Software Engineering

team project #2

Digital Watch – SD

Team 7

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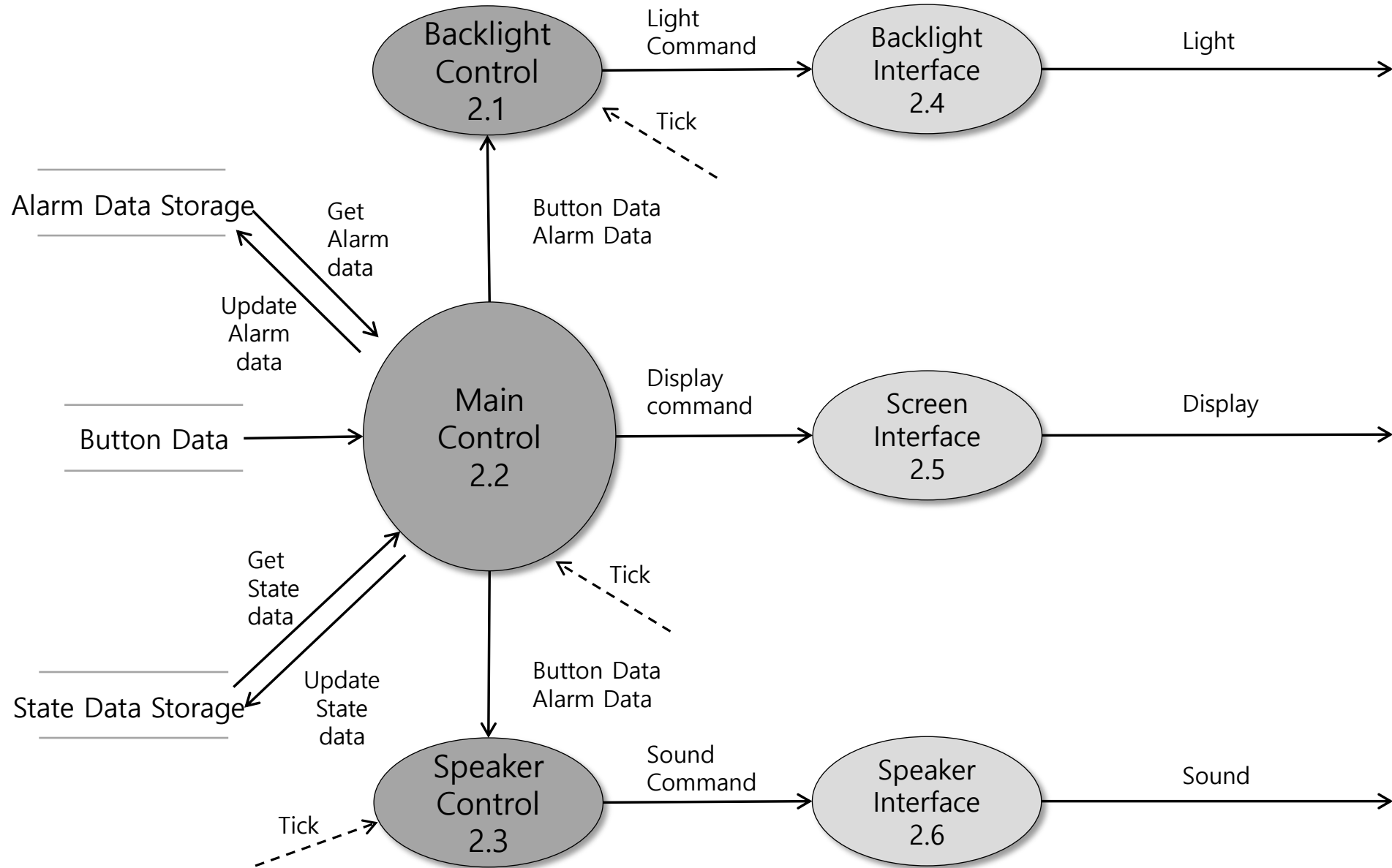
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- **SA 수정**
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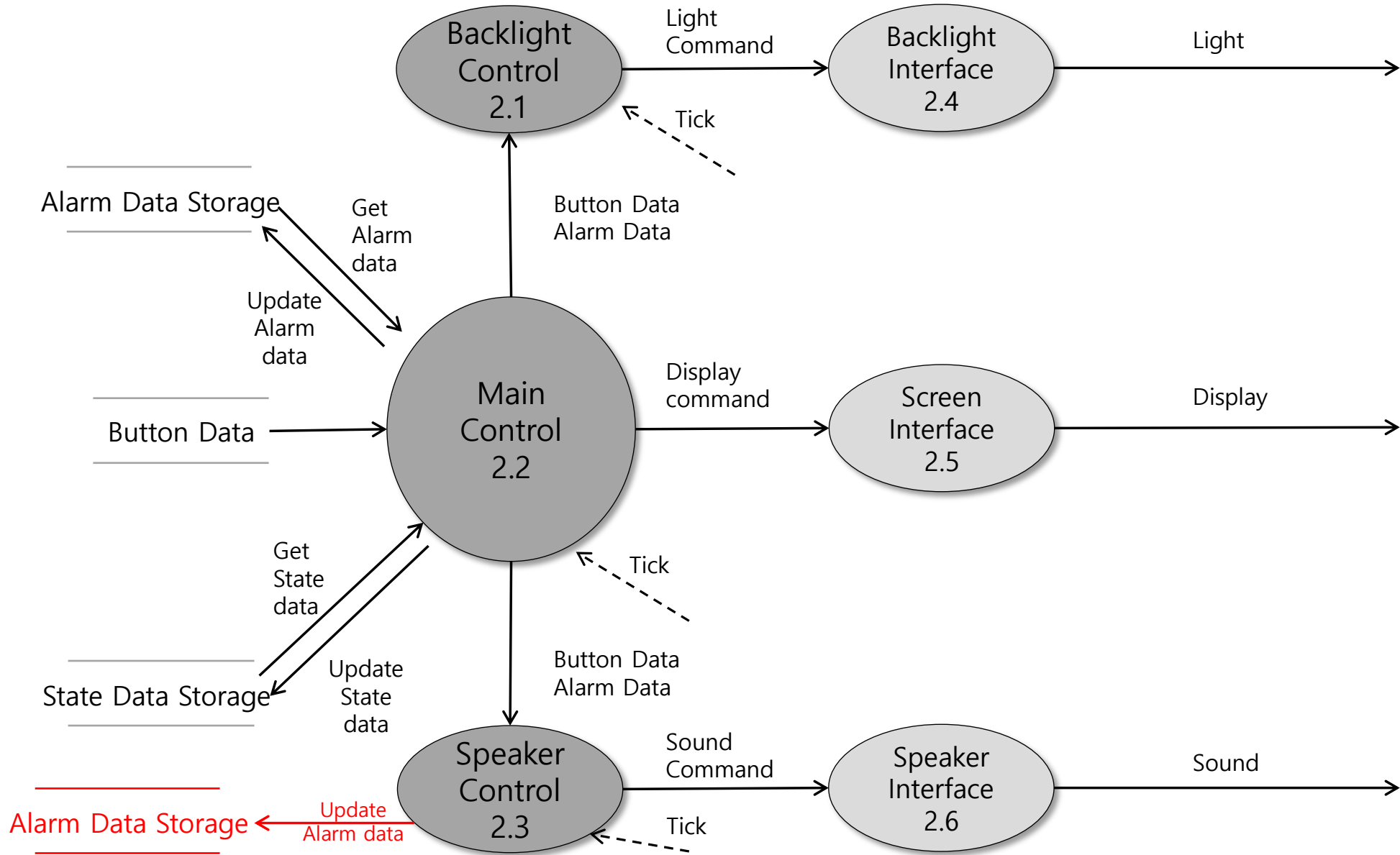- **Structured Charts - Advanced**

