

# 소프트웨어공학개론 발표

T3

201511268 서지우

201713065 심준보

201713061 손찬혁

# 목차

- Purpose
- Overall Description
  - Product perspective
  - Product functions
  - Constraints
  - Assumptions and dependencies

# 목차

- Structured Analysis
  - System Context Diagram
  - Event List
  - DFD Level 0
  - DFD Level 1
  - DFD Level 2
- State Transition Diagram
- Overall DFD

# Purpose

- Digital Watch System에서 사용할 수 있는 Software를 구현하기 위한 요구사항을 명세한 문서입니다.

# Overall Description

- Product perspective

제품은 실제 손목시계에 사용될 수 있는 제품이 될 수 있다.

Hardware (버튼)에 의한 동작을 처리하고, 처리한 결과는 화면에 출력한다. 실제 Hardware에 의한 동작은 Software 및 console 화면으로 처리하여 기능의 동작 유무를 확인하도록 한다.

시계 Hardware는 4개의 버튼과 LCD 화면을 가진 것으로 한다.

# Overall Description

- Product functions
  - Date Time
  - Stopwatch
  - Backlight
  - Alarm

# Product function- Date Time

- Date Time
  - 화면에 일자와 시간을 표시한다.
  - 오후 시간 표시는 24시로 표시한다.

# Product function- Stopwatch

- Stopwatch
  - 시간의 경과를 알려주고, 특정 순간의 시간을 알려준다.
  - 1/100초단위로 측정이 가능하다.
  - Lap time 기록이 가능하다



# Product function- Backlight

- Backlight
  - 출력하는 문자의 색깔을 노란색으로 표시한다.

# Product function- Alarm

- Alarm
  - Alarm이 설정되면, Alarm indicator가 켜진다.
  - 정해진 시간에 소리(Beep 음)로 알려준다.
  - 알람은 5초간 울린다.
  - 알람이 울릴 때, A, B, C, D 중 아무 버튼을 누르면 꺼진다.

