

Unit Test Report for Digital Watch System

- Test Data
- Test Summary Report

Project Team

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1 Introduction

1.1 Objectives

본 문서는 2012년 2학기 SE 수업의 T1이 개발한 Digital Watch System (DWS)을 Unit Testing 결과문서이다. T1이 정의한 Unit을 Testing을 수행하고 그 결과를 T1에게 통보하기 위해 작성한다..

1.2 References

DS-2012.T1.DWS.UTP-0.1

2 Unit test case specification

2.1 Test case specification

<Table 1 Test Case Identification> 참조

2.2 Test data

<Table 2 Result of the Test Data Generation> 참조

2.3 Input specifications

<Table 2 Result of the Test Data Generation> 참조

2.4 Output specifications

<Table 2 Result of the Test Data Generation> 참조

3 Unit test summary report

3.1 Test summary report identifier

Total Number of Suites	14
Total Number of Test Cases	34

Listing of Registered Suites & Tests

		Initialize Function?	Cleanup Function?	Test Count	Active?
Suite	DWS.UTC.2151	Yes	Yes	7	Yes
Test	DWS.UTC.2151				Yes
Test	DWS.UTC.2151				Yes
Test	DWS.UTC.2151				Yes
Test	DWS.UTC.2151				Yes
Test	DWS.UTC.2151				Yes
Test	DWS.UTC.2151				Yes
Test	DWS.UTC.2151				Yes
Suite	DWS.UTC.2152	Yes	Yes	5	Yes
Test	DWS.UTC.2152				Yes
Test	DWS.UTC.2152				Yes
Test	DWS.UTC.2152				Yes
Test	DWS.UTC.2152				Yes
Test	DWS.UTC.2152				Yes
Suite	DWS.UTC.2143	Yes	Yes	2	Yes
Test	DWS.UTC.2143				Yes
Test	DWS.UTC.2143				Yes
Suite	DWS.UTC.2142	Yes	Yes	2	Yes
Test	DWS.UTC.2142				Yes
Test	DWS.UTC.2142				Yes
Suite	DWS.UTC.2152	Yes	Yes	7	Yes
Test	DWS.UTC.2142				Yes
Test	DWS.UTC.2142				Yes
Test	DWS.UTC.2142				Yes
Test	DWS.UTC.2142				Yes
Test	DWS.UTC.2142				Yes
Test	DWS.UTC.2142				Yes
Test	DWS.UTC.2142				Yes

Suite	DWS.UTC_2133	Yes	Yes	1	Yes
Test	DWS.UTC_2133_00				Yes
Suite	DWS.UTC_2132	Yes	Yes	1	Yes
Test	DWS.UTC_2132_00				Yes
Suite	DWS.UTC_2131	Yes	Yes	3	Yes
Test	DWS.UTC_2131_00				Yes
Test	DWS.UTC_2131_00				Yes
Test	DWS.UTC_2131_00				Yes
Suite	DWS.UTC_2160	Yes	Yes	1	Yes
Test	DWS.UTC_2160_00				Yes
Suite	DWS.UTC_2150	Yes	Yes	1	Yes
Test	DWS.UTC_2150_00				Yes
Suite	DWS.UTC_2140	Yes	Yes	1	Yes
Test	DWS.UTC_2140_00				Yes
Suite	DWS.UTC_2130	Yes	Yes	1	Yes
Test	DWS.UTC_2130_00				Yes
Suite	DWS.UTC_2120	Yes	Yes	1	Yes
Test	DWS.UTC_2120_00				Yes
Suite	DWS.UTC_2110	Yes	Yes	1	Yes
Test	DWS.UTC_2110_00				Yes

