

Software Engineering

team project #1

Digital Watch – SA

Team 7

김소영 (201511248) 지우영 (201511299)

문승훈 (201714284) 김현재 (201812308)

Index

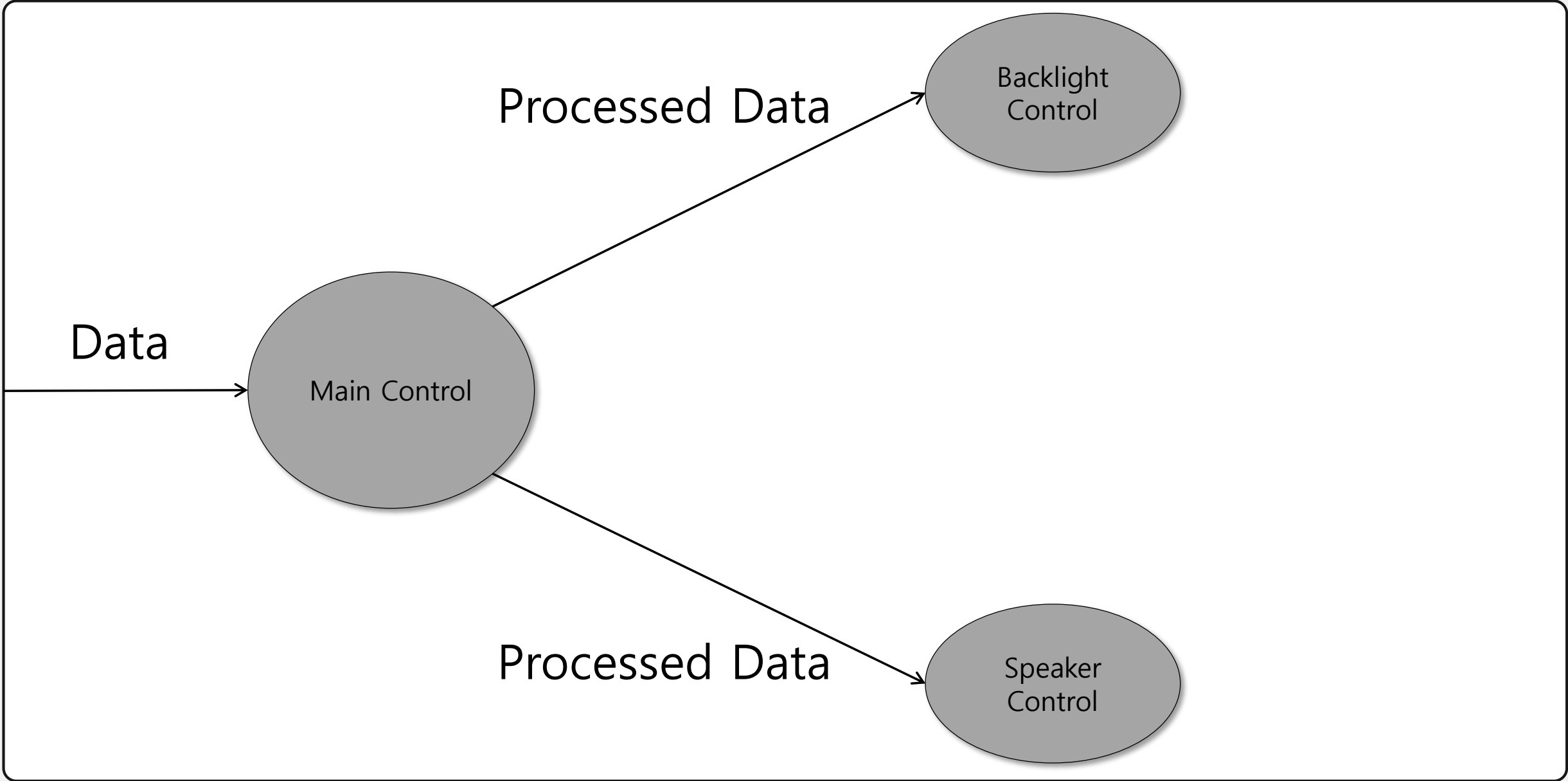
- **Statement Of Purpose**
- **Basic Idea**
- **System Context Diagram with Event List**
- **DFD 0~3 with Data Dictionary**
- **DFD Level 4 : State Transition Diagram**

Statement Of Purpose

Digital Watch (DW)

- **Digital Watch has three modes. (Time Keeping, Alarm , Stopwatch)**
- **It displays time and user can modify time**
- **User can set Alarm time and If it's time to alarm sound user set before, alarm speaker ring the sound**
- **It can check Lap time while in stopwatch mode**
- **It can light on backlight when user wants to see screen brightly**