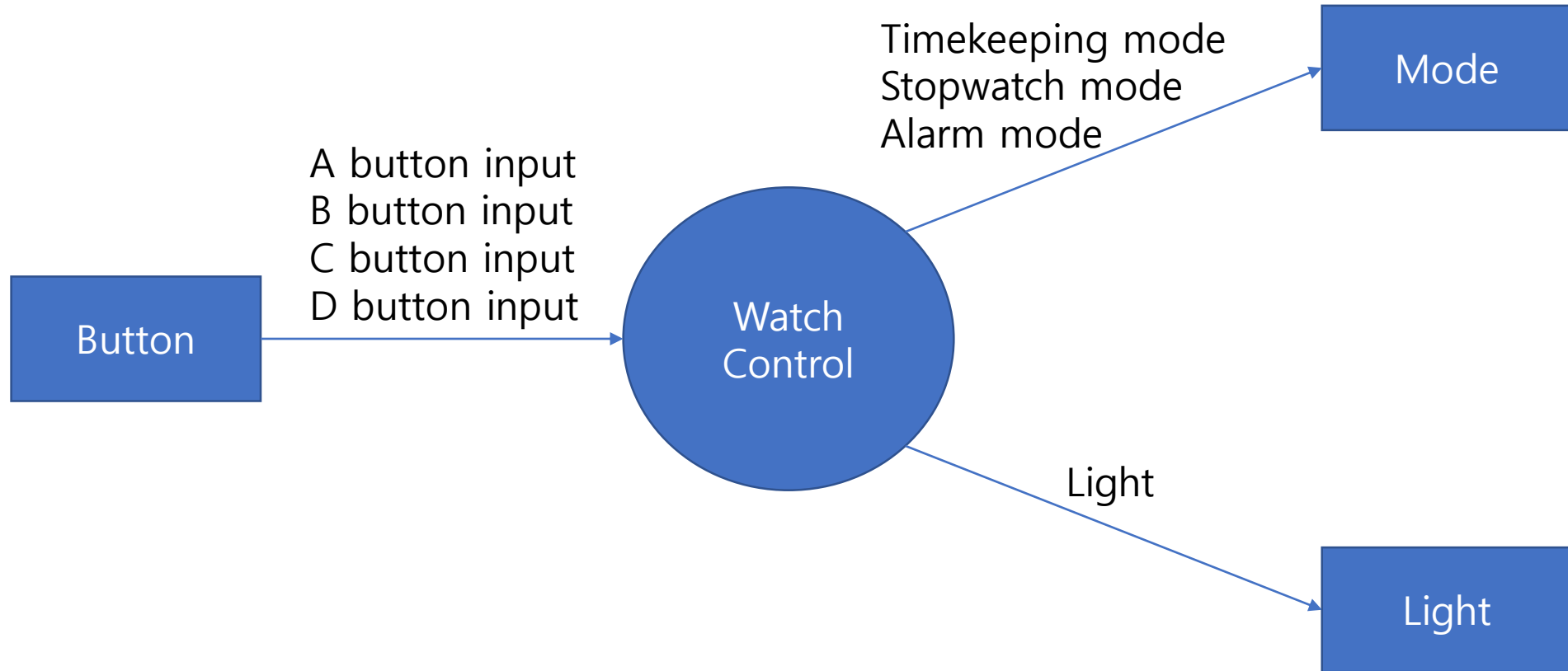
# Constraints

- 날짜의 표기법은 '월-일' 이다.
- 초기 시간은 2019년 01월 01일 00시 00분 00초 이다.
- 2019-01-01부터 2099년까지 표시가 가능하다.
- 알람을 설정할 때 시, 분은 반드시 설정해야 한다.

# Assumptions and dependencies

- 버튼 입력은 키보드 입력으로 대신한다.
- 버튼이 여러 개 입력되었을 때, 우선순위는  $D > C > B > A$  이다.

