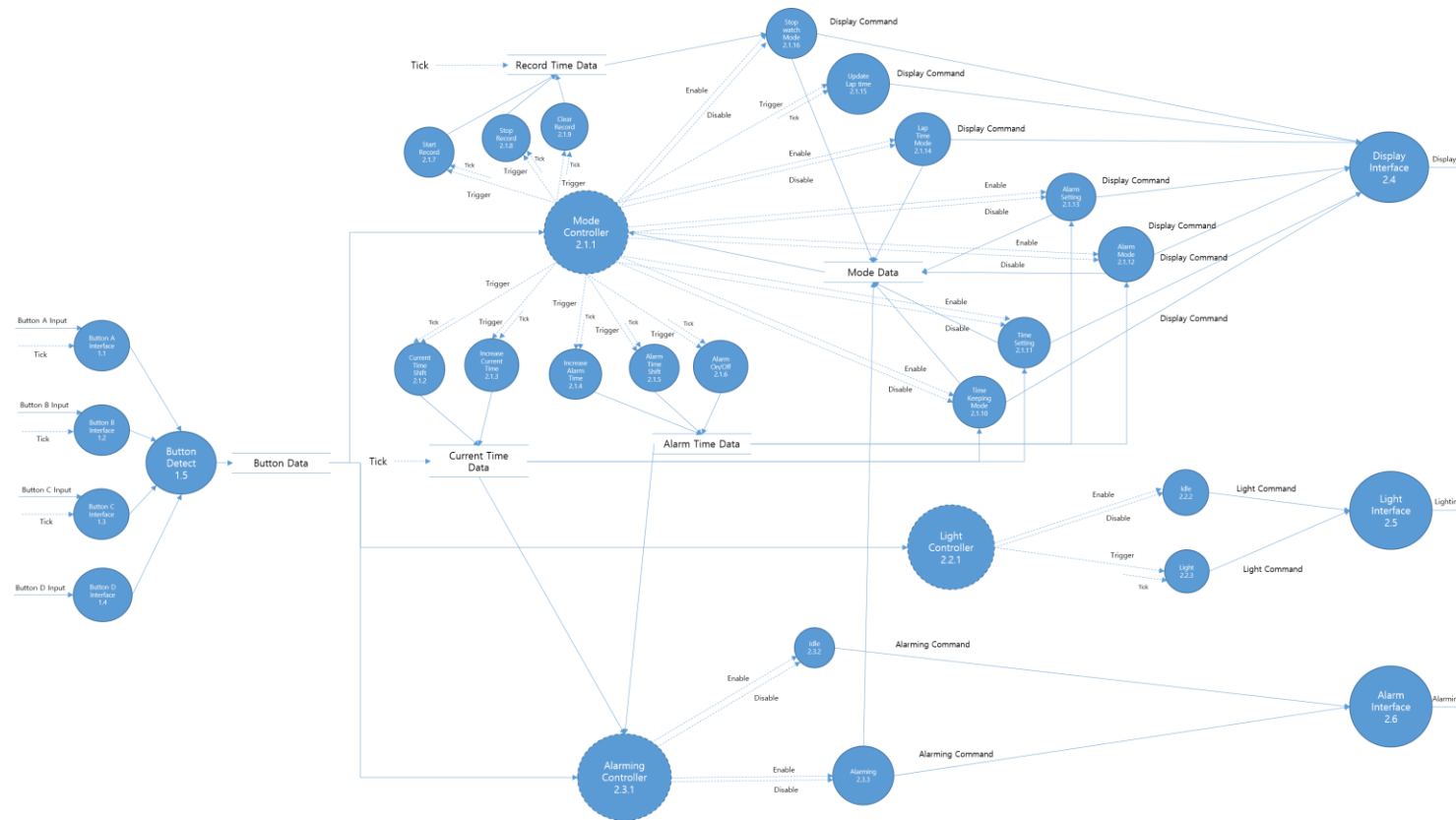


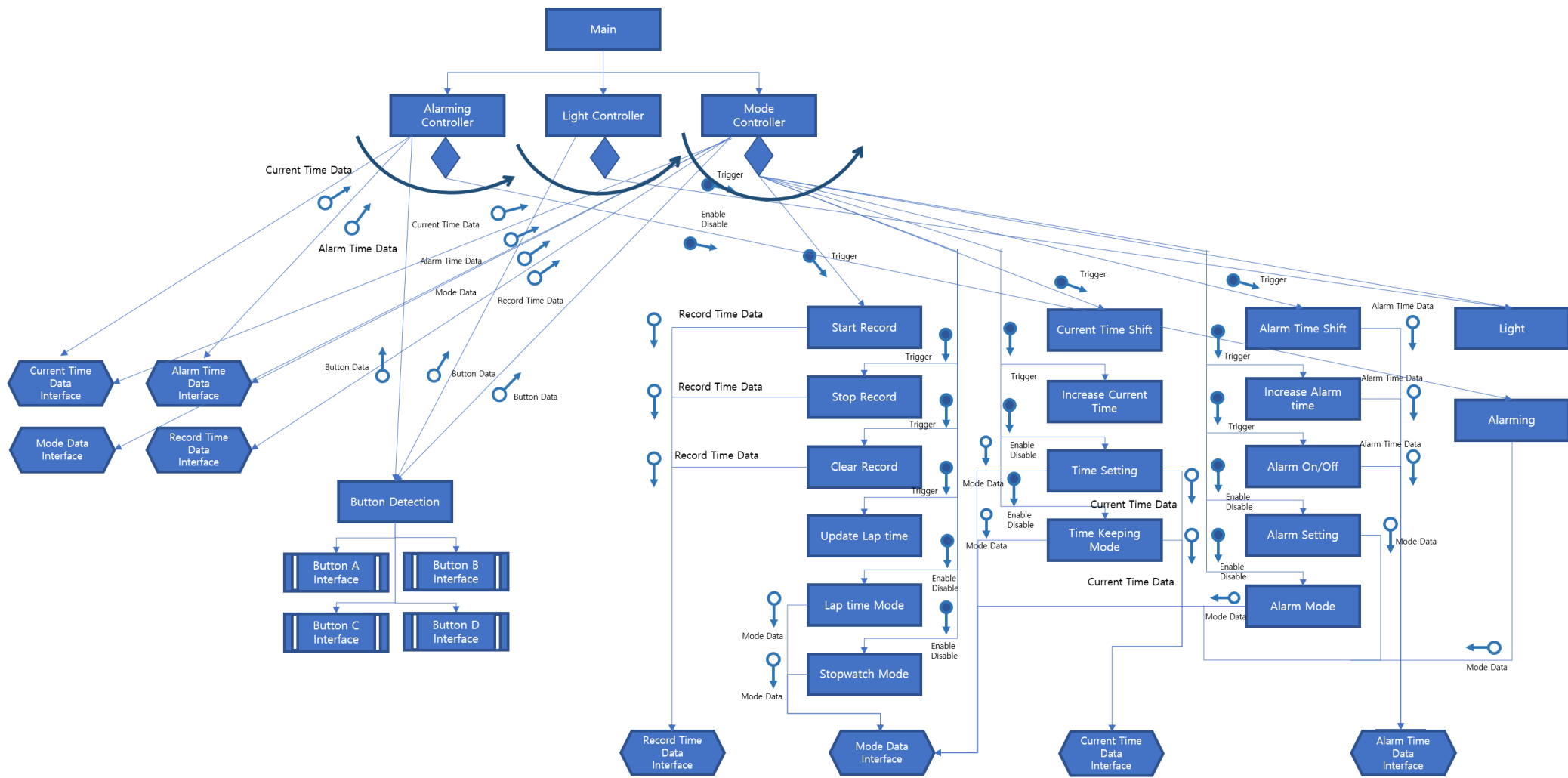