Basic Idea



System Context Diagram

System
Context
Diagram

DFD Level 0

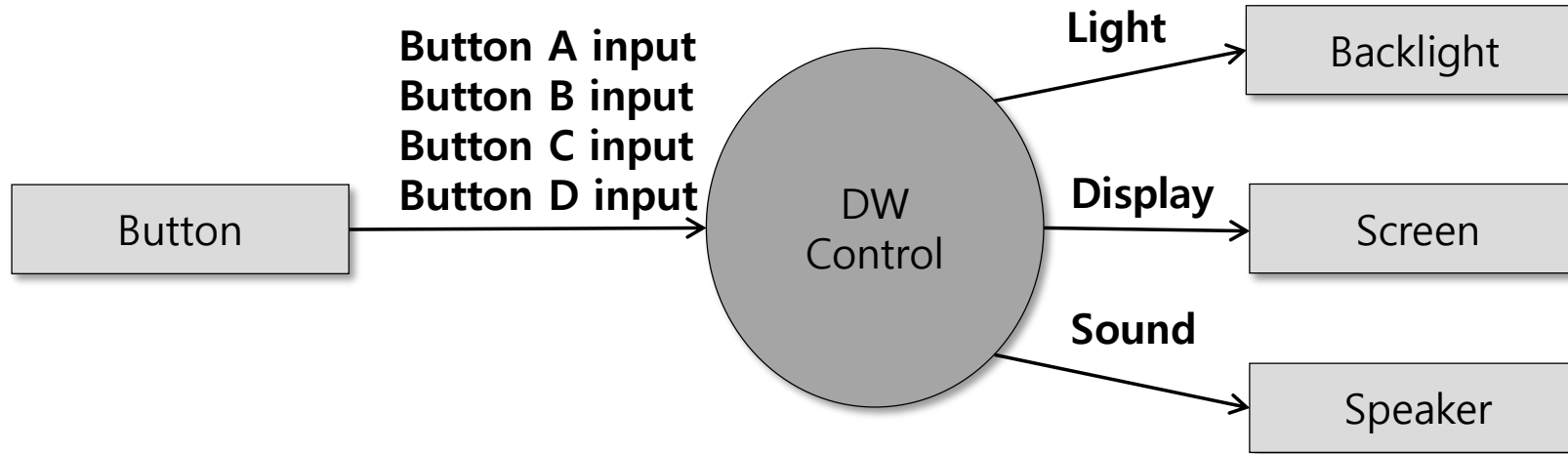
DFD Level 1

DFD Level 2

DFD Level 3

DFD Level 4

DFD



System Context Diagram – Event List

System
Context
Diagram

DFD Level 0

DFD Level 1

DFD Level 2

DFD Level 3

DFD Level 4

DFD

Input/Output Event	Description
Button A input	디지털 시계에 A 버튼을 입력 받습니다.
Button B input	디지털 시계에 B 버튼을 입력 받습니다.
Button C input	디지털 시계에 C 버튼을 입력 받습니다.
Button D input	디지털 시계에 D 버튼을 입력 받습니다.
Light	디지털 시계의 Backlight를 작동시킵니다.
Display	디지털 시계의 화면을 표시합니다.
Sound	디지털 시계의 알람을 울립니다.

DFD Level 0

System
Context
Diagram

DFD Level 0

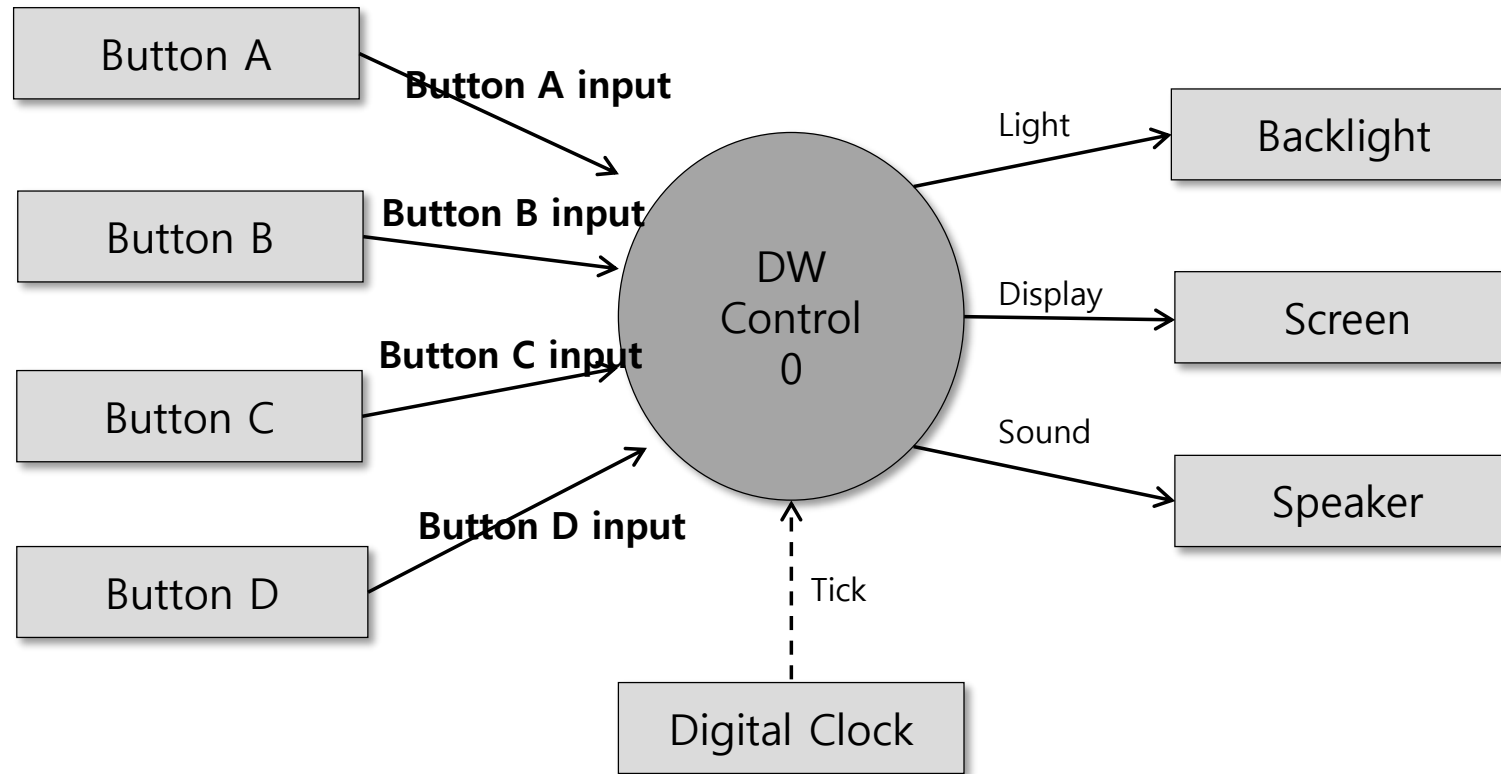
DFD Level 1

DFD Level 2

DFD Level 3

DFD Level 4

DFD



DFD Level 0 – Data Dictionary

System
Context
Diagram

DFD Level 0

Input/Output Event	Description	Format / Type
Button A input	디지털 시계에 A 버튼을 입력 받습니다.	True / False , Interrupt
Button B input	디지털 시계에 B 버튼을 입력 받습니다.	True / False , Interrupt
Button C input	디지털 시계에 C 버튼을 입력 받습니다.	True / False , Interrupt
Button D input	디지털 시계에 D 버튼을 입력 받습니다.	True / False , Interrupt
Light	디지털 시계의 Backlight를 작동시킵니다.	On/Off
Display	디지털 시계의 화면을 표시합니다.	Timekeeping / Alarm / Stopwatch
Sound	디지털 시계의 알람을 울립니다.	On/Off