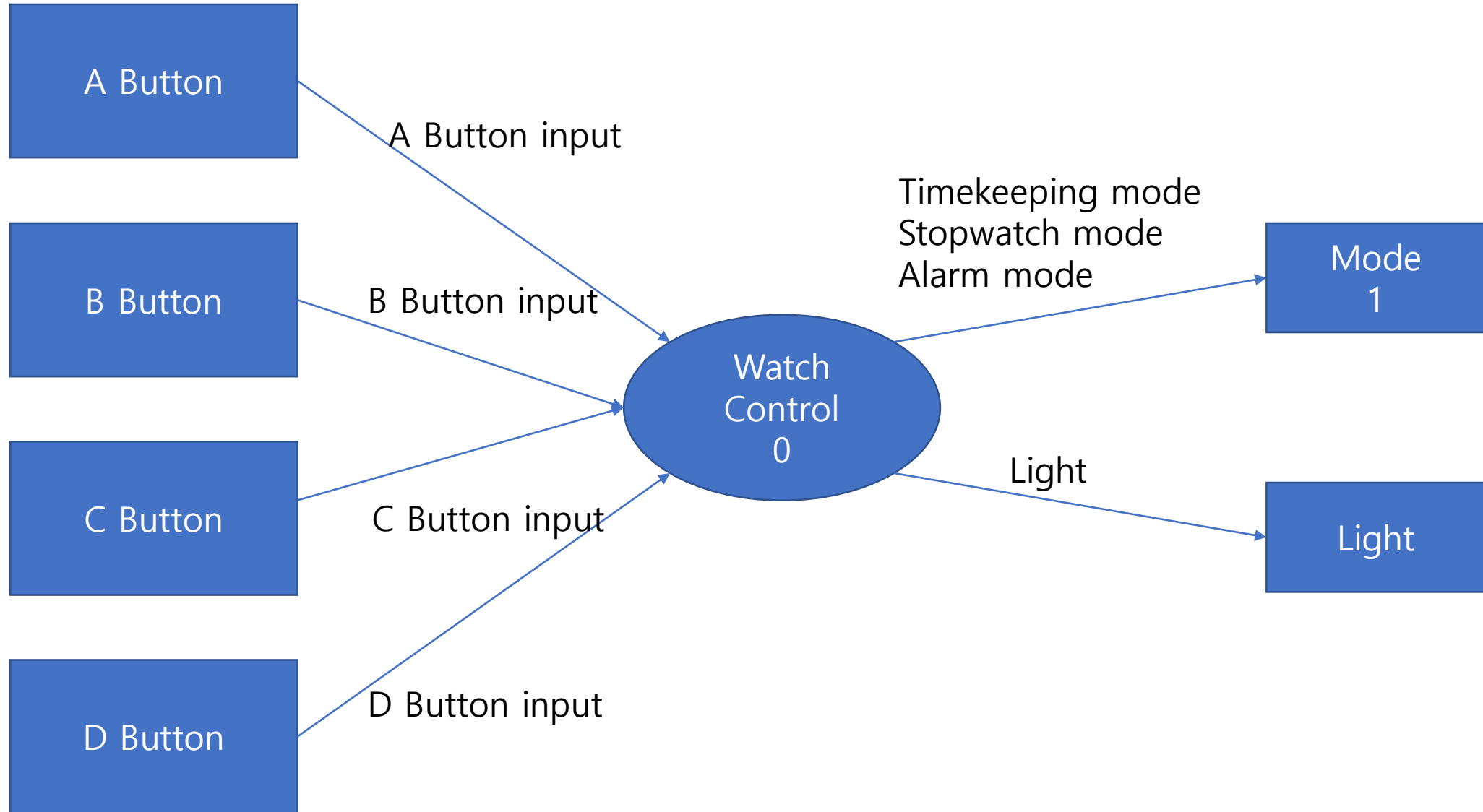
# System Context Diagram



# Event List

Input/Output Event	Description
A Button Input	Tells whether button A is pressed
B Button Input	Tells whether button B is pressed
C Button Input	Tells whether button C is pressed
D Button Input	Tells whether button D is pressed
Timekeeping Mode	ExecuteTimekeeping Mode process
Stopwatch Mode	Execute Stopwatch Mode process
Alarm Mode	Execute Alarm Mode process
Light	Turn on Backlight for 2 seconds

# DFD Level 0



# Process 0

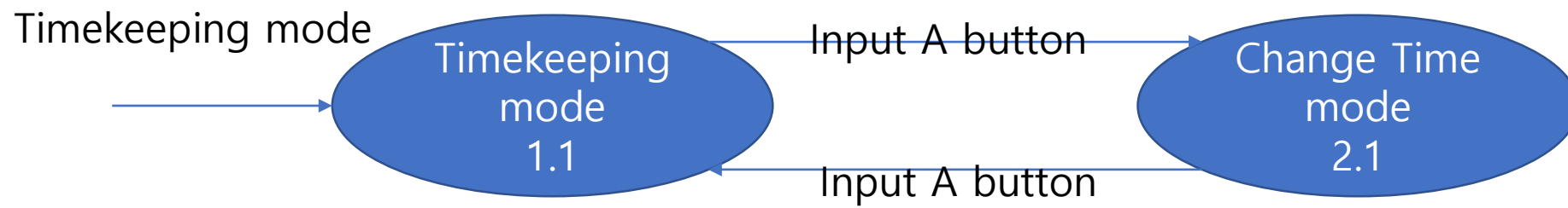
Reference No.	0
Name	Watch control
Input	A Button input, B Button input, C Button input, D Button input,
Output	Timekeeping mode, Stopwatch mode, Alarm mode, Light
Process Description	A, B, C 버튼에 알맞은 모드로 변경 D버튼에 의한 Light 동작



# Data Dictionary

Input/Output Event	Description	Format/Type
A Button Input	Tells whether button A is pressed	True/false, Periodic
B Button Input	Tells whether button B is pressed	True/false, Periodic
C Button Input	Tells whether button C is pressed	True/false, Periodic
D Button Input	Tells whether button D is pressed	True/false, Periodic
Timekeeping Mode	Execute Timekeeping Mode process	Integer, String
Stopwatch Mode	Execute Stopwatch Mode process	Integer, String
Alarm Mode	Execute Alarm Mode process	Integer, String
Light	Turn on Backlight for 2 seconds	Trigger