SA 수정

DFD Level 2

DFD Level 2 (수정)

DFD Level 3 Main Controller

State Data Storage

Alarm Data Storage

Button Data

Update State data

Get State data

Get Alarm data

Update Alarm data

Alarm Data

Button Data

Main Controller 2.2.1

Enable

Disable

Trigger

Trigger

Tick

Trigger

Trigger

Trigger

Trigger

Trigger

Trigger

Trigger

Trigger

Trigger

Trigger

Time Keeping Mode 2.2.2 → Display Command

Time Keeping Set 2.2.3 → Display Command

Time Keeping Unit Change 2.2.4 → Display Command

Stop Watch Mode 2.2.5 → Display Command

Stop Watch Run 2.2.6 → Display Command

Stop Watch Laptime 2.2.7 → Display Command

Stop Watch Pause 2.2.8 → Display Command

Alarm Mode 2.2.9 → Display Command

Alarm Set 2.2.10 → Display Command

Alarm Unit Change 2.2.11 → Display Command

Alarm Indicator 2.2.12 → Display Command

Mode Change 2.2.13 → Display Command

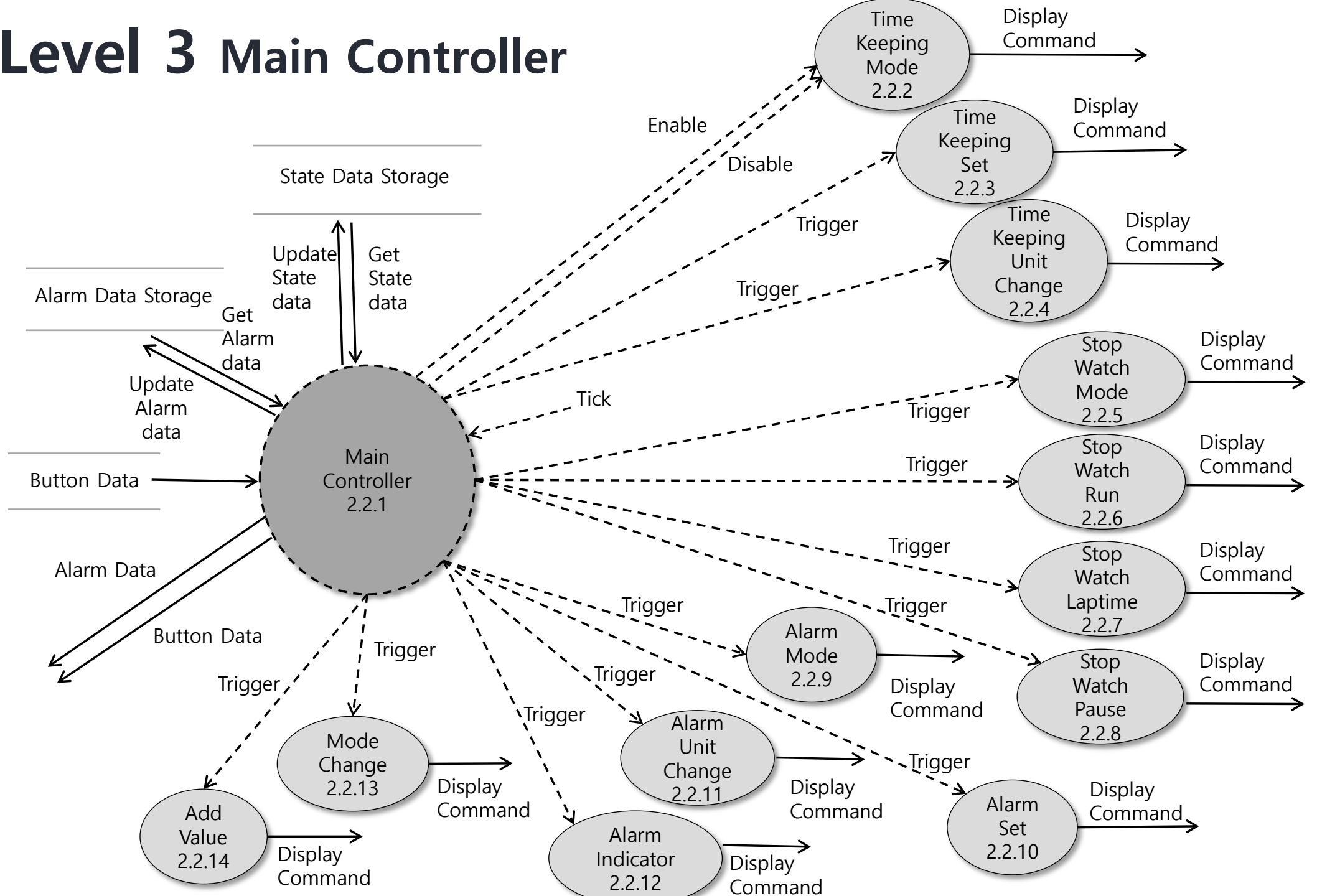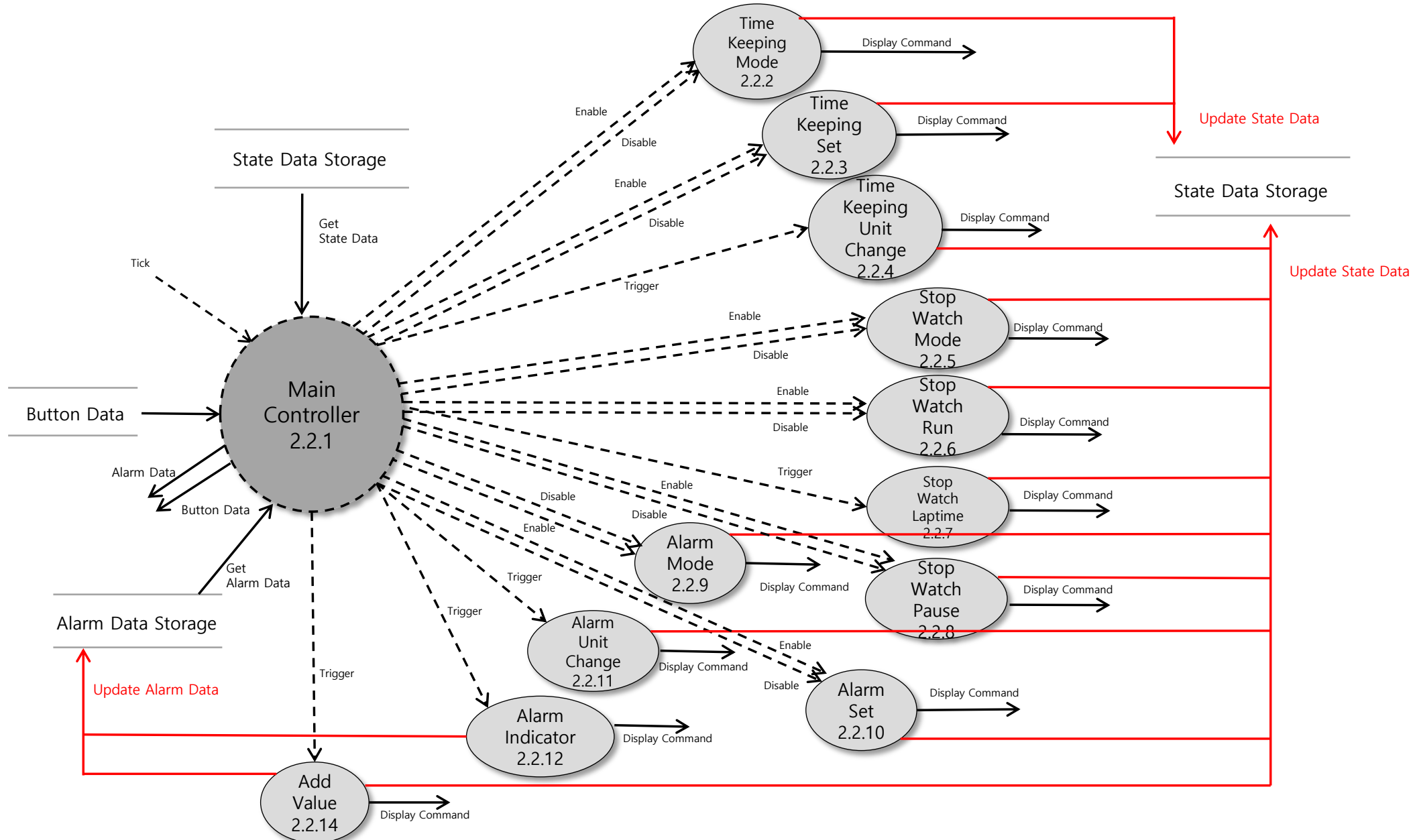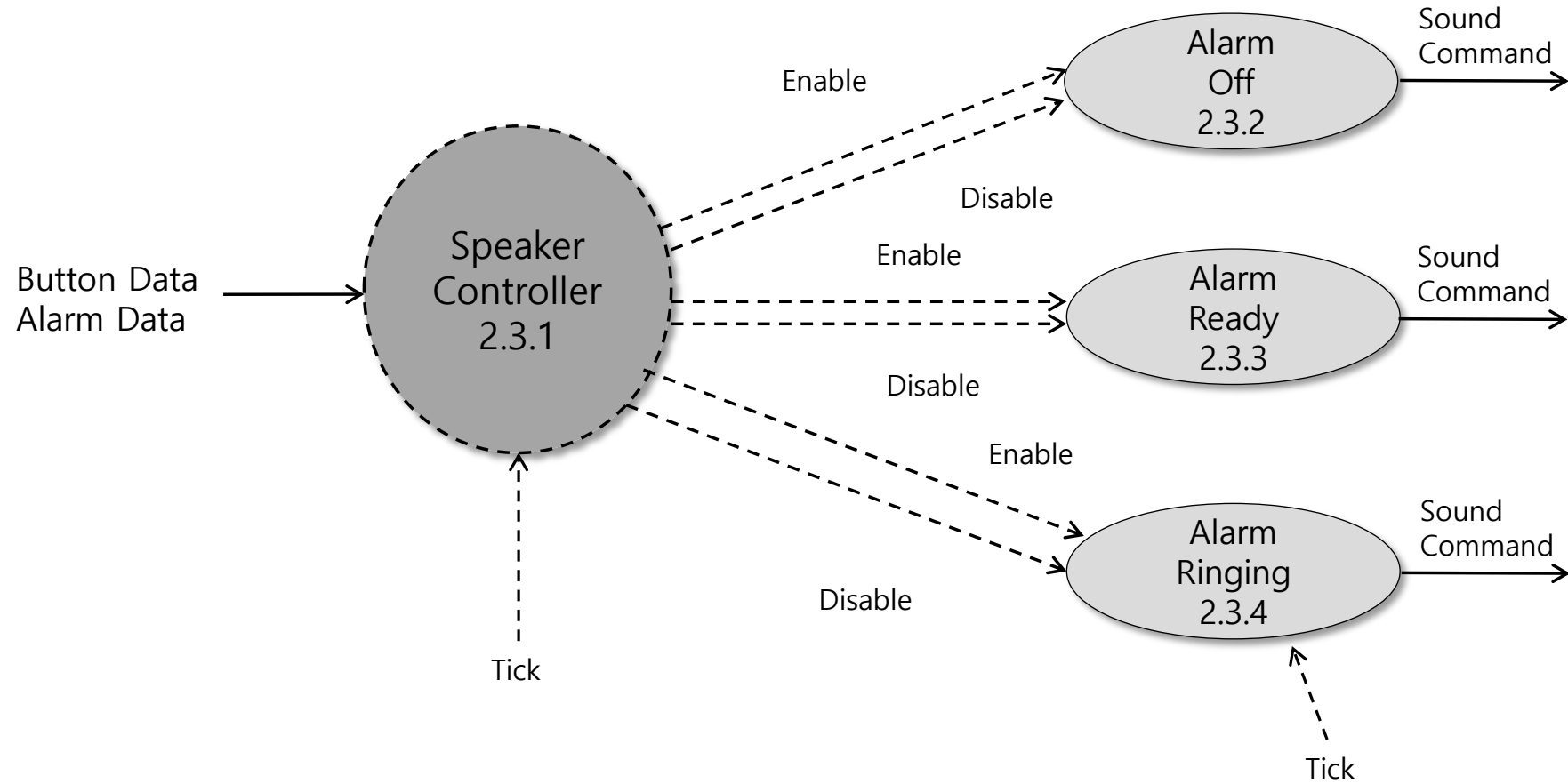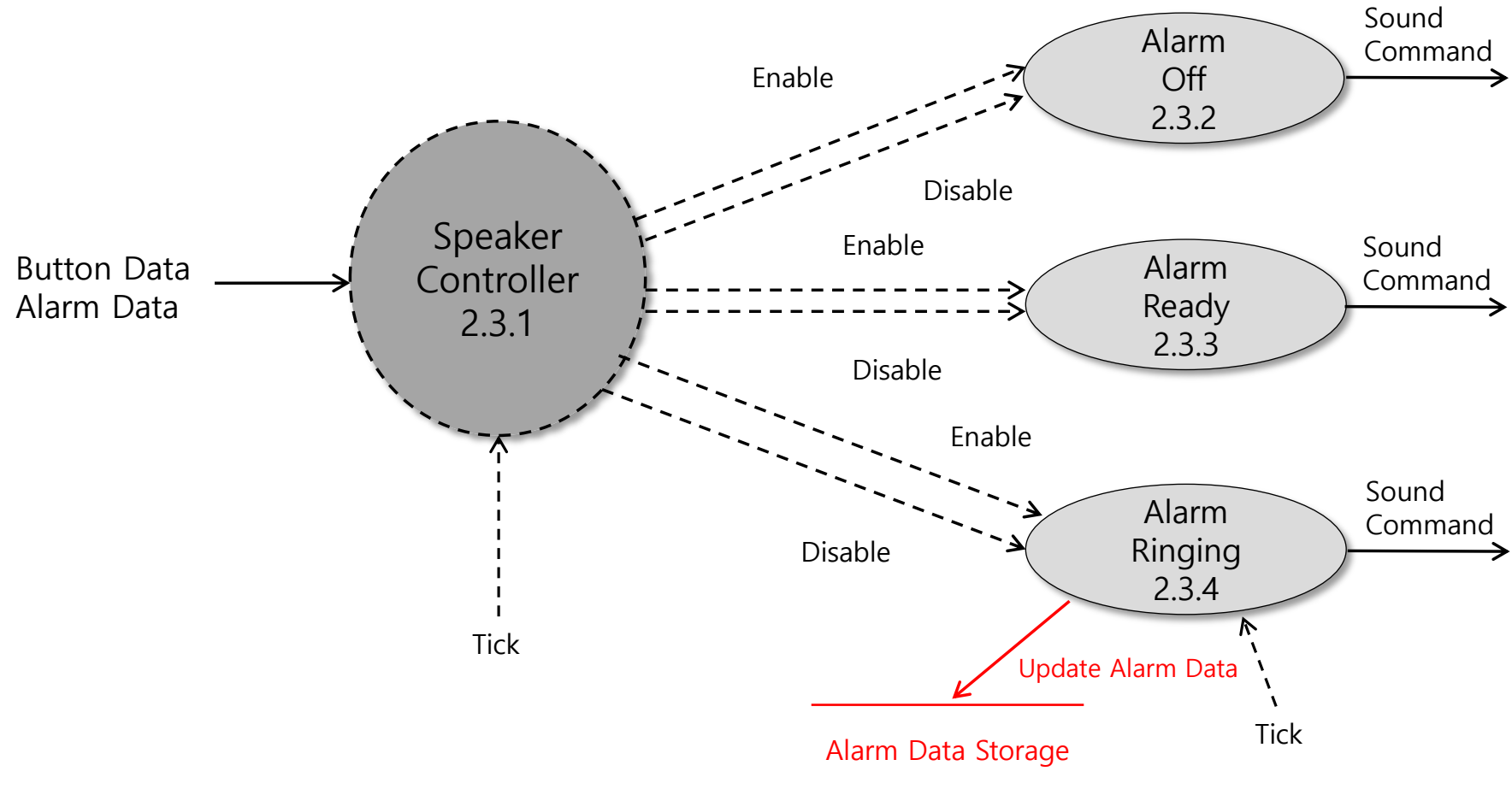Add Value 2.2.14 → Display Command