DFD Level 1

DFD Level 2

DFD Level 3

DFD Level 4

DFD

DFD Level 1

System
Context
Diagram

DFD Level 0

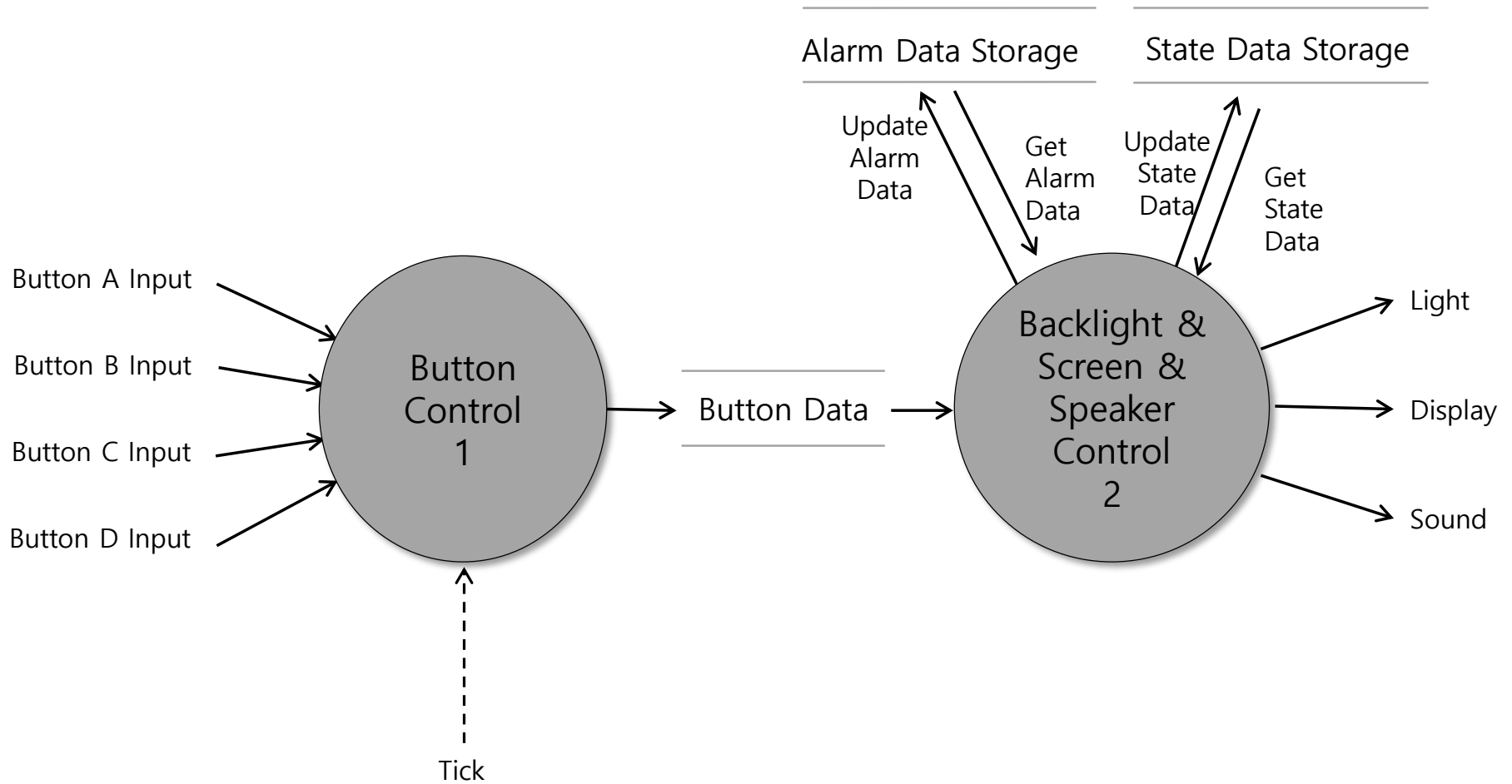
DFD Level 1

DFD Level 2

DFD Level 3

DFD Level 4

DFD



DFD Level 1 – Data Dictionary

System
Context
Diagram

DFD Level 0

DFD Level 1

DFD Level 2

DFD Level 3

DFD Level 4

DFD

Input/Output Event	Description	Format / Type
Alarm Data (Storage)	1.알람 indicator 정보(On/Off) 2.설정된 알람 시간(char* "hh.mm") 3.알람 소리 작동 정보(On/Off)	Structure / Periodic
State Data (Storage)	1.현재 동작중인 모드 정보 2.Stop Watch 데이터	Structure / Periodic
Button Data	입력된 버튼 데이터 저장	Char * / Interrupt
Update Alarm Data	알람 데이터 업데이트	Event / Interrupt
Get Alarm Data	알람 데이터 저장소에서 데이터를 가져옴	Event / Periodic
Update State Data	스태이트 데이터 업데이트	Event / Interrupt
Get State Data	스태이트 데이터 저장소에서 데이터를 가져옴	Event / Periodic

