item[] t;
Refund Availability	환불 유효성 및 환불 정보	Sturct refund_info{struct item[] t; int total_price; string barcode;}, int r_flag;
Stock Check Availiability	재고 확인 가능여부 및 재고 정보	Struct item[] stock_info; int flay;
Sale Information	판매 정보	Struct sale_info{struct item[] t; int total_price; int recv_money; int snd_money;}

Data Dictionary

Input / Output Event	Description	Format/Type
Stock Information	재고 정보	Struct item[] stock_info;
Refund Information	환불 정보	Struct refund_info{struct item[] t; int total_price; string barcode;}

04-2. DFD Level 3



Data Dictionary

Input / Output Event	Description	Format/Type
Sale Information	판매 정보	Struct sale_info{ struct item[] t; int total_price;}
Stock Information	재고 정보	Struct itme[] stock_info;
Refund Information	환불 정보	Struct refund_info{ struct item[] t; int total_price; string barcode;}
Power State	파워 버튼 상태	Boolean power_input
Database Update Command	Database Update 명령	Struct db_data{struct item[] t; string[] barcode;}

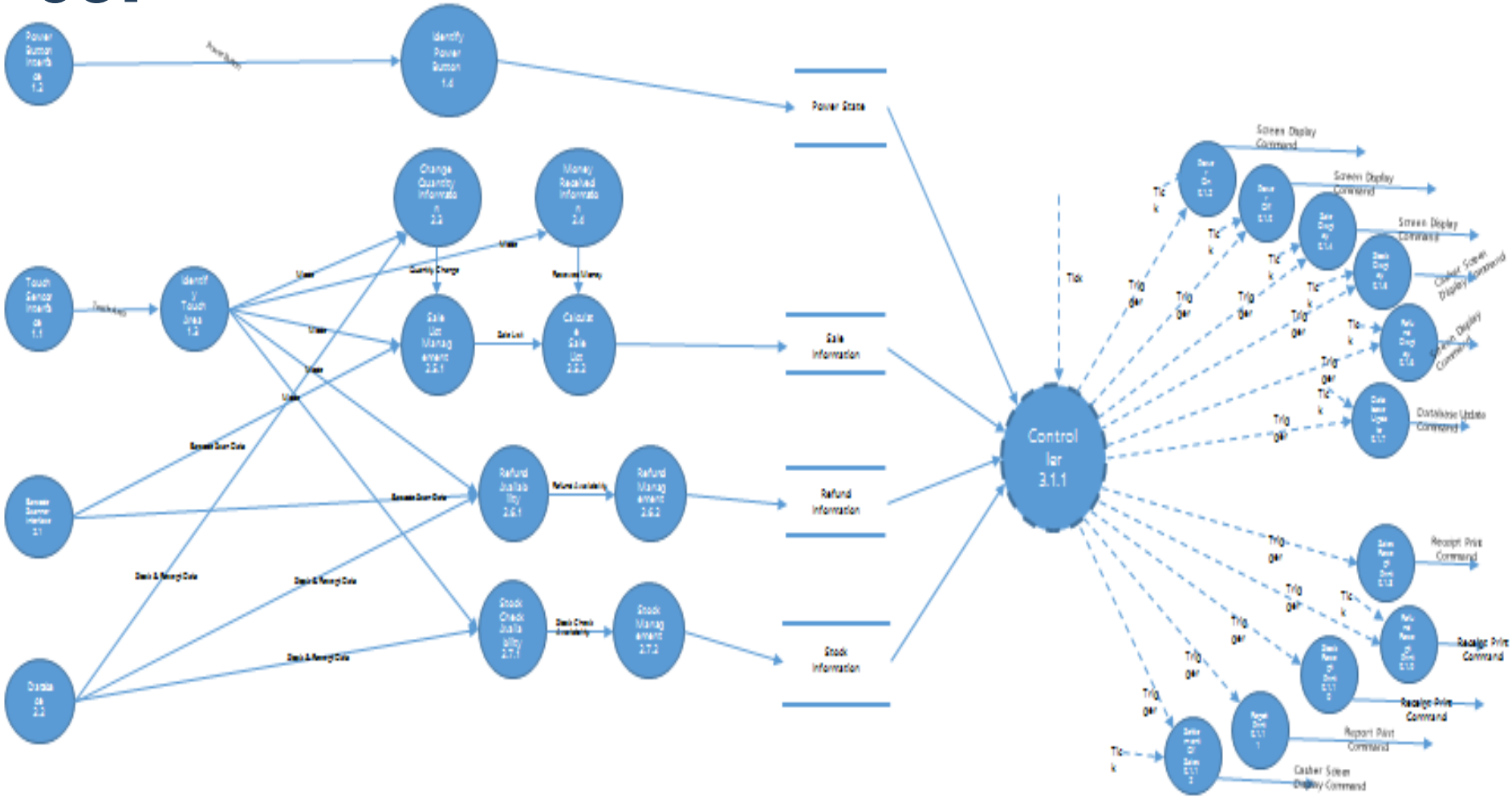
Data Dictionary

Input / Output Event	Description	Format/Type
Casher Screen Display Command	Sale 혹은 Refund, Stock정보를 화면에 출력 명령, Flag로 결정	Struct sale_info{ struct item[] t; int total_price; int recv_money; int snd_money;} or struct refund info{struct item[] t; string barcode;} or struct item[] stock_info;
Screen Display Command	Client + Casher Display 모두를 가리킴 Sale 혹은 Refund, Stock정보를 화면에 출력 명령, Flag로 결정 (Client에게는 Sale 혹은 Refund정보를 화면에 출력 명령, Flag로 결정)	Struct sale_info{sturct item[] t; int total_price; int recv_money; int snd_money;} or struct refund_info{struct item[] t; string barcode;} or struct item[] stock_info;