DFD Level 3 Main Controller (수정)

System Context Diagram

DFD Level 0

DFD Level 1

DFD Level 2

DFD Level 3

DFD Level 4

DFD

DFD Level 3 Speaker Controller

Button Data
Alarm Data

Speaker Controller
2.3.1

Enable

Disable

Alarm Off
2.3.2

Sound Command

Enable

Disable

Alarm Ready
2.3.3

Sound Command

Enable

Disable

Alarm Ringing
2.3.4

Sound Command

Tick

Tick

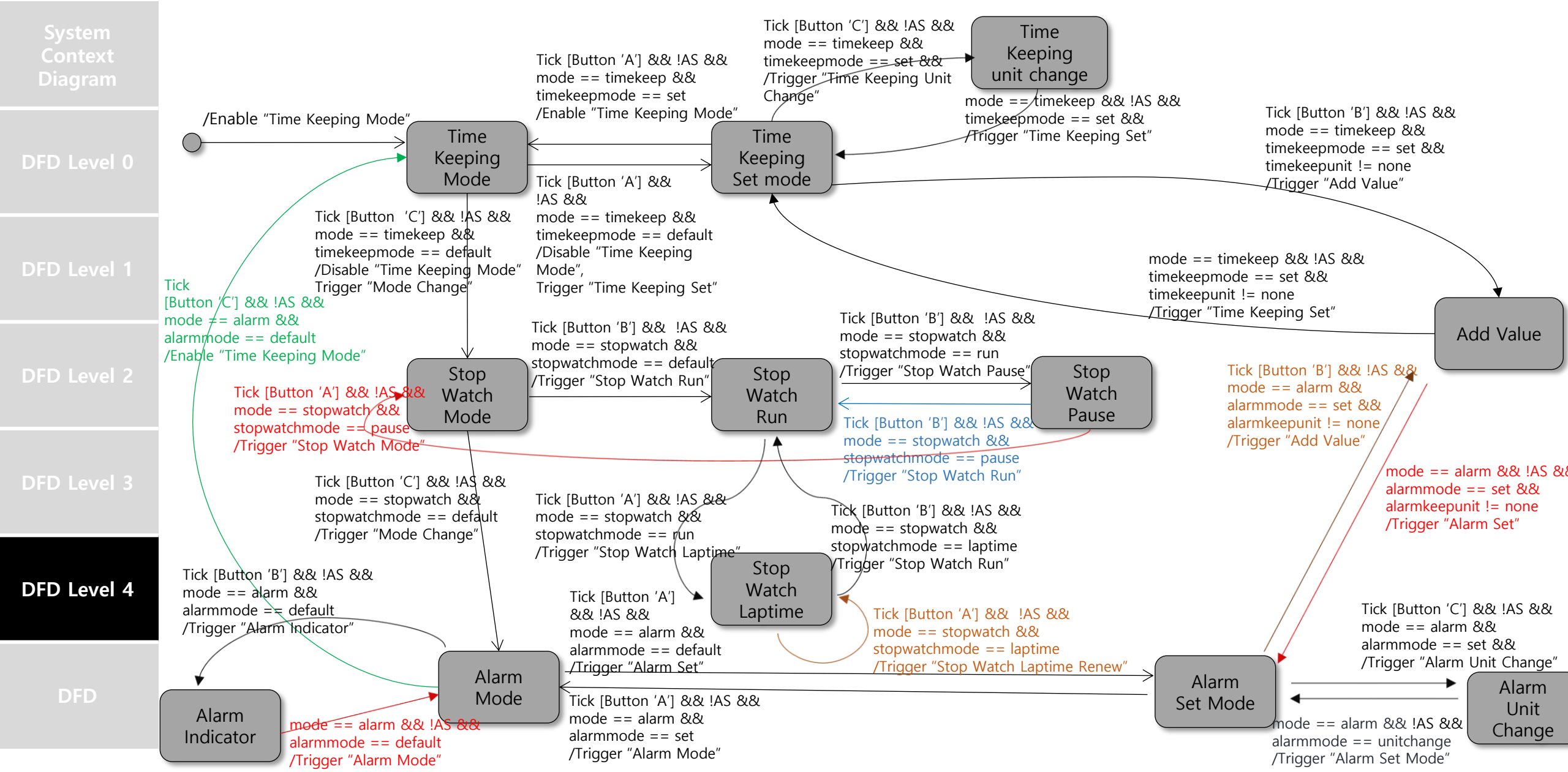# DFD Level 3 Speaker Controller (수정)