DFD Level 2

System
Context
Diagram

DFD Level 0

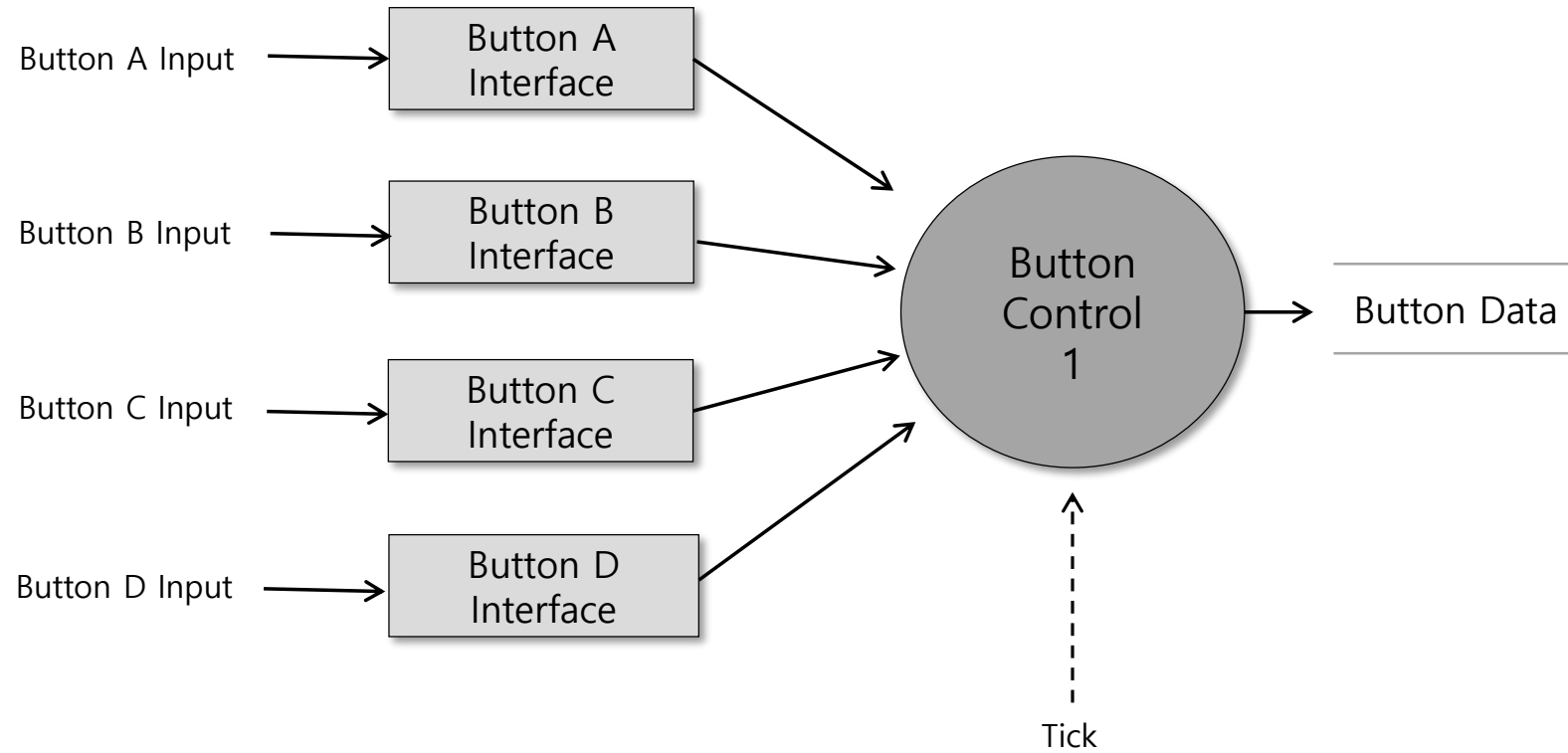
DFD Level 1

DFD Level 2

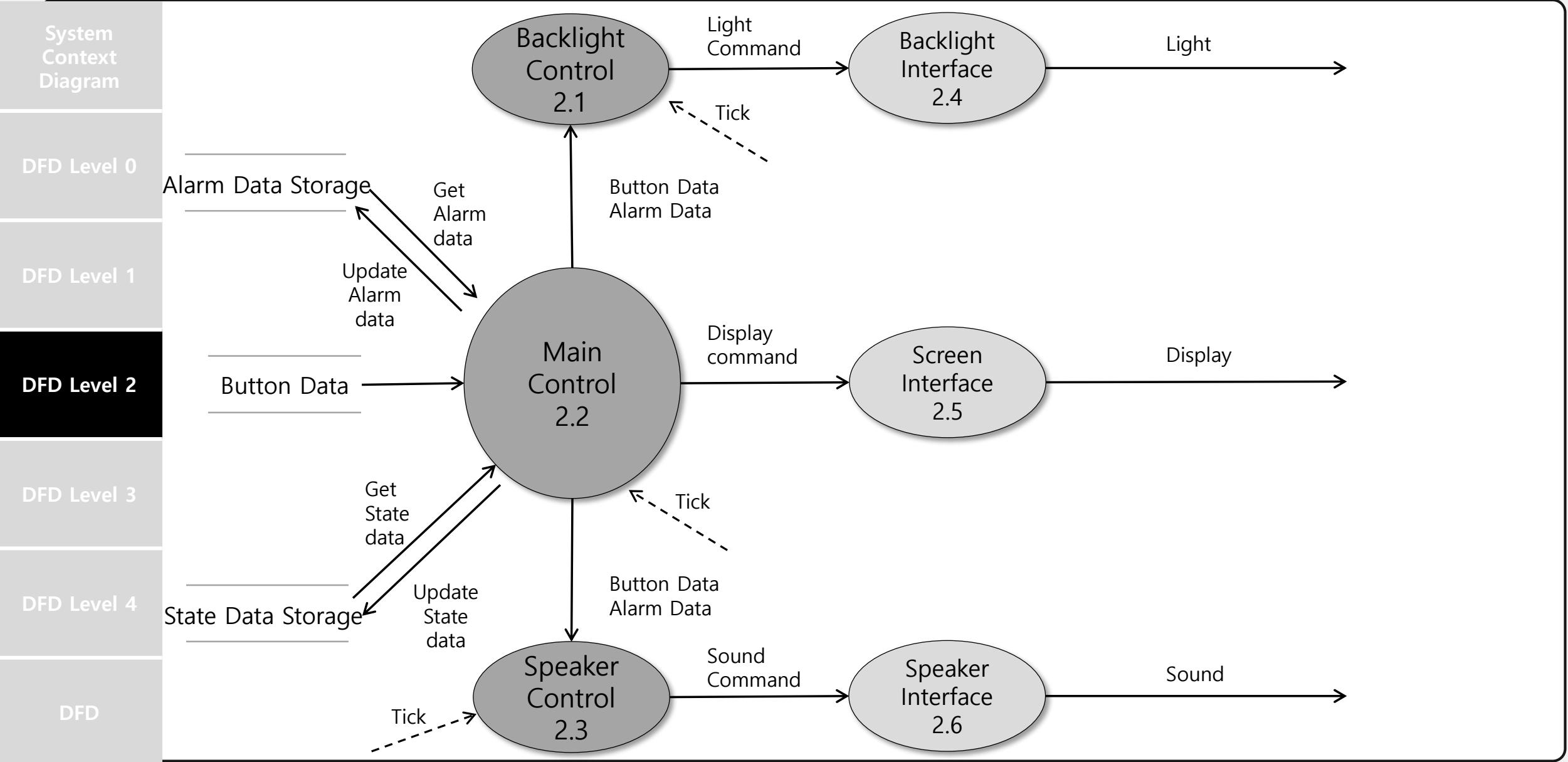
DFD Level 3

DFD Level 4