Data Dictionary

Input / Output Event	Description	Format/Type
Receipt Print Command	영수증 출력 명령, Flag 로 결정	Struct sale_info{ struct item[] t; int total_price; int recv_money; int snd_money;} or struct refund_info{sturct item[] t; string barcode;}
Report Print Command	정산 및 정산보고서 출력 명령	Struct db_data{struct item[] t; string []barcode;}
Database Update	데이터베이스 업데이트	Struct db_data{struct item[] t; string[] barcode;}

05. Overall DFD



003

STD

01. Process Specification

02. STD

01. Process Specification

Reference No.	3.1.1
Name	Controller
Input	Tick, Sales Information, Refund Information, Stock Information, Power State
Output	Trigger
Description	1. Data Store의 Data들을 바탕으로 출력 및 정산을 제어한다.

Reference No.	3.1.2
Name	Power On
Input	Trigger, Tick
Output	Screen Display Command
Description	1. POS기의 전원을 킨다. (Main 상태)

Process Specification

Reference No.	3.1.3
Name	Power Off
Input	Trigger, Tick
Output	Screen Display Command
Description	1. POS기의 전원을 끈다.

Reference No.	3.1.4
Name	Sale Display
Input	Trigger, Tick
Output	Screen Display Command
Description	1. 판매 정보를 보여준다. 2. SA는 판매 모드일 때를 나타낸다.

Process Specification

Reference No.	3.1.5
Name	Stock Display
Input	Trigger, Tick
Output	Screen Display Command
Description	1. 재고 정보를 보여준다. 2. ST는 재고 확인 모드일 때를 나타낸다. 3. 재고 확인 모드이고 판매 혹은 환불 모드가 아닐 때 수행된다.

Process Specification

Reference No.	3.1.6
Name	Refund Display
Input	Trigger, Tick
Output	Screen Display Command
Description	1. 환불 정보를 보여준다. 2. RE는 환불 모드일 때를 나타낸다. C_RE는 환불이 유효하지 않을 때이다.

Reference No.	3.1.7
Name	Database Update
Input	Trigger, Tick
Output	Database Update
Description	1. 데이터베이스를 업데이트한다. 2. F_SA, F_RE는 각각 판매와 환불 모드가 끝났을 때를 나타낸다.

Process Specification

Reference No.	3.1.8
Name	Sales Receipt Print
Input	Trigger
Output	Receipt Print
Description	1. 판매 영수증을 출력한다.

Reference No.	3.1.9
Name	Refund Receipt Print
Input	Trigger, Tick
Output	Receipt Print
Description	1. 환불 영수증을 출력한다.

Process Specification

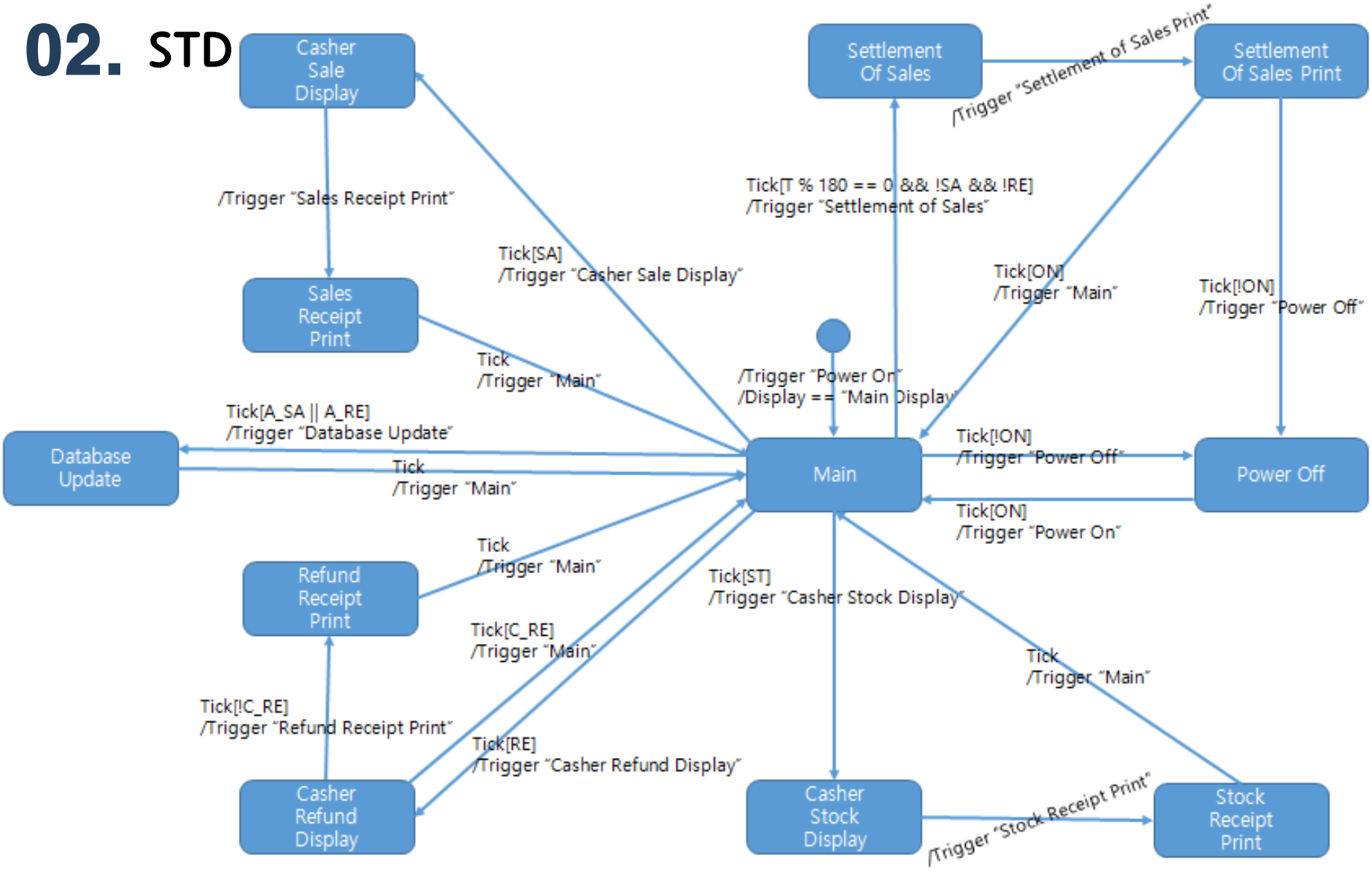
Reference No.	3.1.10
Name	Stock Receipt Print
Input	Trigger
Output	Receipt Print
Description	1. 재고 확인 영수증을 출력한다.