TEAM 1 DWS IMPLEMENTATION

201811244 김창연
201811253 박경래
201811264 변자훈
201811287 장명근

SASD 수정

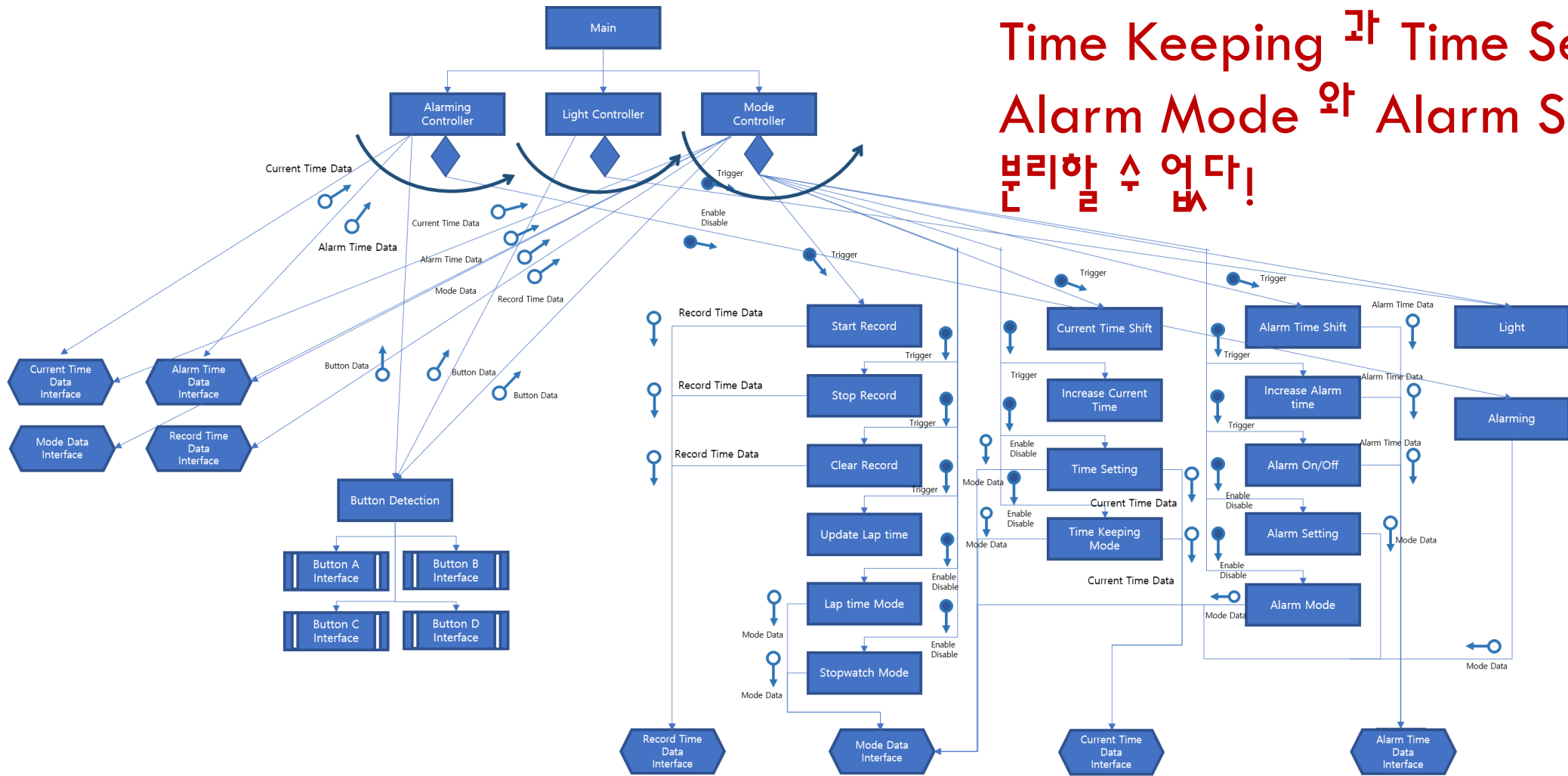


OVERALL DFD



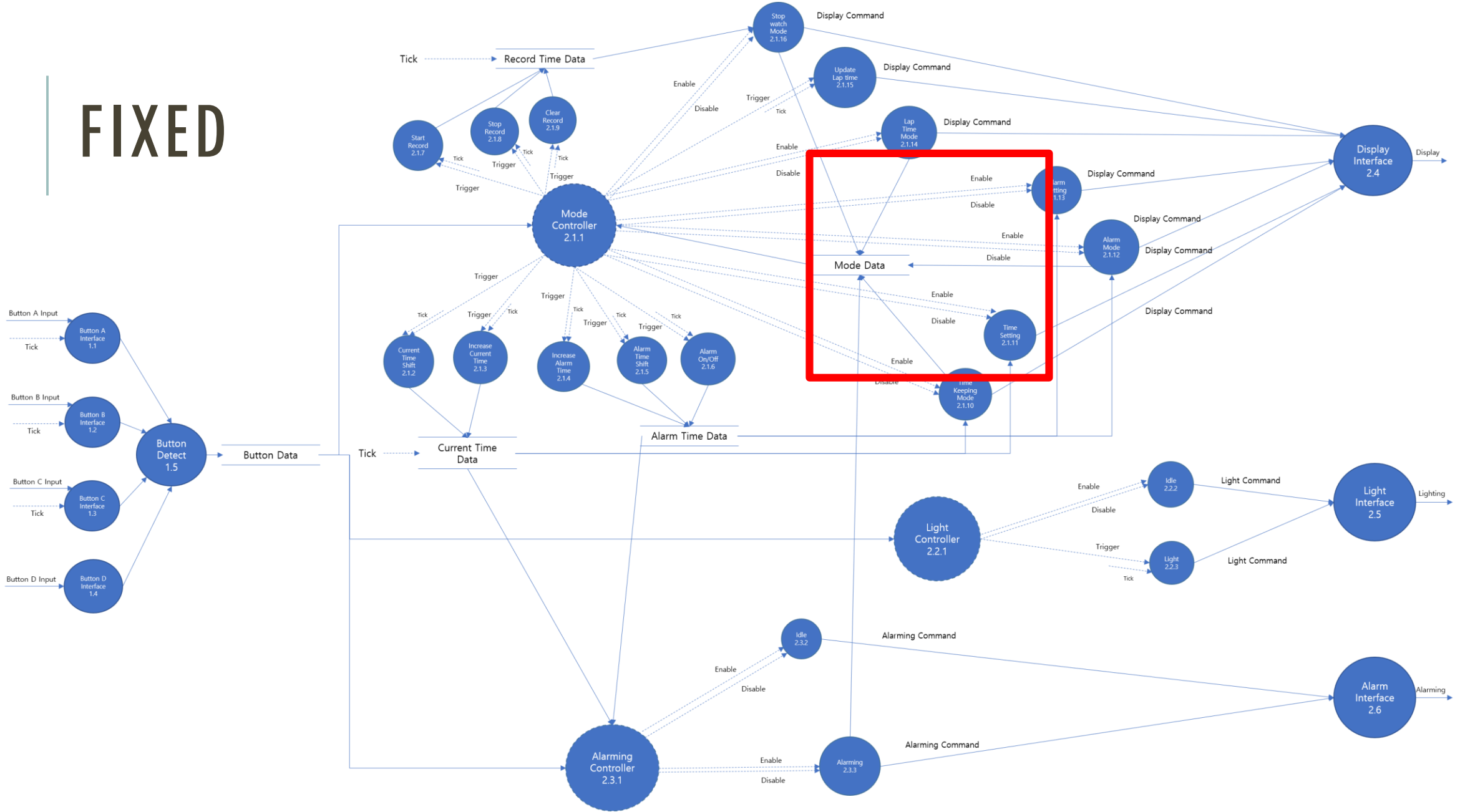
A STRUCTURED CHART

Time Keeping 과 Time Setting Alarm Mode 와 Alarm Setting 분리할 수 없다!