DFD



DFD Level 2



DFD Level 3 Backlight Controller

System Context Diagram

DFD Level 0

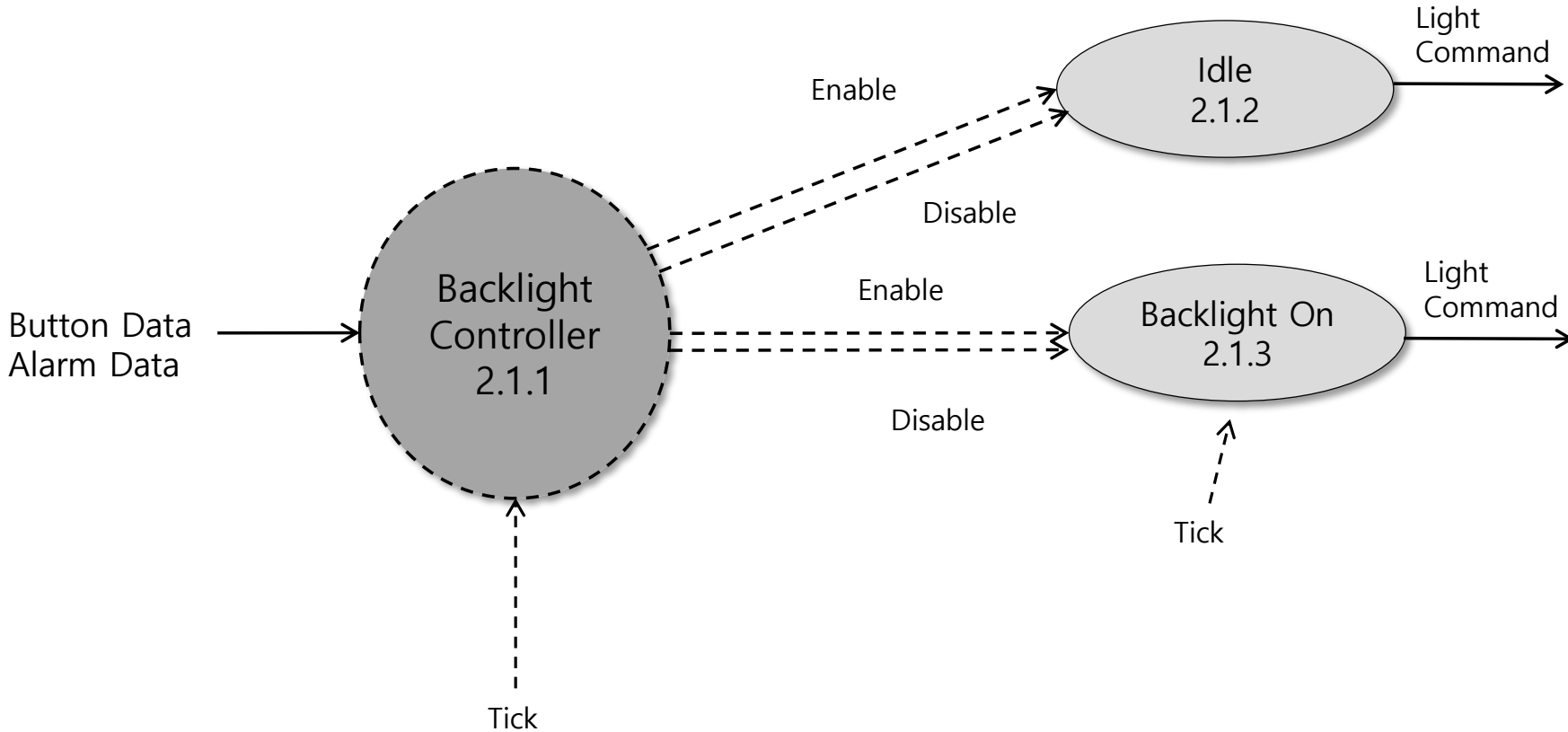
DFD Level 1

DFD Level 2

DFD Level 3