System Context Diagram

DFD Level 0

DFD Level 1

DFD Level 2

DFD Level 3

DFD Level 4

DFD

Button Data
Alarm Data
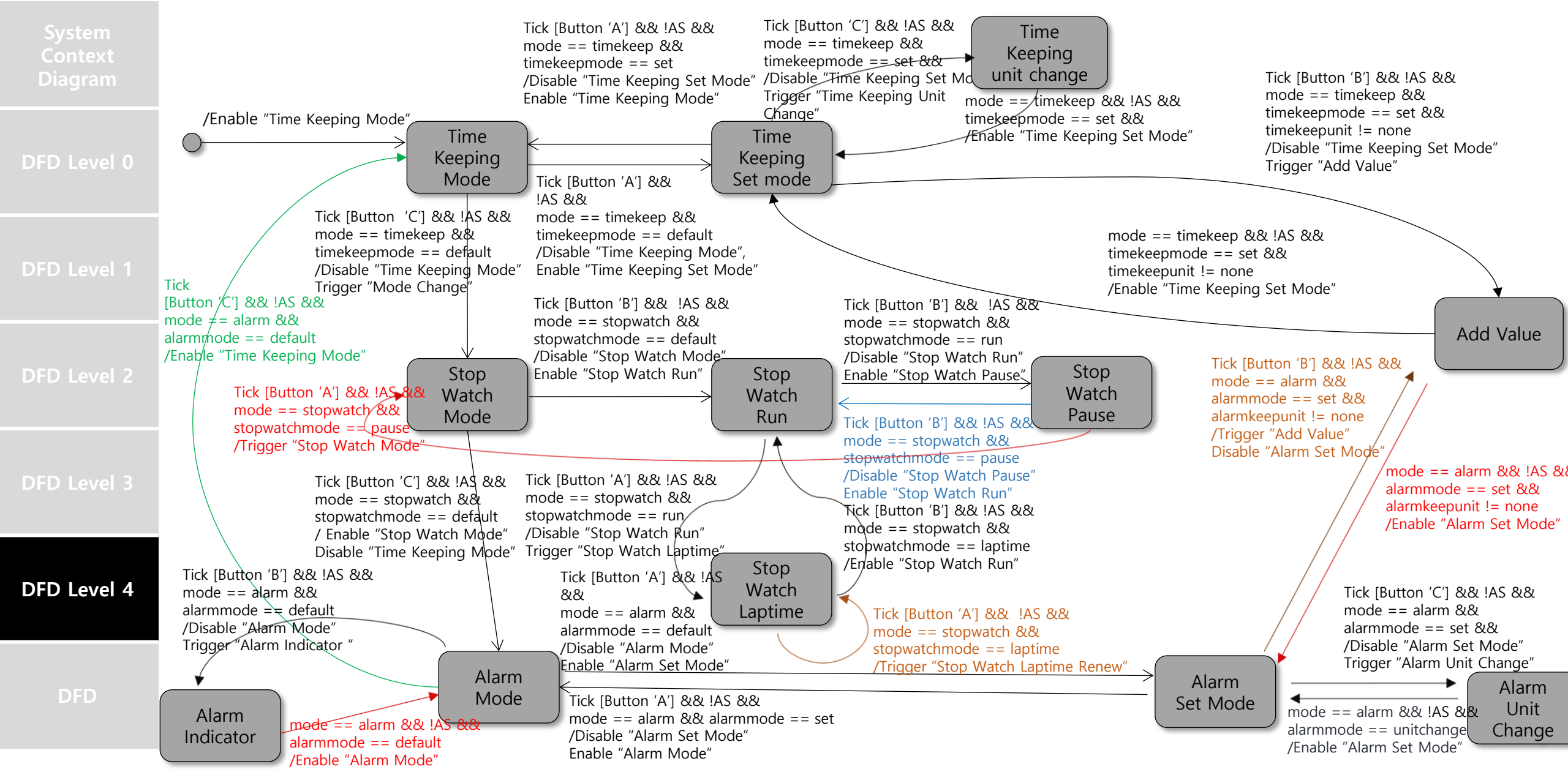
Speaker
Controller
2.3.1

Enable

Disable

Alarm
Off
2.3.2

Sound
Command

Enable

Disable

Alarm
Ready
2.3.3

Sound
Command

Enable

Disable

Alarm
Ringing
2.3.4

Sound
Command

Tick

Update Alarm Data

Alarm Data Storage

Tick

DFD Level 4 – Main State Transition Diagram

/Enable "Time Keeping Mode"

Tick [Button 'A'] && !AS && mode == timekeep && timekeepmode == set /Enable "Time Keeping Mode"

Tick [Button 'C'] && !AS && mode == timekeep && timekeepmode == set && /Trigger "Time Keeping Unit Change"

Time Keeping unit change

mode == timekeep && !AS && timekeepmode == set && /Trigger "Time Keeping Set"

Time Keeping Mode

Time Keeping Set mode

Tick [Button 'A'] && !AS && mode == timekeep && timekeepmode == default /Disable "Time Keeping Mode", Trigger "Time Keeping Set"

Tick [Button 'B'] && !AS && mode == timekeep && timekeepmode == set && timekeepunit != none /Trigger "Add Value"

Tick [Button 'C'] && !AS && mode == timekeep && timekeepmode == default /Disable "Time Keeping Mode" Trigger "Mode Change"

mode == timekeep && !AS && timekeepmode == set && timekeepunit != none /Trigger "Time Keeping Set"

Add Value

Tick [Button 'C'] && !AS && mode == alarm && alarmmode == default /Enable "Time Keeping Mode"

Tick [Button 'B'] && !AS && mode == stopwatch && stopwatchmode == default /Trigger "Stop Watch Run"

Tick [Button 'B'] && !AS && mode == stopwatch && stopwatchmode == run /Trigger "Stop Watch Pause"

Stop Watch Mode

Stop Watch Run

Stop Watch Pause

Tick [Button 'A'] && !AS && mode == stopwatch && stopwatchmode == pause /Trigger "Stop Watch Mode"

Tick [Button 'B'] && !AS && mode == stopwatch && stopwatchmode == pause /Trigger "Stop Watch Run"

Tick [Button 'B'] && !AS && mode == alarm && alarmmode == set && alarmkeepunit != none /Trigger "Add Value"

Tick [Button 'C'] && !AS && mode == stopwatch && stopwatchmode == default /Trigger "Mode Change"

Tick [Button 'A'] && !AS && mode == stopwatch && stopwatchmode == run /Trigger "Stop Watch Laptime"

Tick [Button 'B'] && !AS && mode == stopwatch && stopwatchmode == laptime /Trigger "Stop Watch Run"

mode == alarm && !AS && alarmmode == set && alarmkeepunit != none /Trigger "Alarm Set"

Stop Watch Laptime

Tick [Button 'B'] && !AS && mode == alarm && alarmmode == default /Trigger "Alarm Indicator"

Tick [Button 'A'] && !AS && mode == alarm && alarmmode == default /Trigger "Alarm Set"

Tick [Button 'A'] && !AS && mode == stopwatch && stopwatchmode == laptime /Trigger "Stop Watch Laptime Renew"

Tick [Button 'C'] && !AS && mode == alarm && alarmmode == set && /Trigger "Alarm Unit Change"

Alarm Mode

Alarm Indicator

mode == alarm && !AS && alarmmode == default /Trigger "Alarm Mode"

Tick [Button 'A'] && !AS && mode == alarm && alarmmode == set /Trigger "Alarm Mode"

Alarm Set Mode

Alarm Unit Change

mode == alarm && !AS && alarmmode == unitchange /Trigger "Alarm Set Mode"