Reference No.	3.1.11
Name	Report Print
Input	Trigger
Output	Receipt Print
Description	1. 정산 보고서를 출력한다.

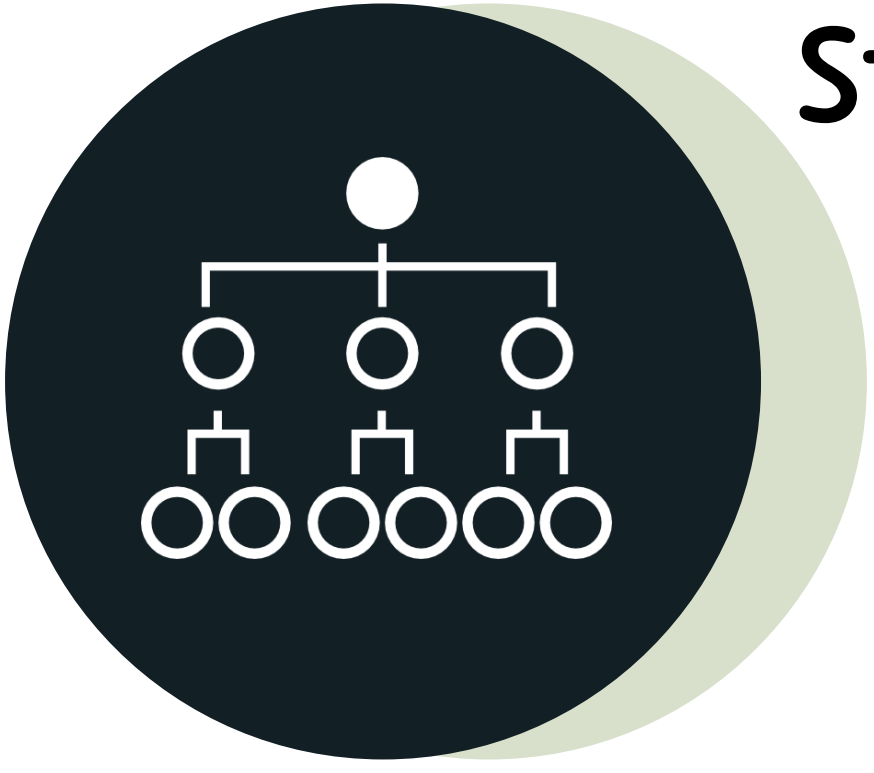
Process Specification

Reference No.	3.1.12
Name	Settlement Of Sales
Input	Trigger, Tick
Output	Screen Display Command
Description	1. 3분(T%180 == 0)마다 정산을 진행한다. 2. 판매 혹은 환불 모드가 아닐 때 수행된다.

02. STD


Casher Sale Display
Settlement Of Sales
Settlement Of Sales Print
/Trigger "Settlement of Sales Print"
/Trigger "Sales Receipt Print"
Tick[T % 180 == 0 && !SA && !RE]
/Trigger "Settlement of Sales"
Tick[SA]
/Trigger "Casher Sale Display"
Tick[ON]
/Trigger "Main"
Tick[!ON]
/Trigger "Power Off"
Sales Receipt Print
Tick
/Trigger "Main"
/Trigger "Power On"
/Display == "Main Display"
Tick[A_SA || A_RE]
/Trigger "Database Update"
Database Update
Tick
/Trigger "Main"
Main
Tick[!ON]
/Trigger "Power Off"
Power Off
Tick[ON]
/Trigger "Power On"
Tick
/Trigger "Main"
Refund Receipt Print
Tick[ST]
/Trigger "Casher Stock Display"
Tick[C_RE]
/Trigger "Main"
Tick
/Trigger "Main"
Tick[!C_RE]
/Trigger "Refund Receipt Print"
Tick[RE]
/Trigger "Casher Refund Display"
Casher Refund Display
Casher Stock Display
/Trigger "Stock Receipt Print"
Stock Receipt Print