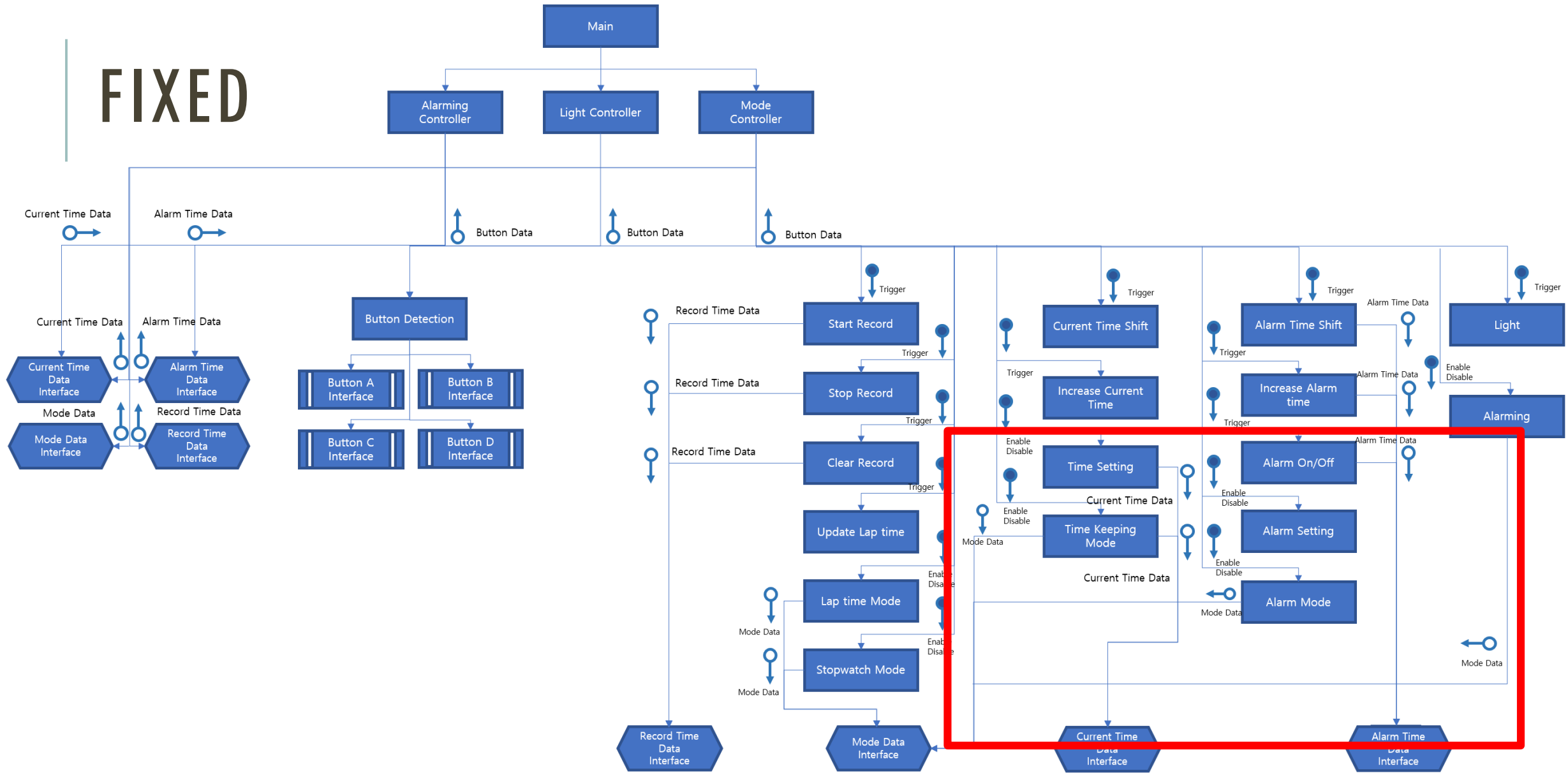


A STRUCTURED CHART

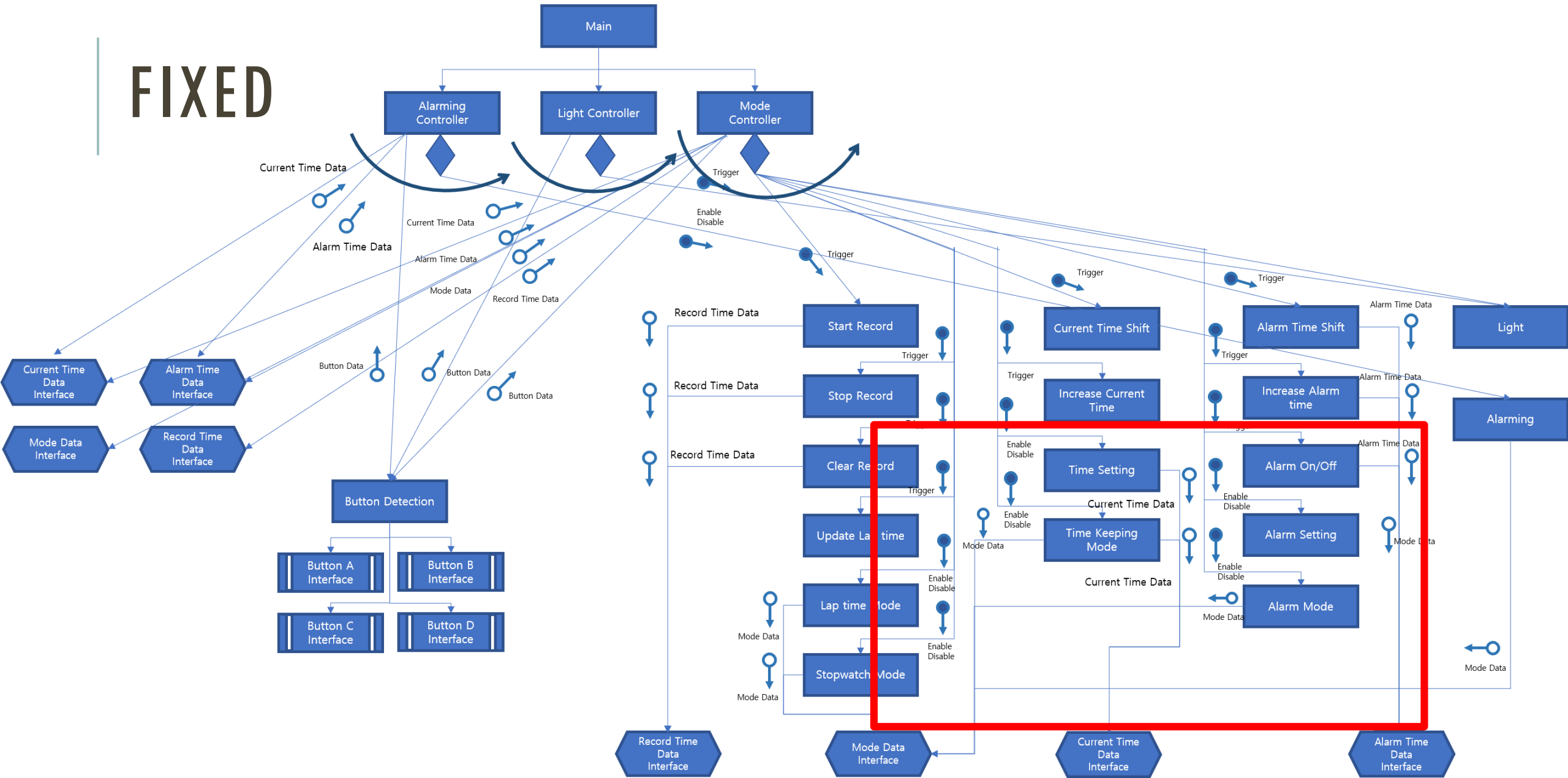
FIXED



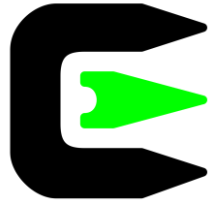
FIXED



FIXED



개바라



개발환경 / 언어환경
리눅스 / 버블리눅스



Multithreading

비동기 입력 함수
○ ㅁ ㅁ ㅁ

Timekeeping / Alarm / Stopwatch

Backlight

Alarming

사용된 헤더파일들

```
#include <stdio.h>
```

```
#include <stdlib.h> - malloc()
```

```
#include <string.h> - memset()
```

```
#include <time.h> - struct tm, clock(), ...
```

```
#include <pthread.h> - Thread
```

```
- 비동기 입출력 함수 c_input()
```

```
#include <unistd.h>
```

```
#include <term.h>
```

```
#include <termios.h>
```

사용된 헤더파일들

```
sudo apt-get install  
libncurses5-dev
```

```
#include <stdio.h>  
#include <stdlib.h>  
#include <string.h>  
#include <time.h> -  
  
#include <pthread.h>  
  
- 비동기 입력함수 c_input  
#include <unistd.h>  
#include <term.h>  
#include <termios.h>
```

```
char c_input(void) {  
    char ch;  
    char inputch;  
    double result;  
    struct termios buf;  
    struct termios save;  
    clock_t start;  
  
    int cnt = 0;  
    int first = 0;  
    tcgetattr(0, &save);  
    buf = save;  
    buf.c_lflag &= ~(ICANON | ECHO);  
    buf.c_cc[VMIN] = 1;  
    buf.c_cc[VTIME] = 0;  
    tcsetattr(0, TCSAFLUSH, &buf);  
    ch = getchar();  
    inputch=ch;  
    inputData = ch;  
    tcsetattr(0, TCSAFLUSH, &save);  
    return inputch;  
}
```