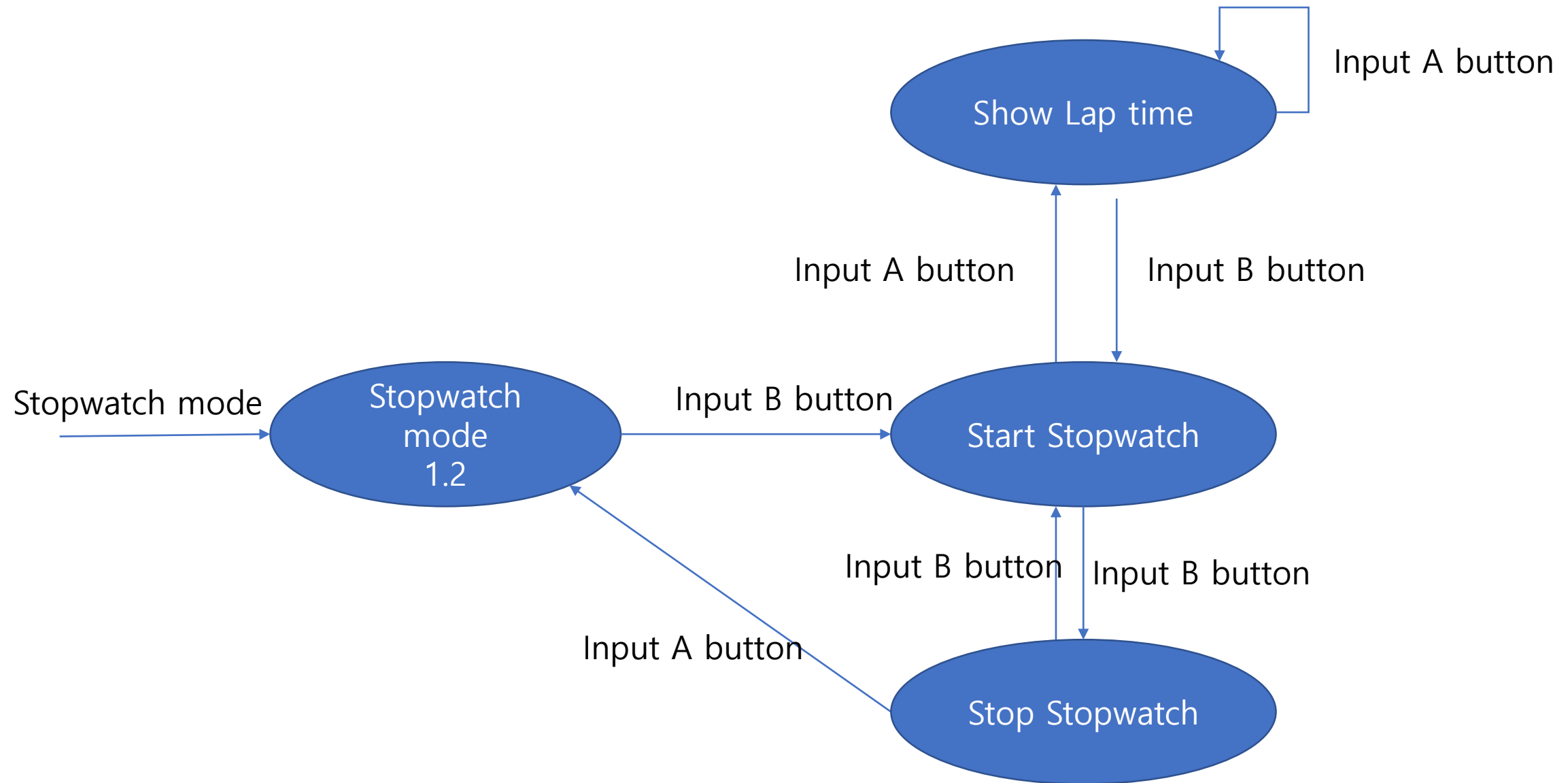
# DFD Level 1



# Process 1.1, 2.1

Reference No.	1.1
Name	Timekeeping Mode
Input	Timekeeping Mode
Output	Input A Button
Process Description	It receives button string and check if this string equals to 'A'. If right, it sends string to Change Time Mode process. It shows current time in watch device.
Reference No.	2.1
Name	Change Time Mode
Input	Input A button
Output	Input A Button
Process Description	It receives button string and check if this string equals to 'A'. If right, it sends string to Change Time Mode process. It change time values in Timekeeping Mode.