004



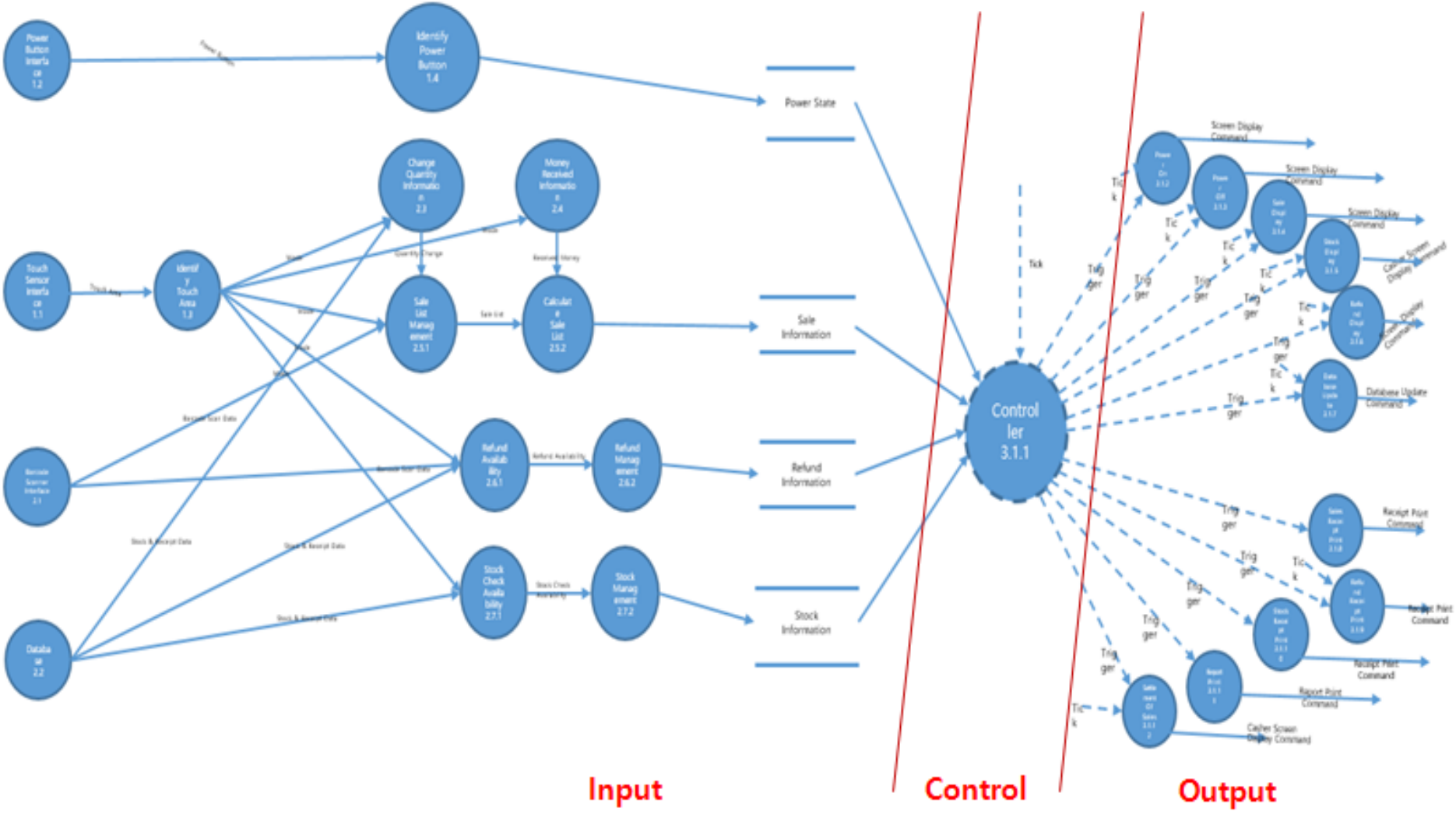
Structured Charts

01. Transform Analysis

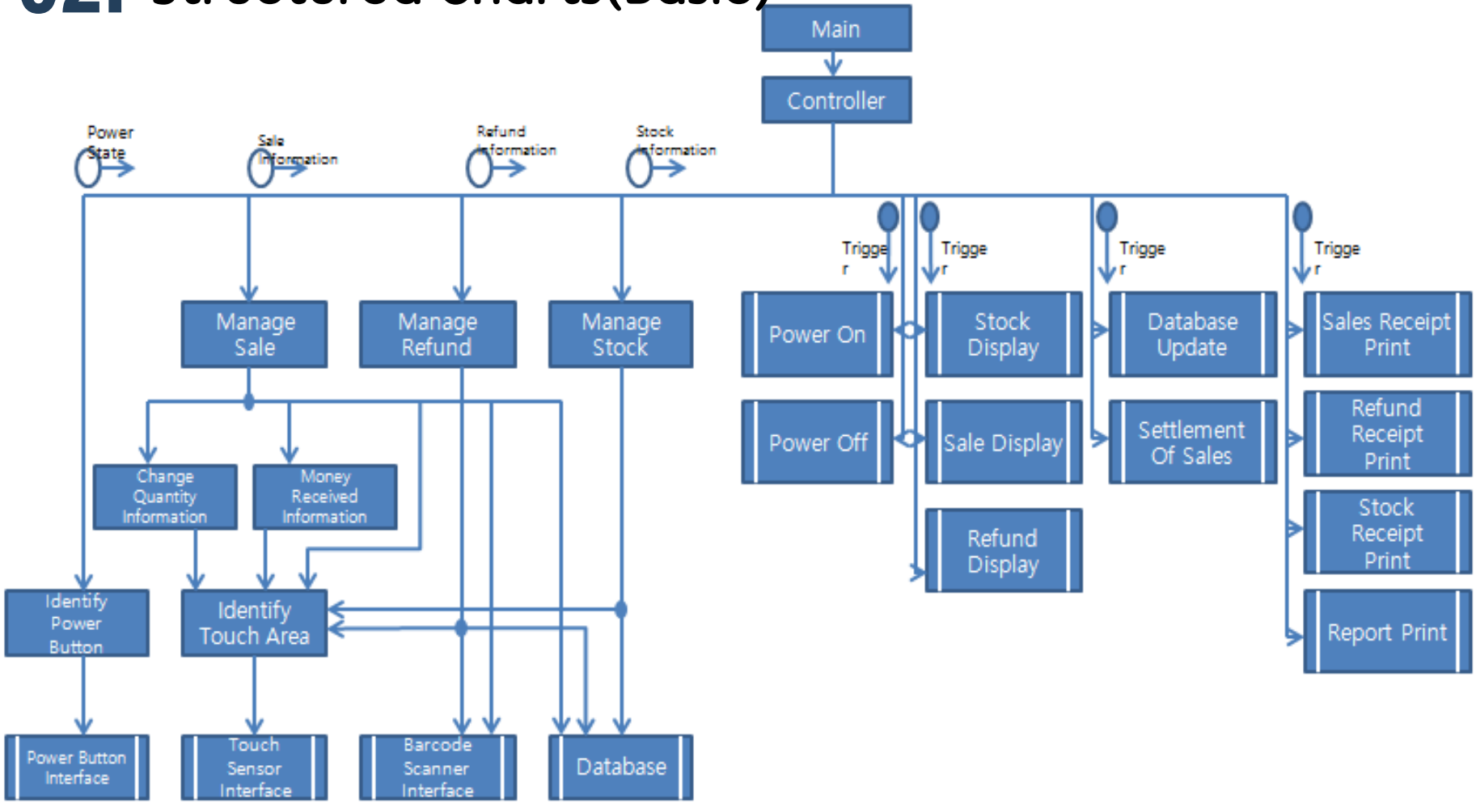
02. Structured Charts (Basic)