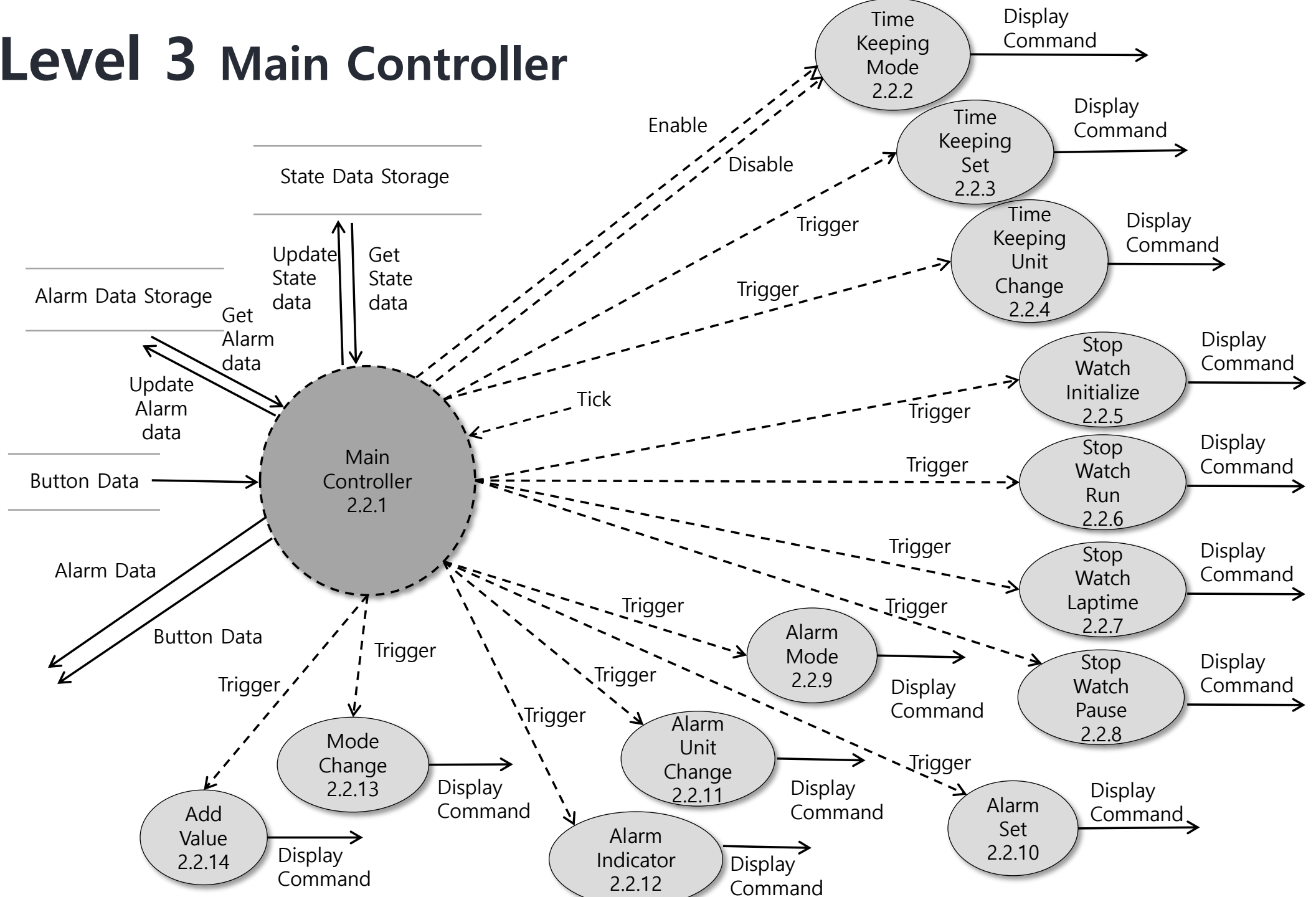
DFD Level 4

DFD



DFD Level 3 Main Controller

System Context Diagram
DFD Level 0
DFD Level 1
DFD Level 2
DFD Level 3
DFD Level 4
DFD