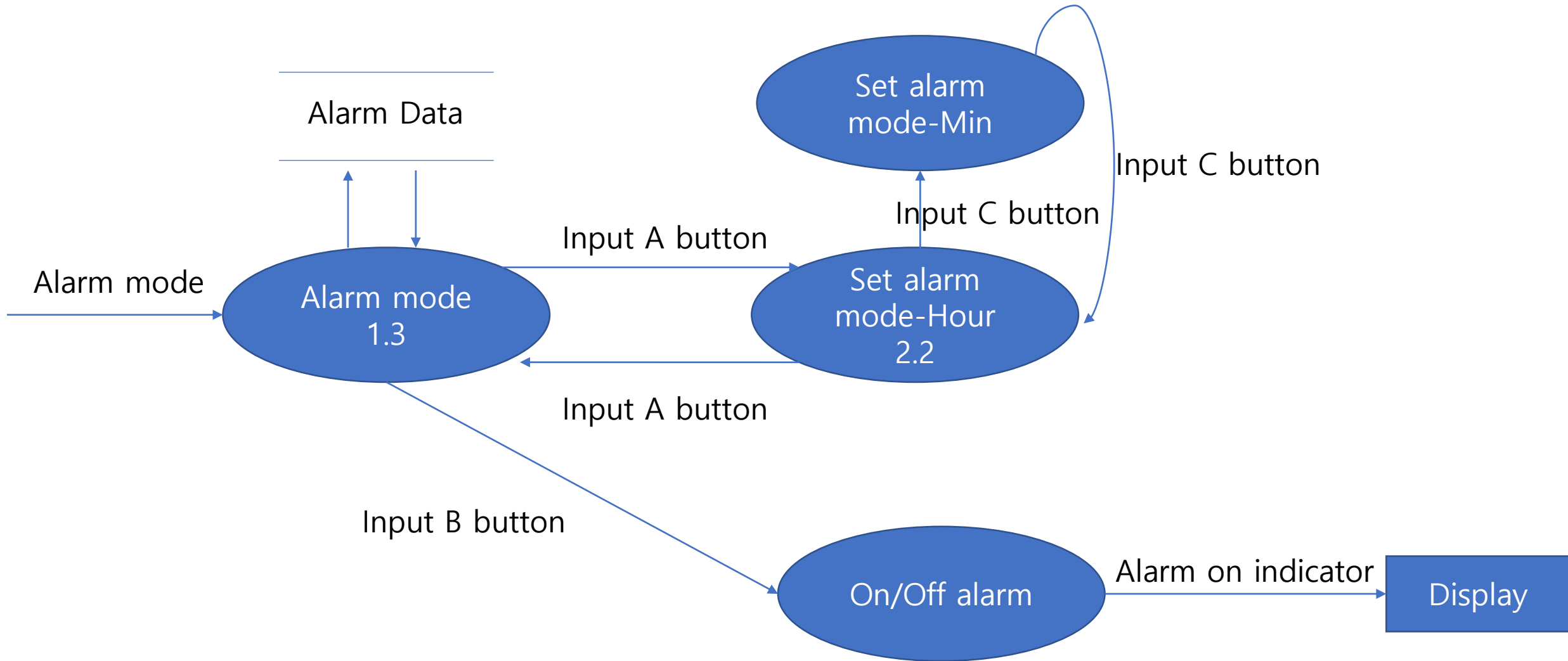
# DFD Level 1



# Process 1.2

Reference No.	1.2
Name	Stopwatch Mode
Input	Stopwatch Mode
Output	Input B button
Process Description	It receives button string and check if this string equals to 'B'. If right, it sends string to Start Stopwatch process. It shows Stopwatch time values in watch device.