03. Structured Charts (Advanced)

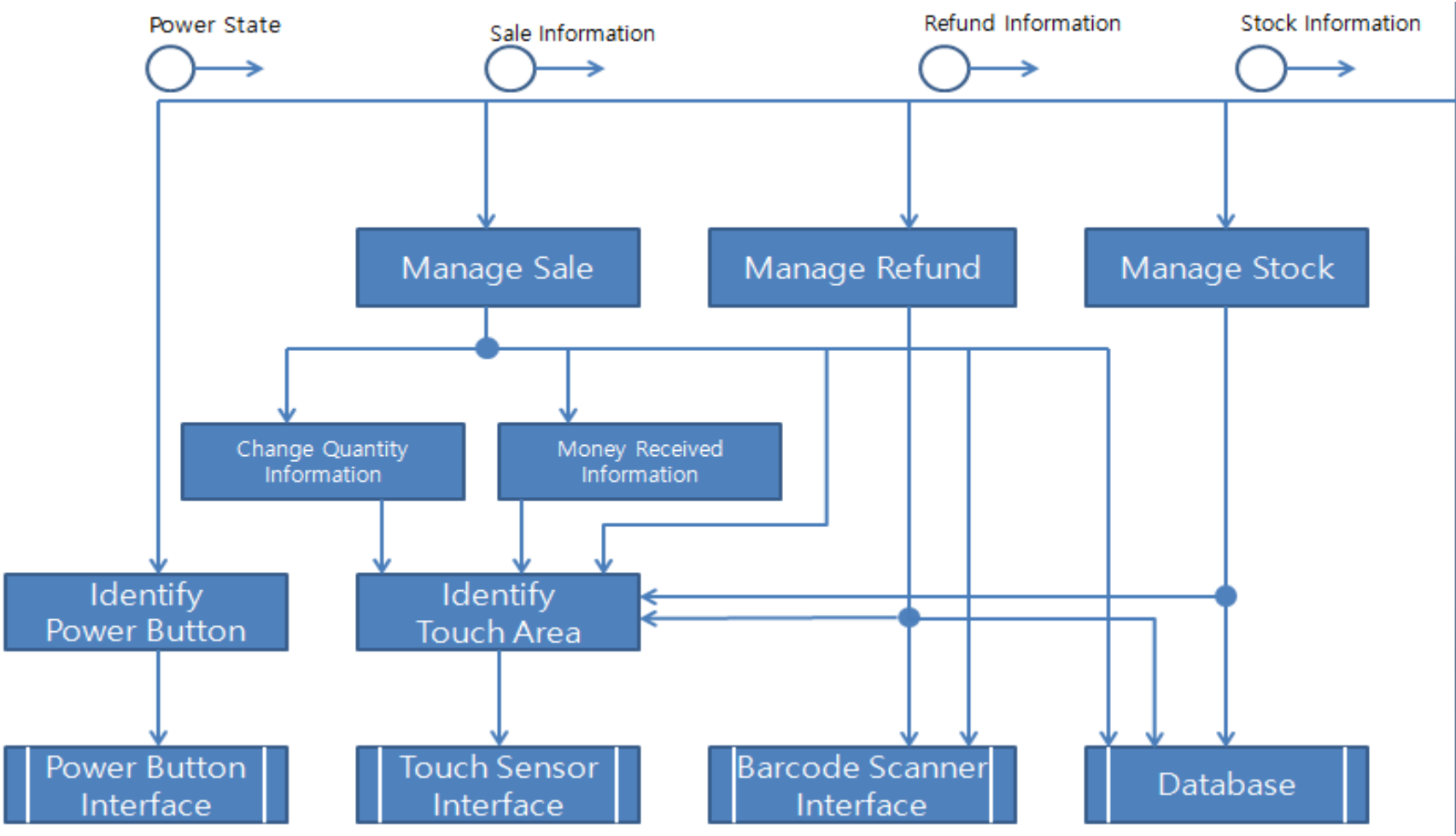
01. Transform Analysis



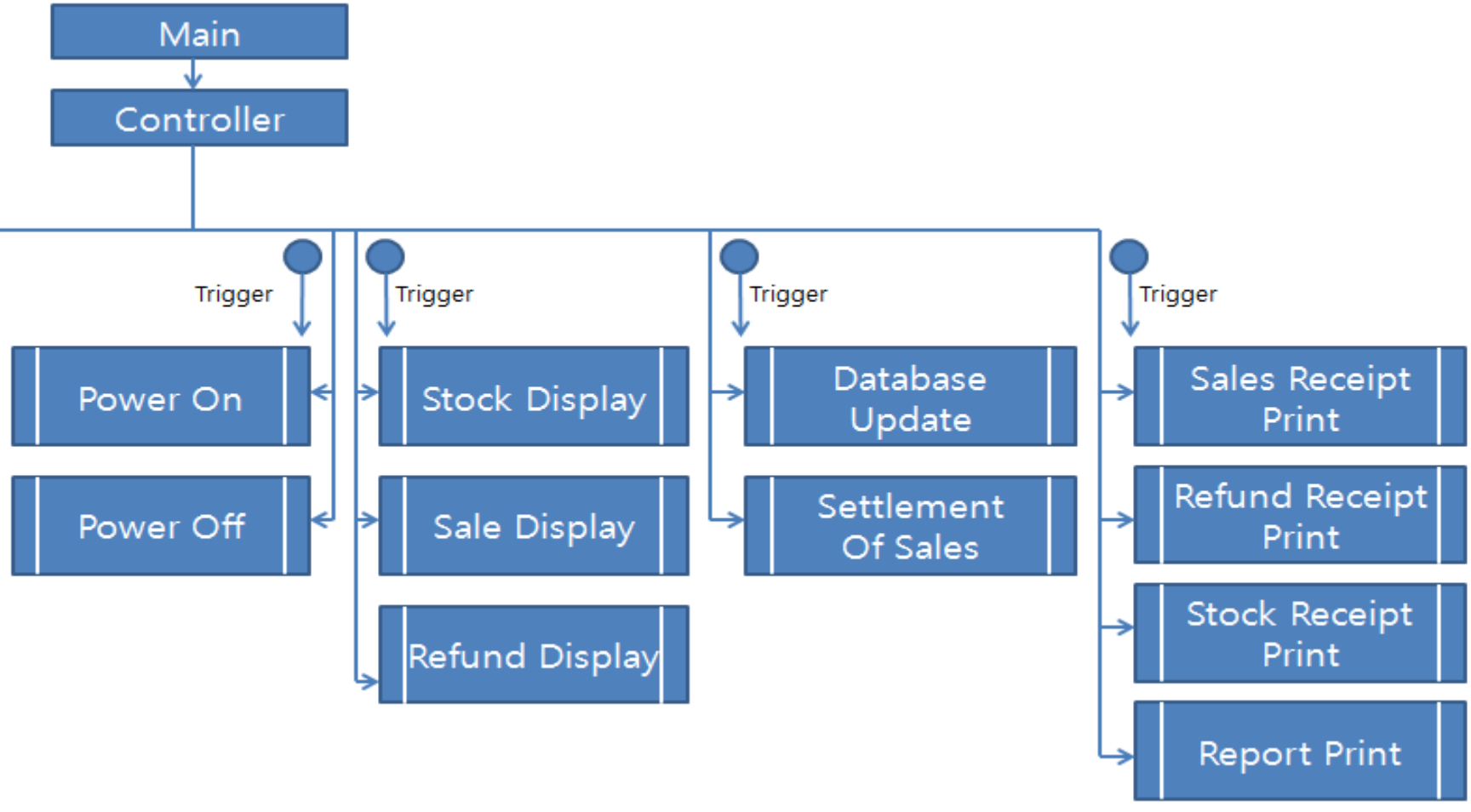
02. Structured Charts(Basic)