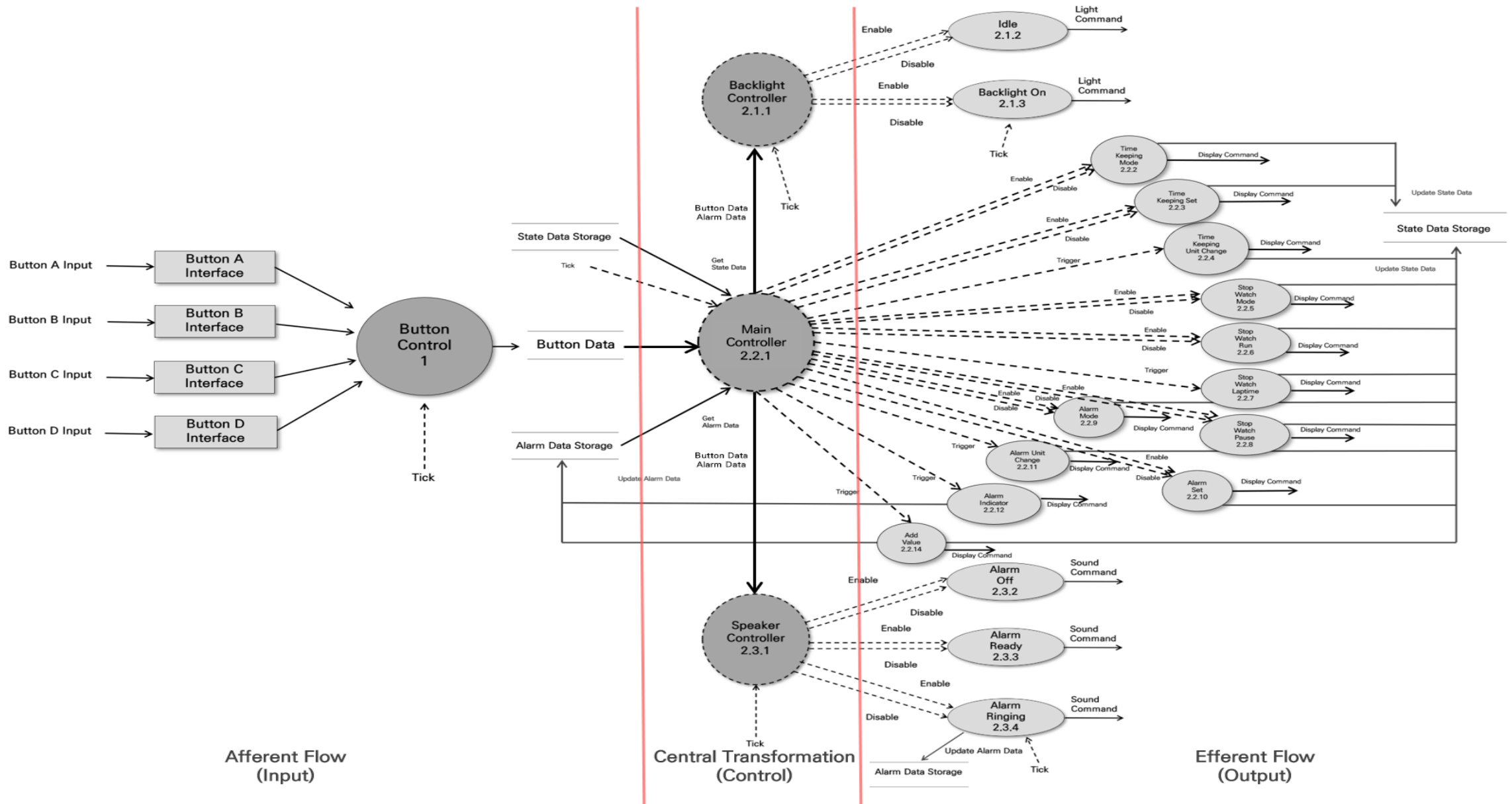# DFD Level 4 – Main State Transition Diagram (수정)

DFD

DFD (수정)