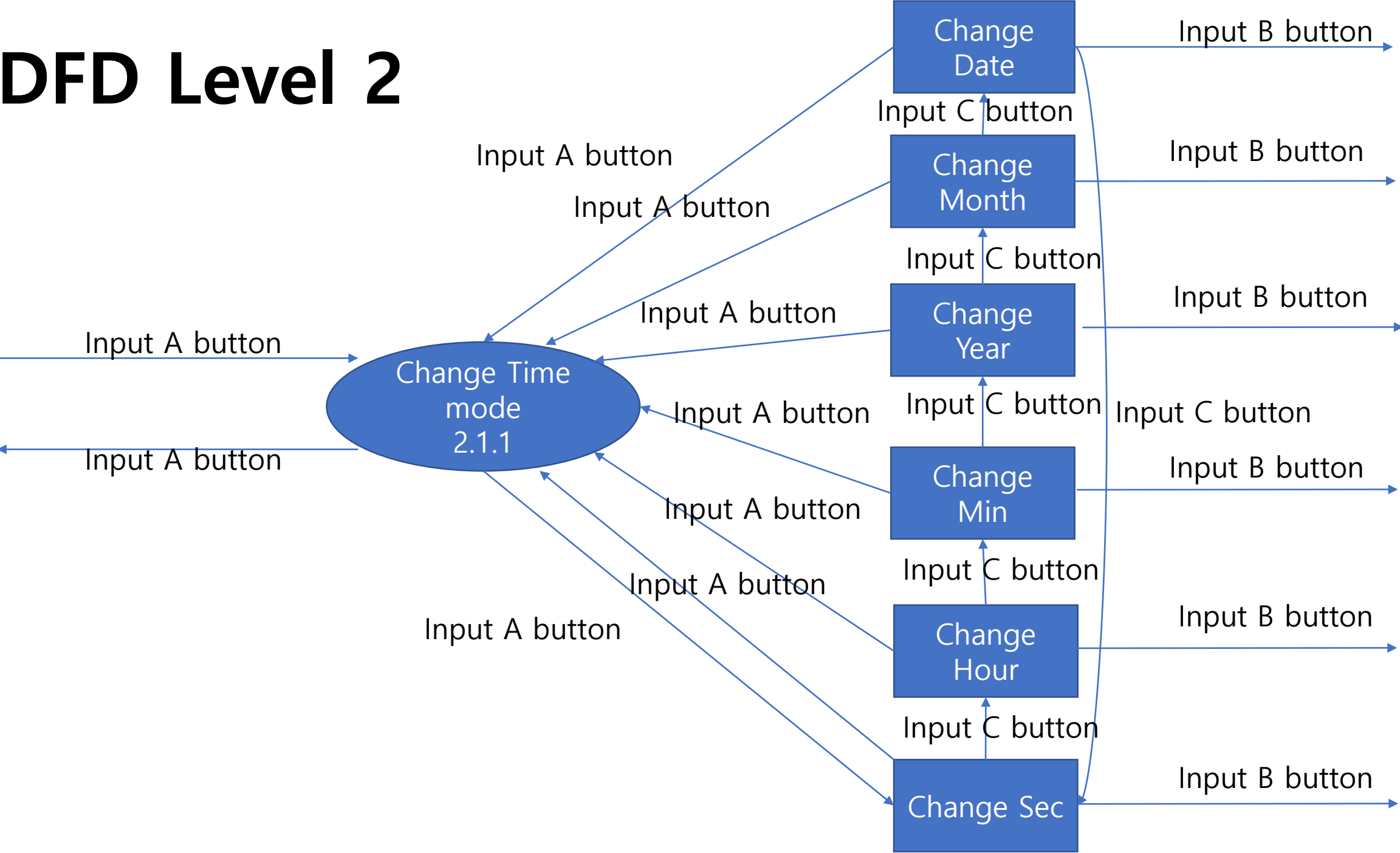
# DFD Level 1



# Process 1.3, 2.2

Reference No.	1.3
Name	Alarm Mode
Input	Alarm Mode
Output	Input A Button
Process Description	It receives button string and check if this string equals to 'A'. If right, it sends string to Set alarm mode-Hour process. It shows Alarm time values in watch device.
Reference No.	2.2
Name	Set Alarm Mode-Hour
Input	Input A Button
Output	Input C Button
Process Description	It receives button string and check if this string equals to 'C'. If right, it sends string to Set Alarm Mode-Min process. If Input equals to 'B', It adds 1 to value at Hour section.