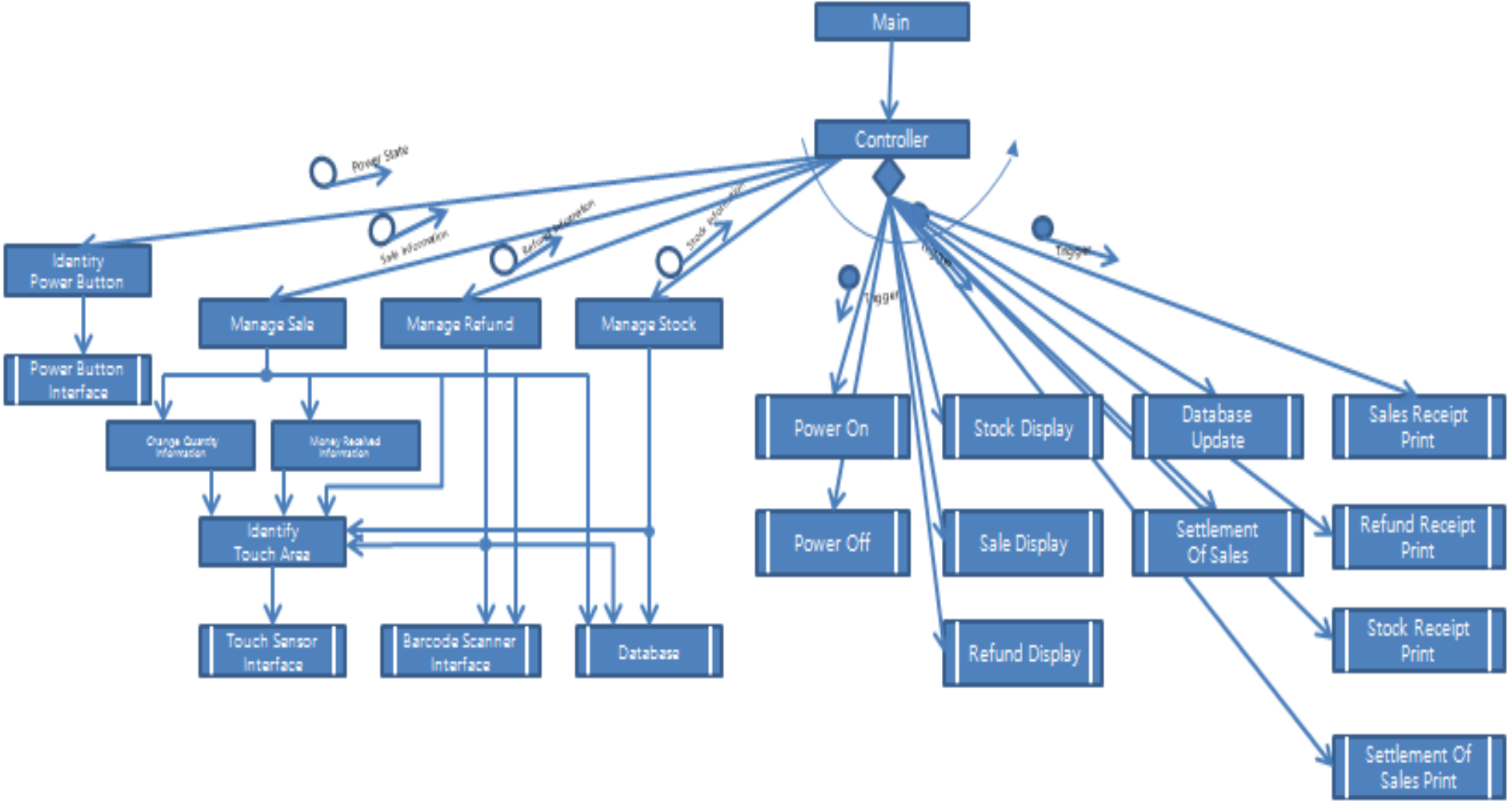
02-1. Structured Charts (Basic) – Input Part