Structured Charts
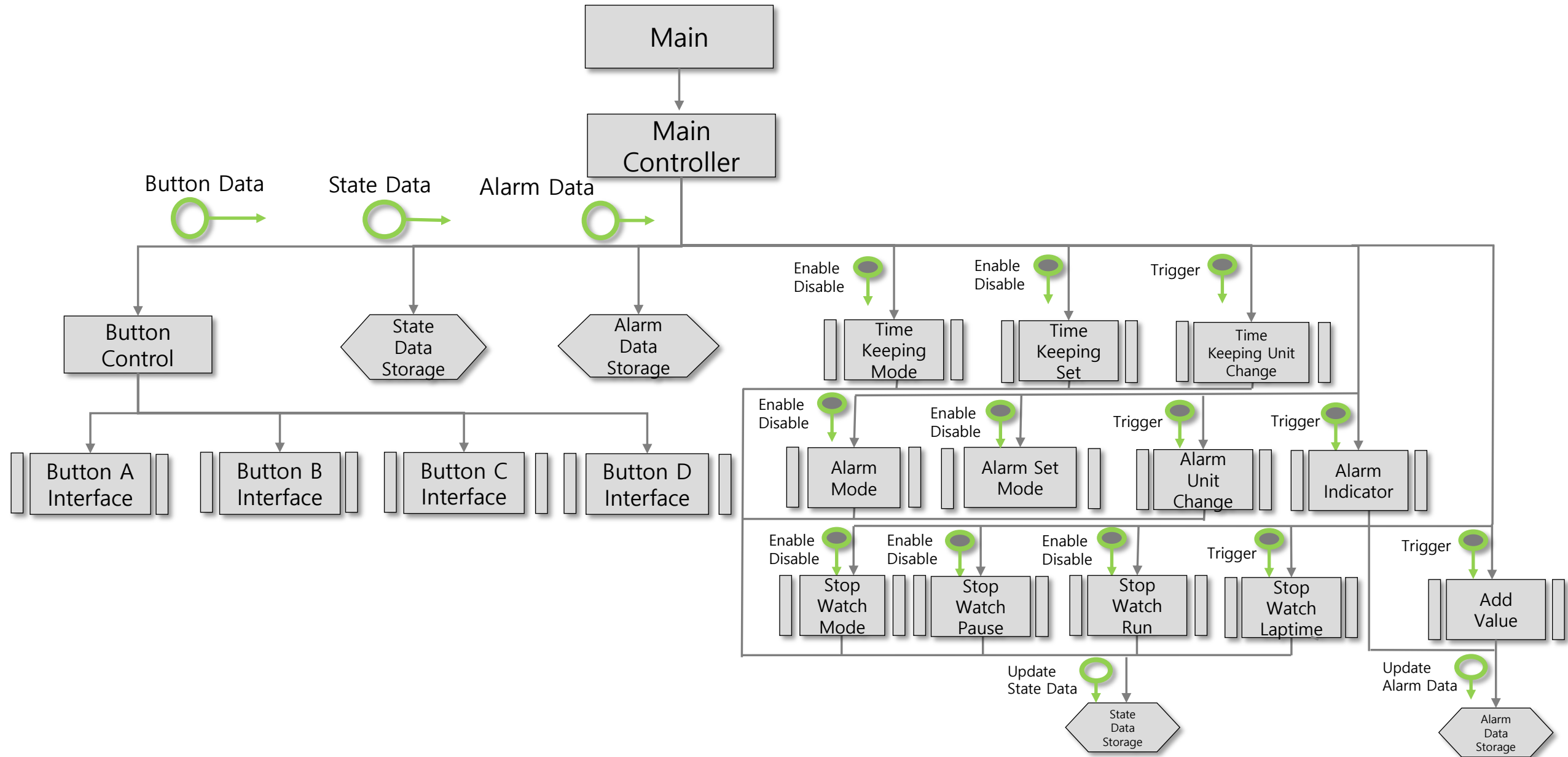
- Transform Analysis
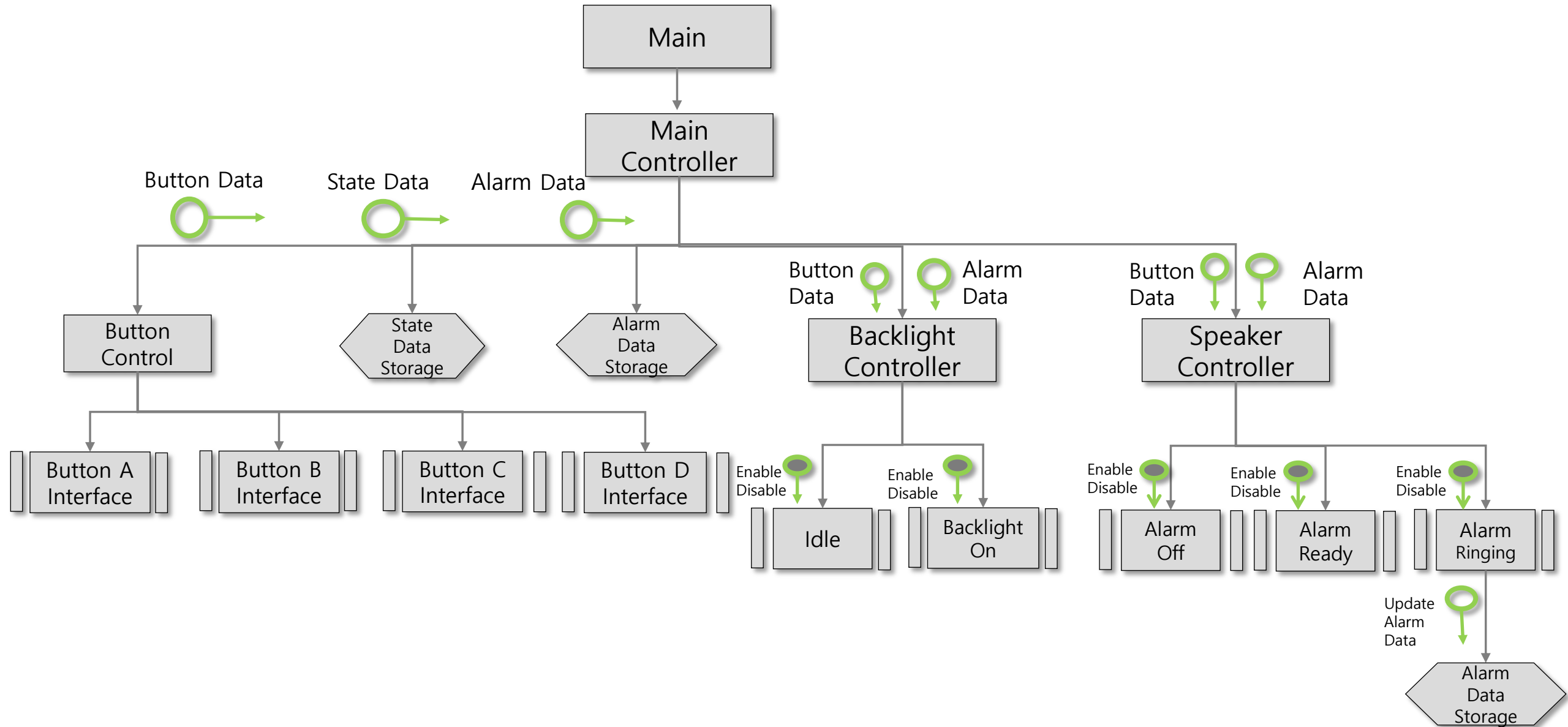
Structured Charts Transform Analysis
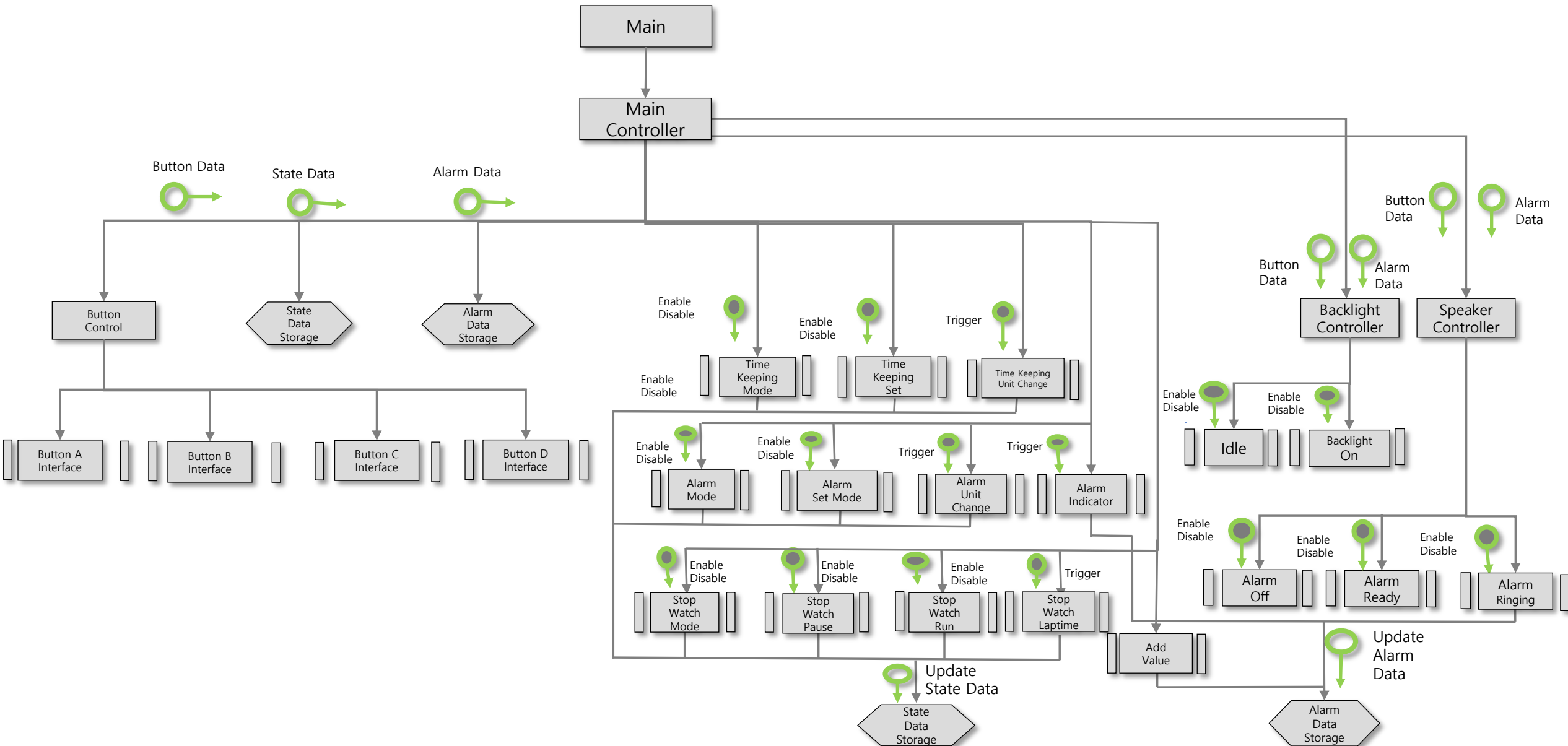
Structured Charts