# DFD Level 2

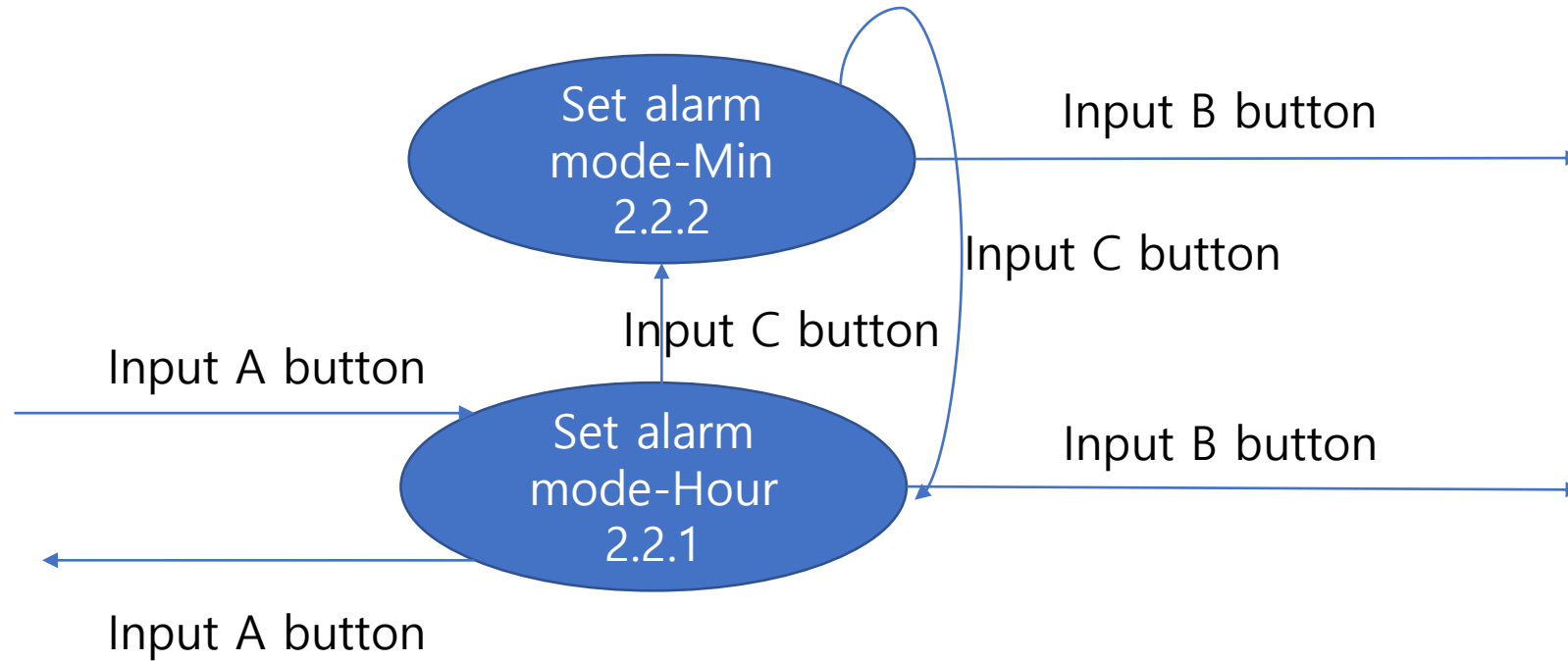




# Process 2.1.1

Reference No.	2.1.1
Name	Change Time Mode
Input	Input A Button
Output	Input A Button
Process Description	It receives button string and check if this string equals to 'A'. If right, it sends string to Change Sec process. It shows current time.