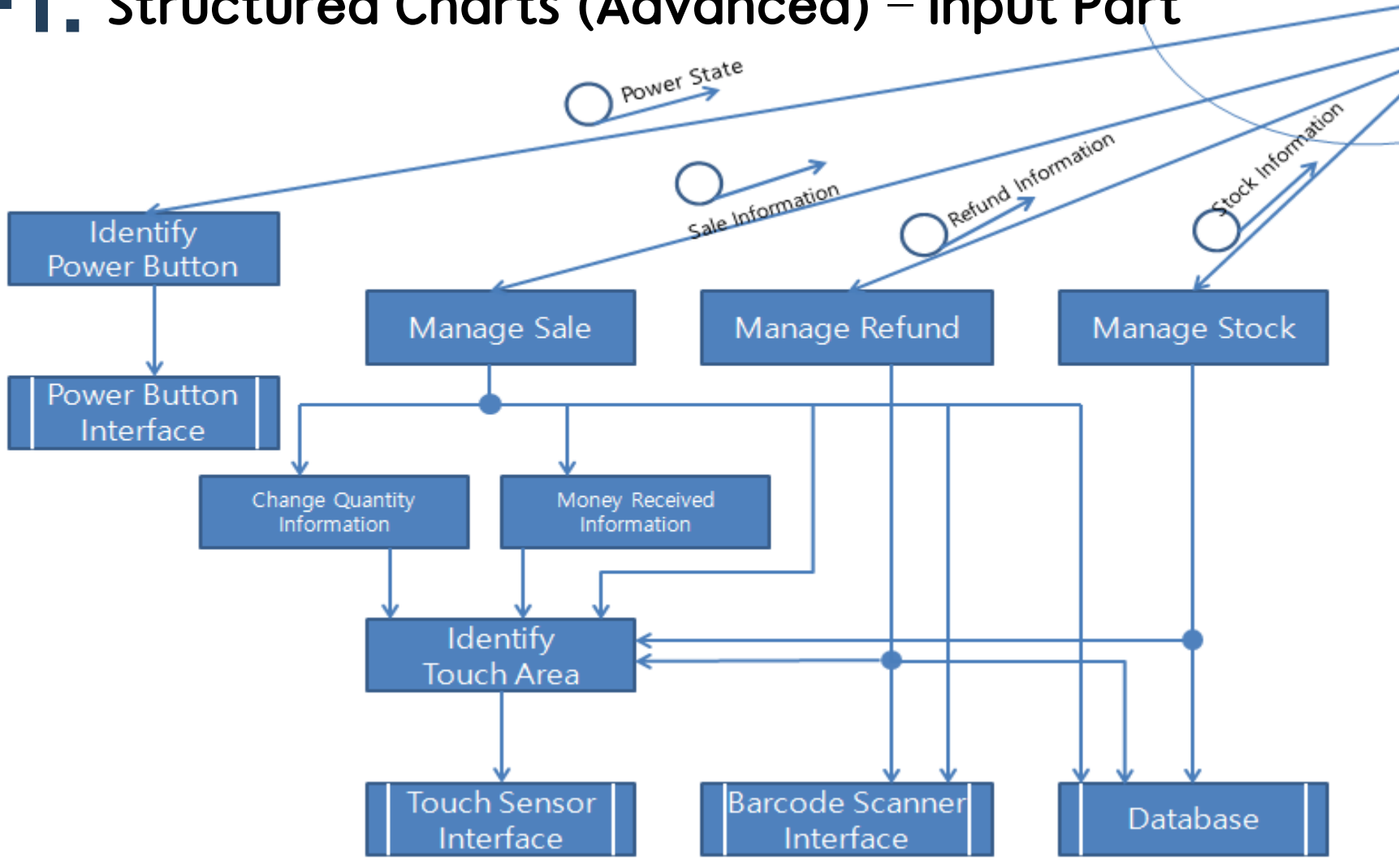
02-2. Structured Charts (Basic) – Output Part