사용된 지역변수들

```
int alarmOn = 0; // Alarm Indicator
```

```
char inputData; // 입력받는 값
```

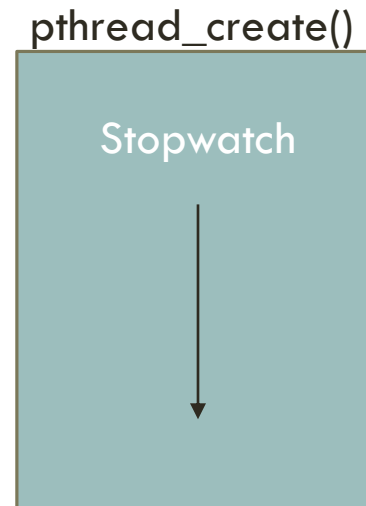
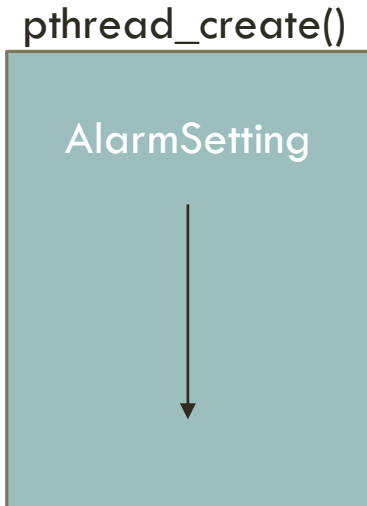
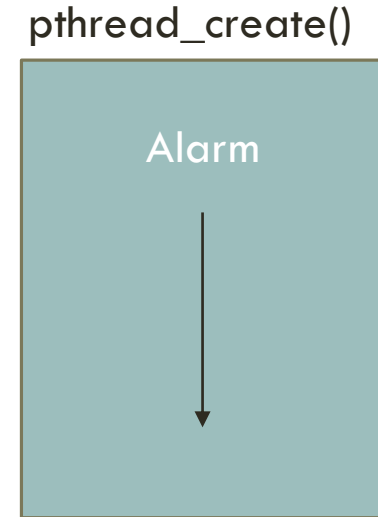
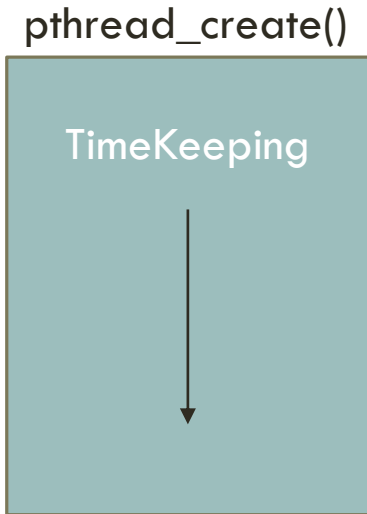
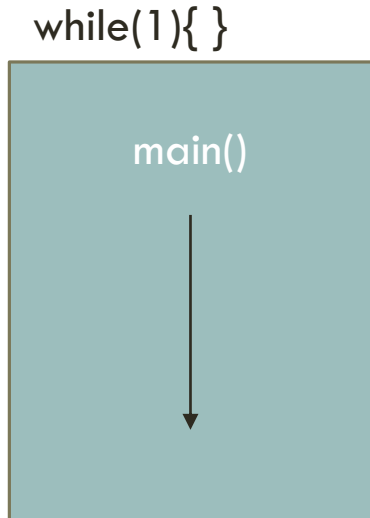
```
int ModeData = 1; // 현재 Mode가 어떤 Mode인지 알려주는 변수
```

```
struct tm* alarmTime; // 알람 설정 시간
```

```
struct tm* currentTime; // 현재 시간
```

작동 방식

```
pthread_t pthread[8];  
pthread_create(&p_thread[i], NULL, function, NULL);
```



...

시연

THANK YOU