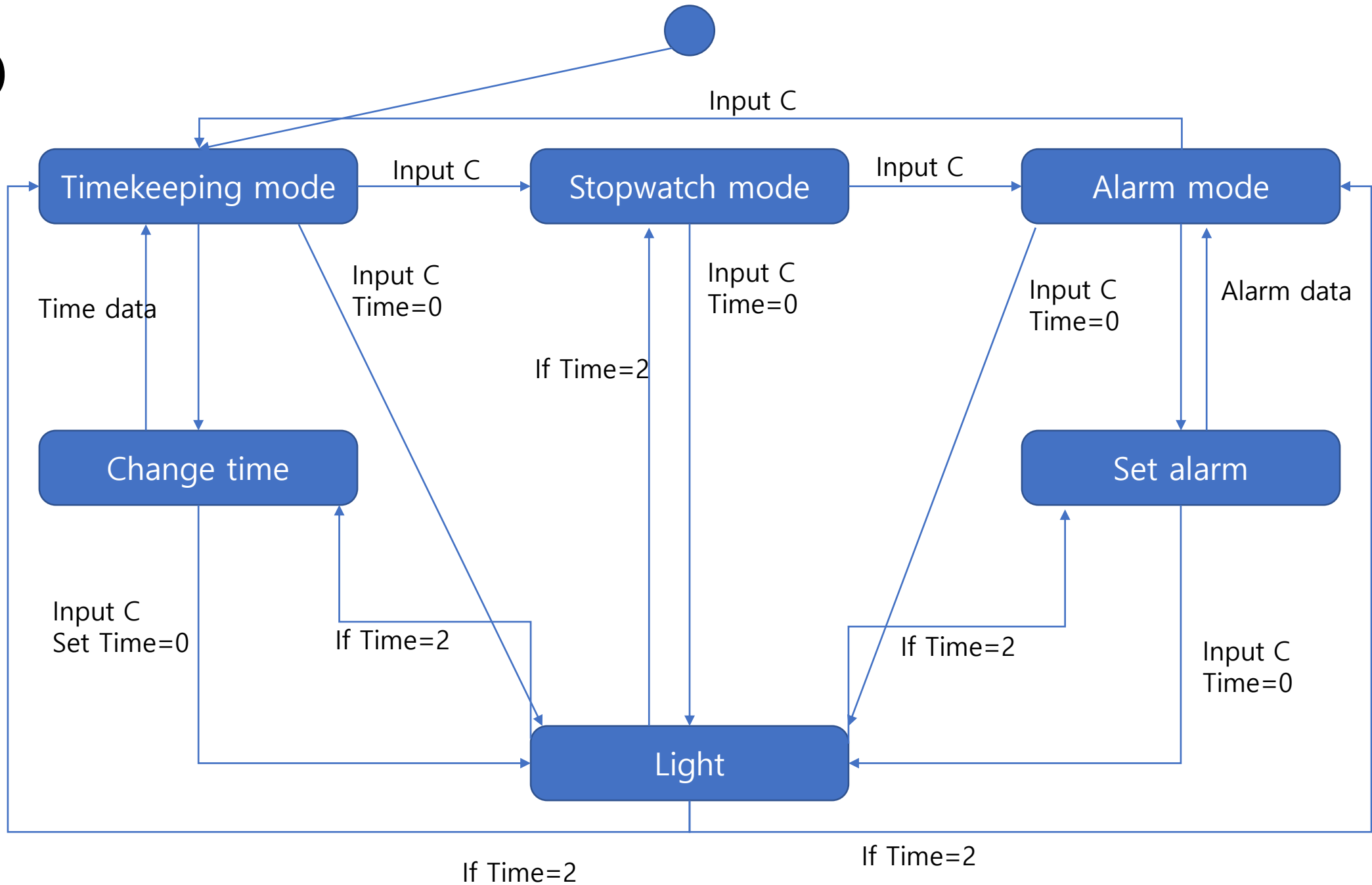
# DFD Level 2



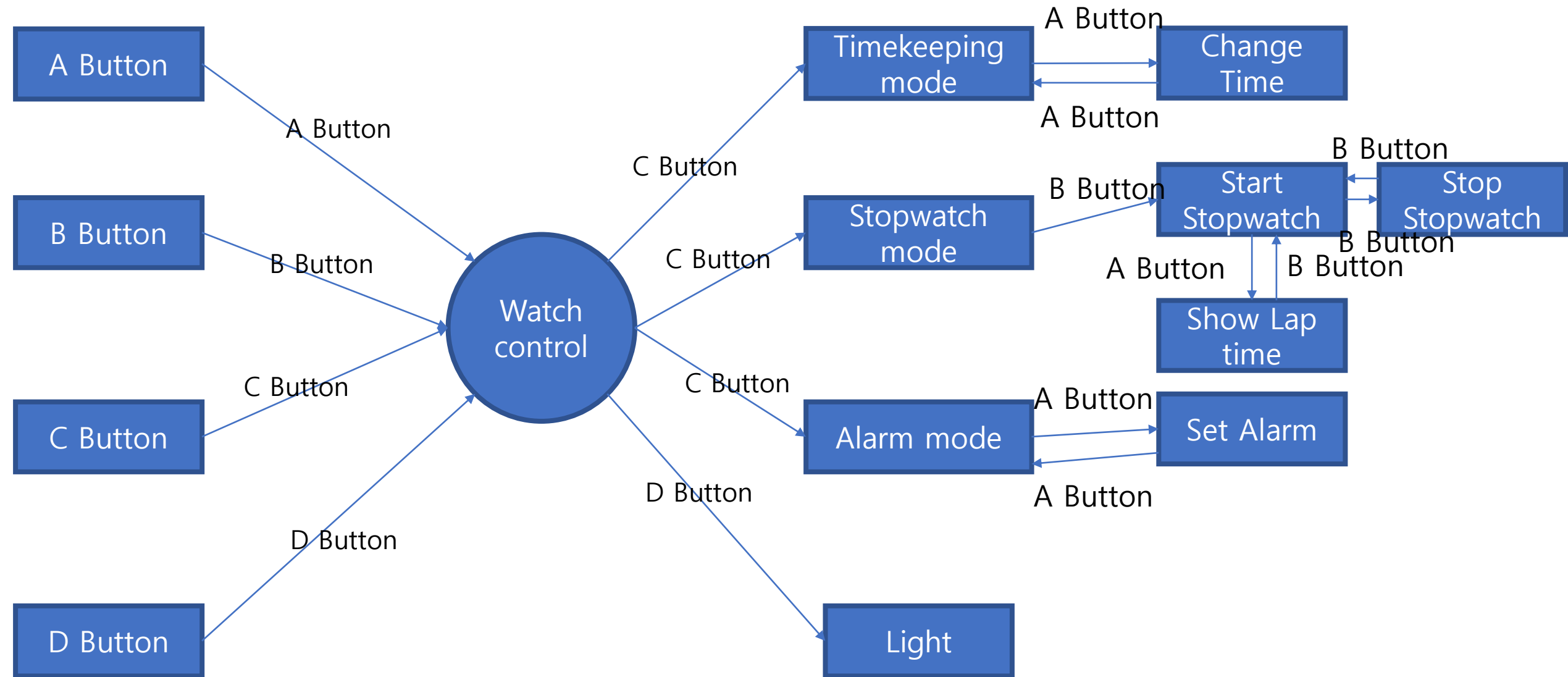
# Process 2.2.1, 2.2.2

Reference No.	2.2.1
Name	Set Alarm Mode-Hour
Input	Input A Button
Output	Input C Button
Process Description	It receives button string and check if this string equals to 'C'. If right, it sends string to Set Alarm Mode-Min process. If Input value equals to 'B', It adds 1 to value at Hour section.
Reference No.	2.2.2
Name	Set Alarm Mode-Min
Input	Input C Button
Output	Input B Button
Process Description	It receives button string and check if this string equals to 'C'. If right, it sends string to Set Alarm Mode-Hour process. If Input value equals to 'B', It adds 1 to value at Min section

# STD



# Overall DFD



**Q&A**