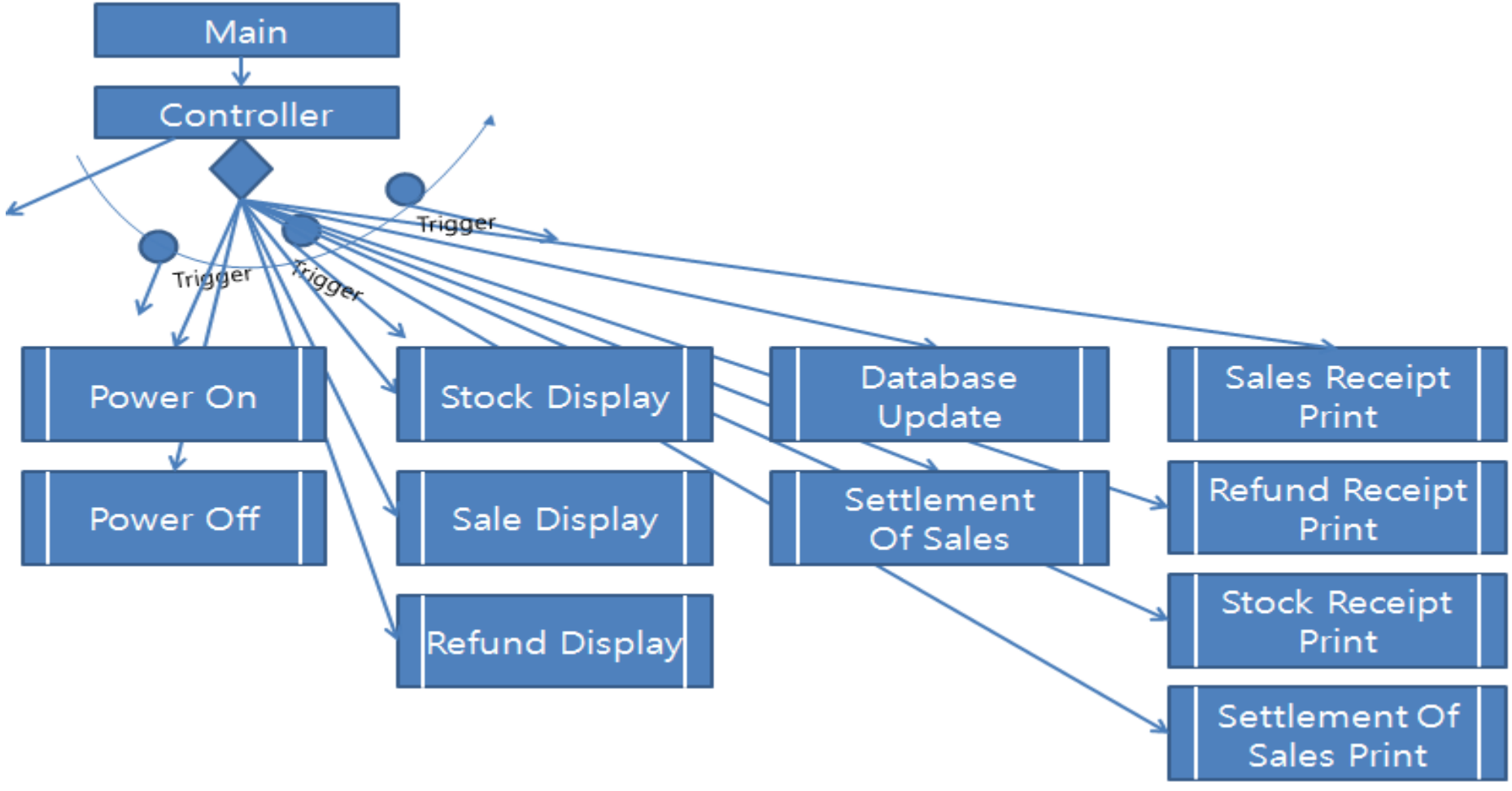
03. Structured Charts (Advanced)



03-1. Structured Charts (Advanced) – Input Part



03-2. Structured Charts (Advanced) – Output Part



Q & A