- Basic

Structured Charts – Main

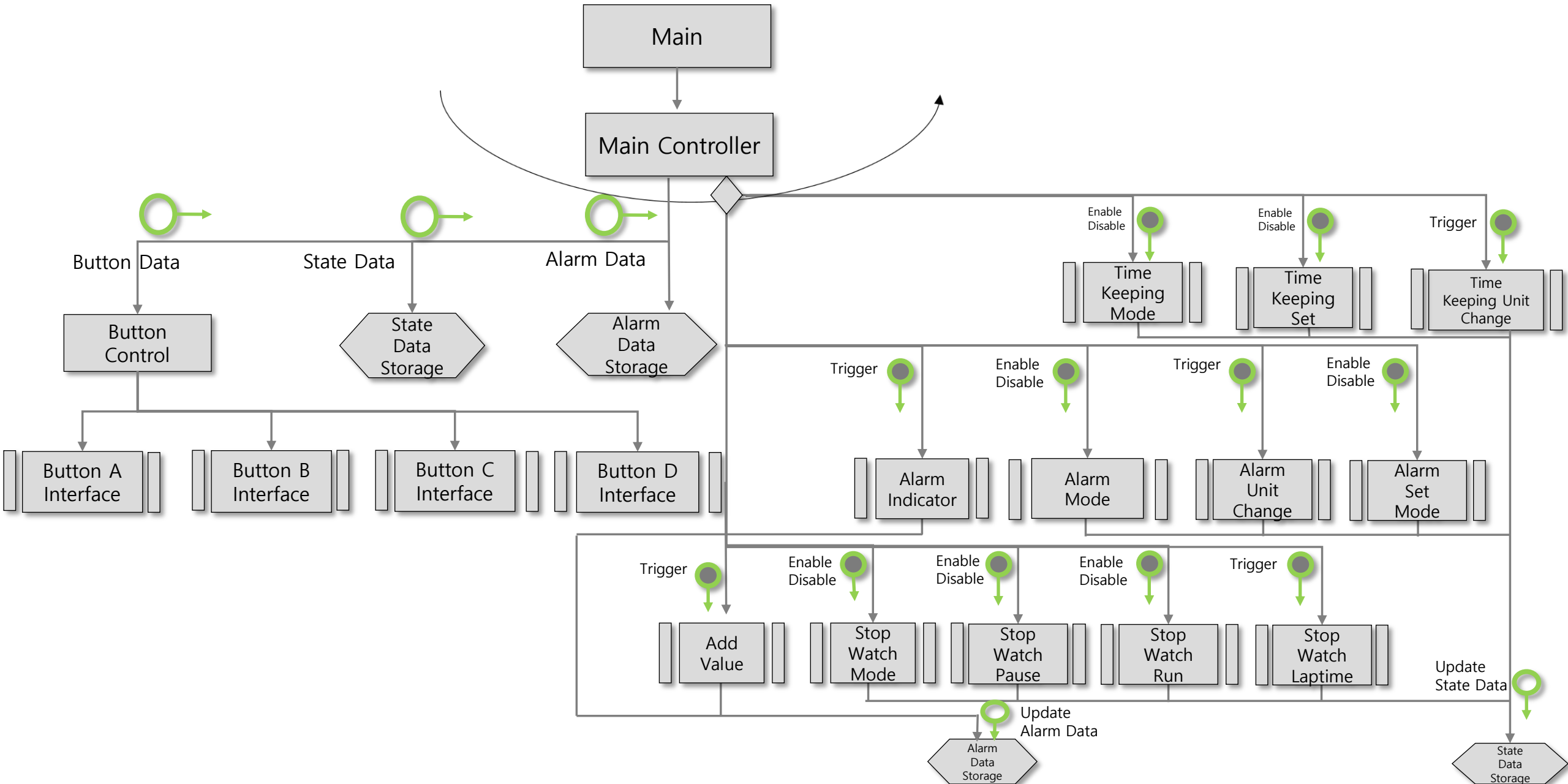# Structured Charts - Backlight, Speaker

Structured Charts(Basic)

Structured Charts

 - Advanced
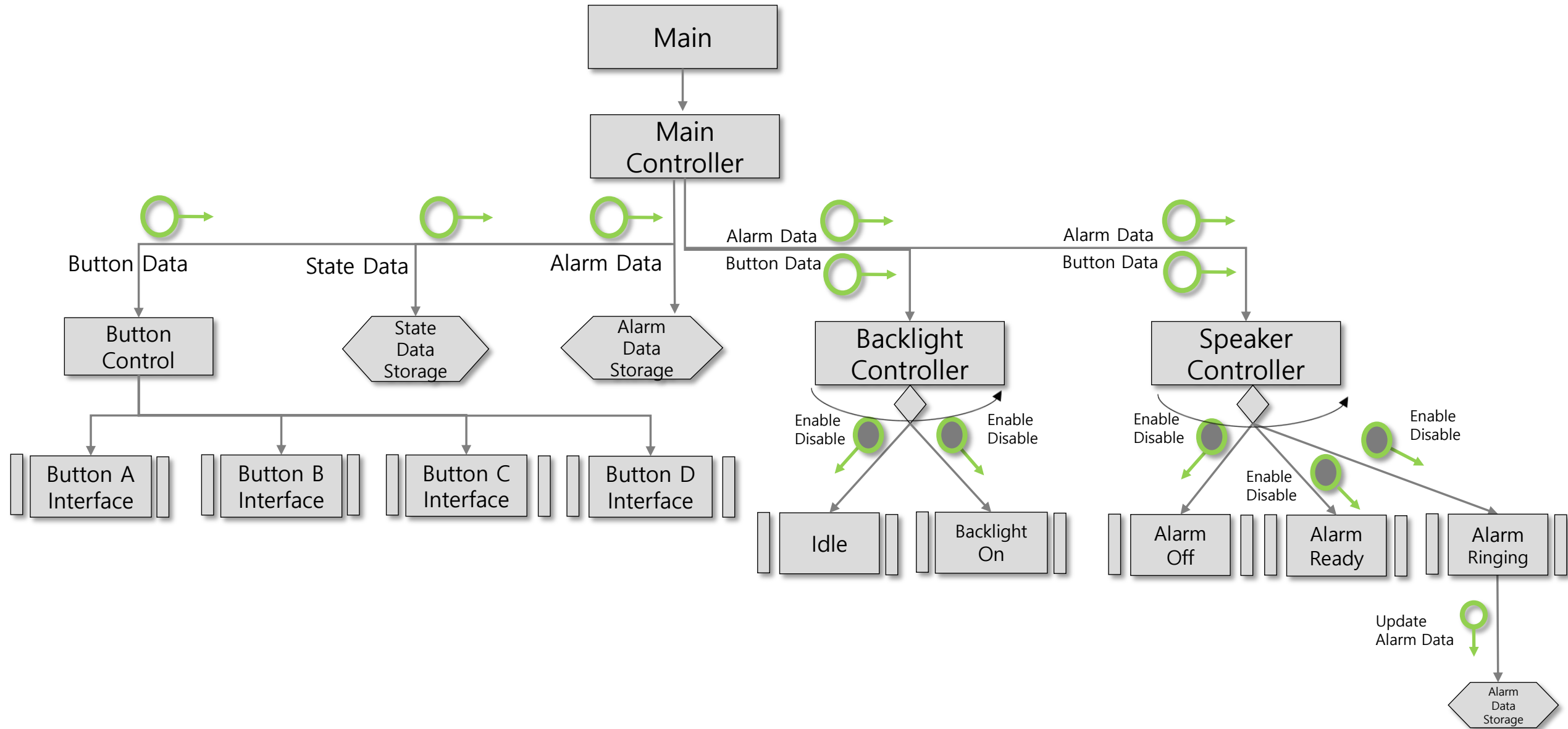
Structured Charts – Main

Structured Charts - Backlight, Speaker

Structured Charts (Advanced)