DFD Level 3 Speaker Controller

System Context Diagram

DFD Level 0

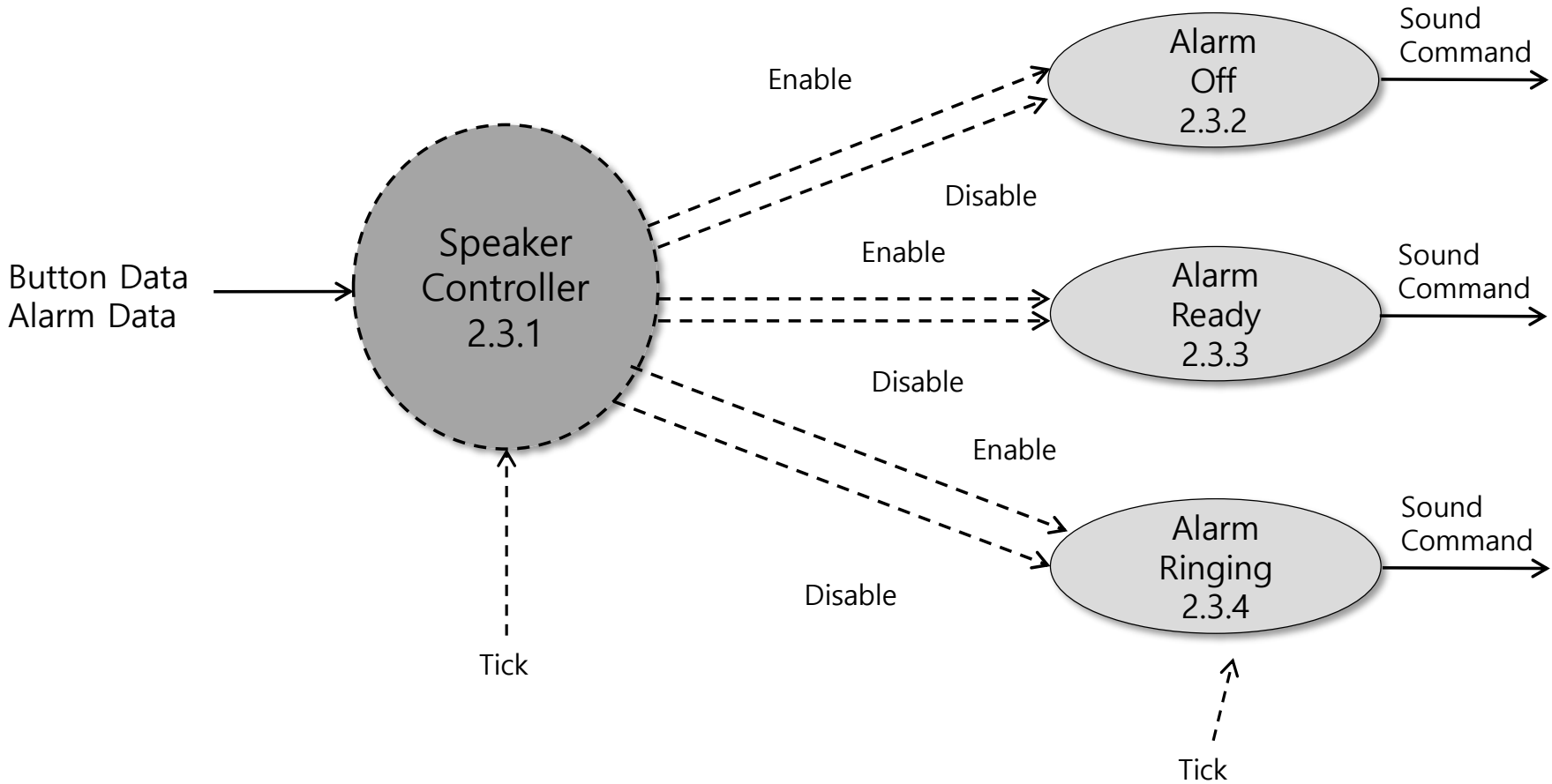
DFD Level 1

DFD Level 2

DFD Level 3

DFD Level 4

DFD



DFD Level 4 – Backlight State Transition Diagram

System
Context
Diagram

DFD Level 0

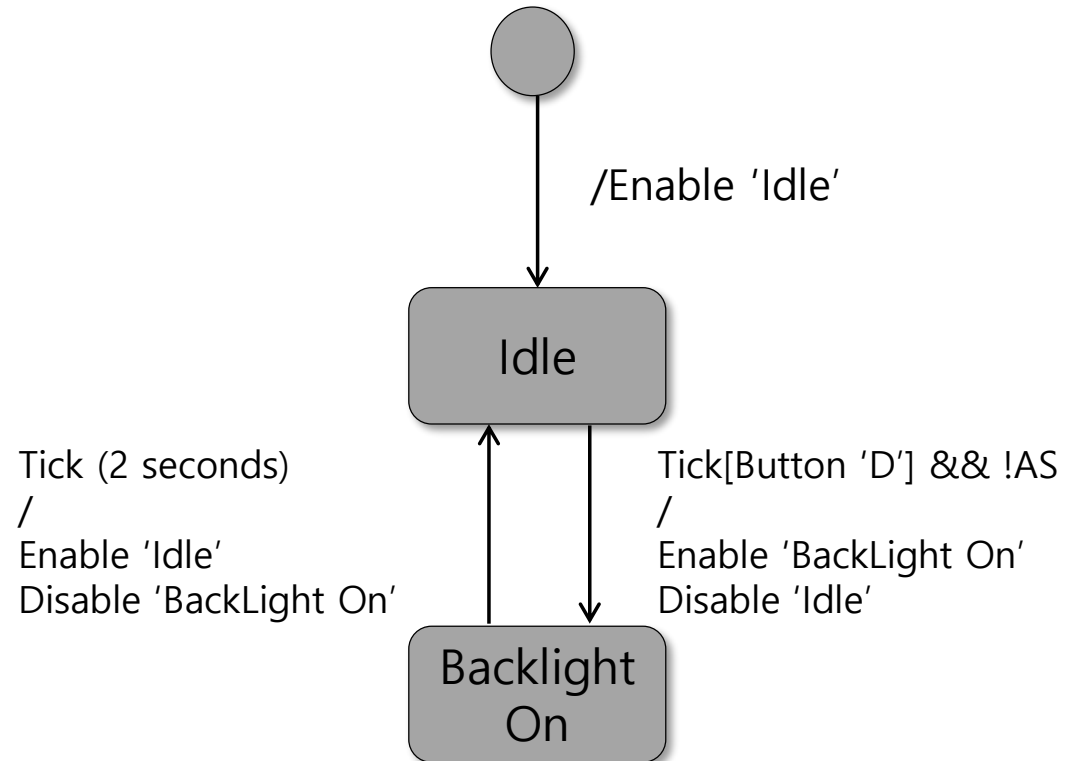
DFD Level 1

DFD Level 2

DFD Level 3

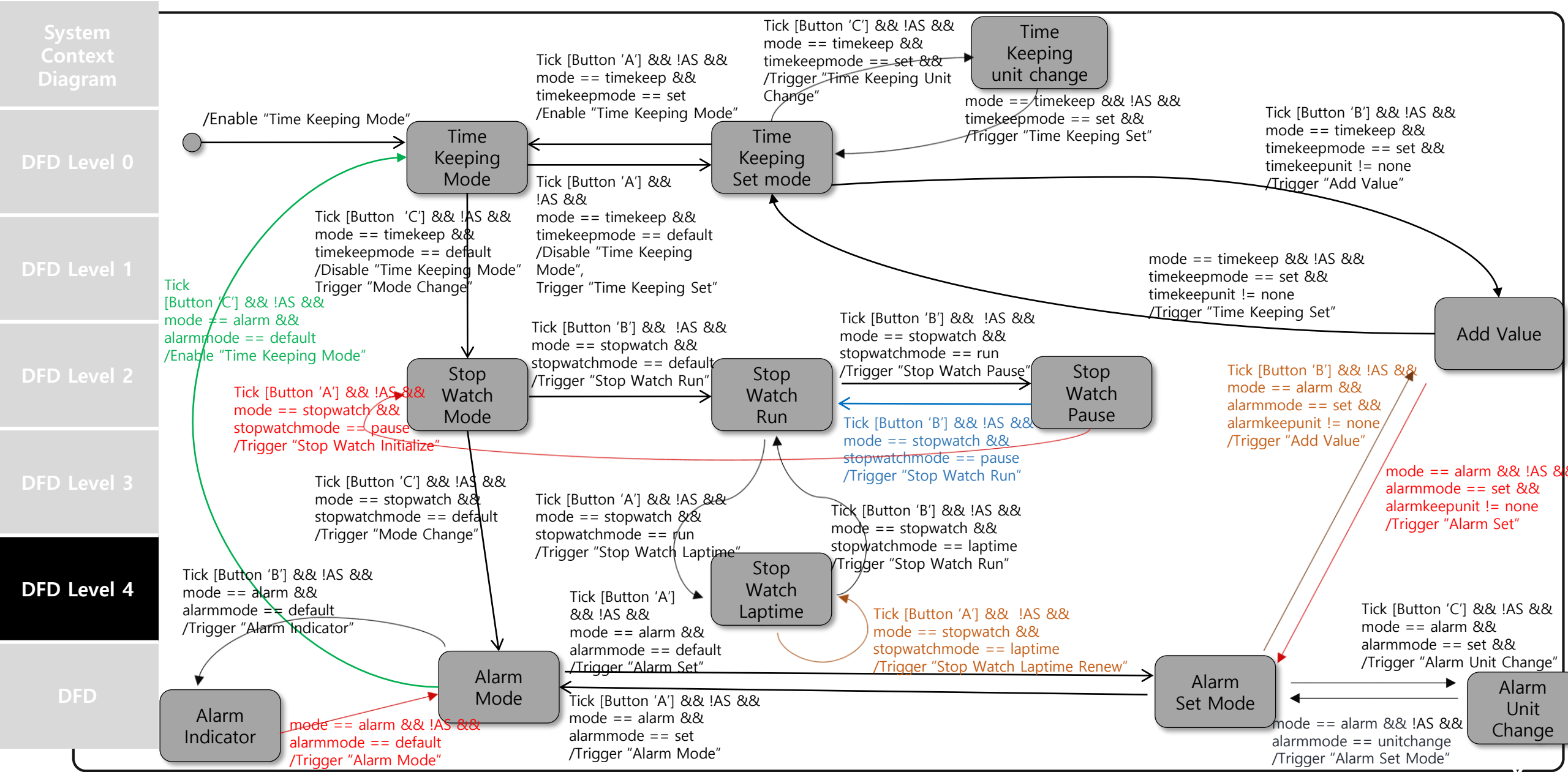
DFD Level 4

DFD



**AS : Alarm State
(On/Off)**

DFD Level 4 – Main State Transition Diagram



DFD Level 4 – Speaker State Transition Diagram

System
Context
Diagram

DFD Level 0

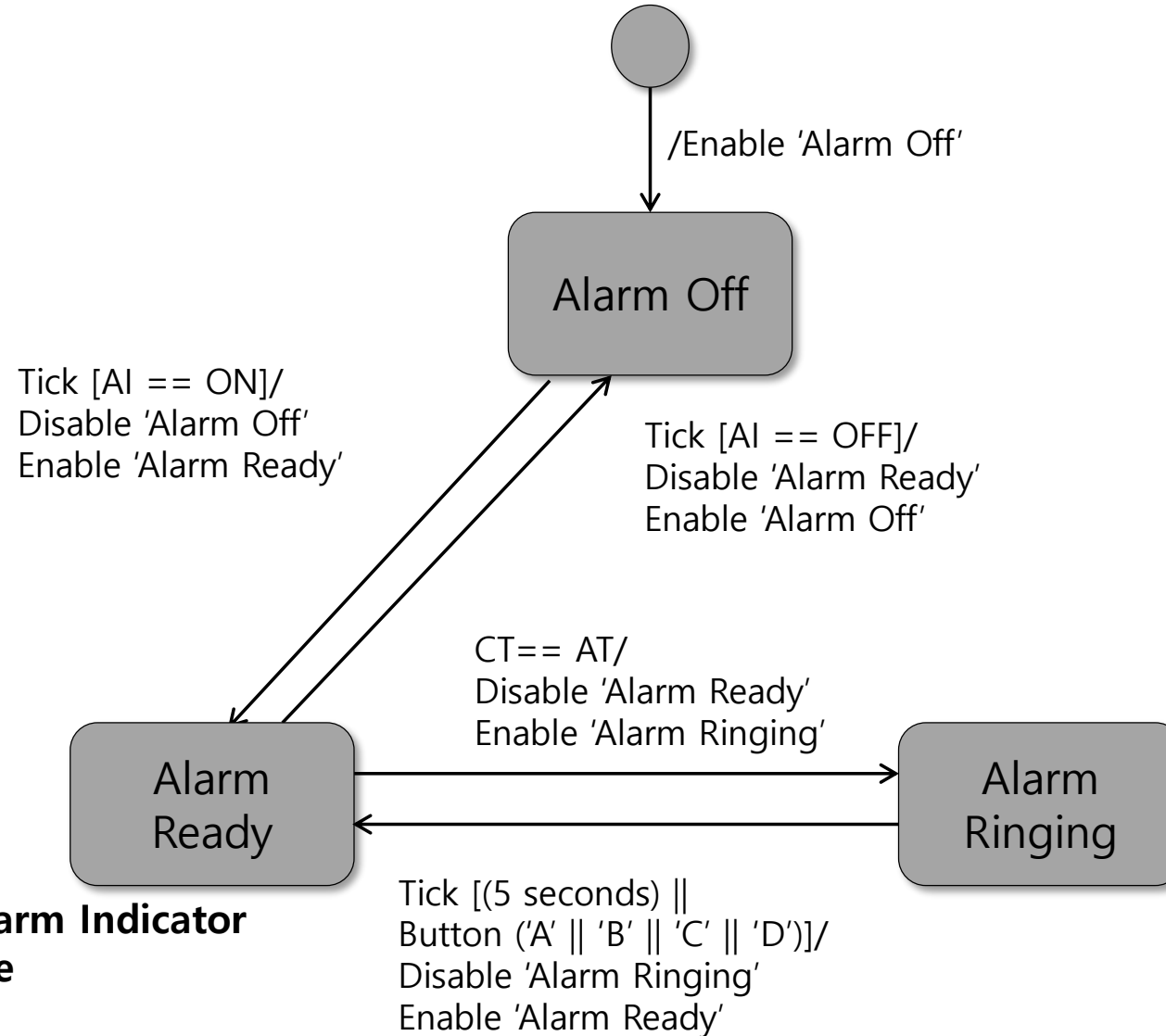
DFD Level 1

DFD Level 2

DFD Level 3

DFD Level 4

DFD



DFD

System Context Diagram

DFD Level 0

DFD Level 1

DFD Level 2

DFD Level 3

DFD Level 4

DFD