Automated Test Run Results

Running Suite DWS.UTC.2151

Running test DWS.UTC.2151 ...		Failed
File Name	C:\Users\dalee\hudson\jobs\WT1_Testing\workspace\src\Test01.c	Line Number 36
Condition	0	
Running test DWS.UTC.2151 ...		Failed
File Name	C:\Users\dalee\hudson\jobs\WT1_Testing\workspace\src\Test01.c	Line Number 39
Condition	0	
Running test DWS.UTC.2151 ...		Failed
File Name	C:\Users\dalee\hudson\jobs\WT1_Testing\workspace\src\Test01.c	Line Number 42
Condition	0	
Running test DWS.UTC.2151 ...		Failed
File Name	C:\Users\dalee\hudson\jobs\WT1_Testing\workspace\src\Test01.c	Line Number 45
Condition	0	
Running test DWS.UTC.2151 ...		Failed
File Name	C:\Users\dalee\hudson\jobs\WT1_Testing\workspace\src\Test01.c	Line Number 48
Condition	0	
Running test DWS.UTC.2151 ...		Failed
File Name	C:\Users\dalee\hudson\jobs\WT1_Testing\workspace\src\Test01.c	Line Number 51
Condition	0	
Running test DWS.UTC.2151 ...		Failed
File Name	C:\Users\dalee\hudson\jobs\WT1_Testing\workspace\src\Test01.c	Line Number 54
Condition	0	

Running Suite DWS.UTC.2152

Running test DWS.UTC.2152 ...		Failed
File Name	C:\Users\dalee\hudson\jobs\WT1_Testing\workspace\src\Test01.c	Line Number 99
Condition	0	
Running test DWS.UTC.2152 ...		Failed
File Name	C:\Users\dalee\hudson\jobs\WT1_Testing\workspace\src\Test01.c	Line Number 102
Condition	0	
Running test DWS.UTC.2152 ...		Failed
File Name	C:\Users\dalee\hudson\jobs\WT1_Testing\workspace\src\Test01.c	Line Number 105
Condition	0	
Running test DWS.UTC.2152 ...		Failed
File Name	C:\Users\dalee\hudson\jobs\WT1_Testing\workspace\src\Test01.c	Line Number 108
Condition	0	

Running test DWS.UTC.2152 ...		Failed
File Name	C:\Users\dalee\workspace\src\Test01.c	Line Number 111
Condition	0	
Running Suite DWS.UTC.2143		
Running test DWS.UTC.2143 ...		Failed
File Name	C:\Users\dalee\workspace\src\Test01.c	Line Number 152
Condition	0	
Running test DWS.UTC.2143 ...		Passed
Running Suite DWS.UTC.2142		
Running test DWS.UTC.2142 ...		Failed
File Name	C:\Users\dalee\workspace\src\Test01.c	Line Number 196
Condition	0	
Running test DWS.UTC.2142 ...		Failed
File Name	C:\Users\dalee\workspace\src\Test01.c	Line Number 199
Condition	0	
Running Suite DWS.UTC.2152		
Running test DWS.UTC.2142 ...		Failed
File Name	C:\Users\dalee\workspace\src\Test01.c	Line Number 264
Condition	0	
Running test DWS.UTC.2142 ...		Failed
File Name	C:\Users\dalee\workspace\src\Test01.c	Line Number 267
Condition	0	
Running test DWS.UTC.2142 ...		Failed
File Name	C:\Users\dalee\workspace\src\Test01.c	Line Number 270
Condition	0	
Running test DWS.UTC.2142 ...		Failed
File Name	C:\Users\dalee\workspace\src\Test01.c	Line Number 273
Condition	0	
Running test DWS.UTC.2142 ...		Failed
File Name	C:\Users\dalee\workspace\src\Test01.c	Line Number 276
Condition	0	
Running test DWS.UTC.2142 ...		Failed
File Name	C:\Users\dalee\workspace\src\Test01.c	Line Number 279
Condition	0	
Running test DWS.UTC.2142 ...		Failed
File Name	C:\Users\dalee\workspace\src\Test01.c	Line Number 282
Condition	0	

Running Suite DWS_UTC_2133	
Running test DWS_UTC_2133_00 ... Failed	
File Name	C:\Users\dalee\work\hudson\jobs\T1_Testing\workspace\src\Test01.c Line Number 327
Condition	0
Running Suite DWS_UTC_2132	
Running test DWS_UTC_2132_00 ... Failed	
File Name	C:\Users\dalee\work\hudson\jobs\T1_Testing\workspace\src\Test01.c Line Number 366
Condition	0
Running Suite DWS_UTC_2131	
Running test DWS_UTC_2131_00 ... Failed	
File Name	C:\Users\dalee\work\hudson\jobs\T1_Testing\workspace\src\Test01.c Line Number 404
Condition	0
Running test DWS_UTC_2131_00 ... Failed	
File Name	C:\Users\dalee\work\hudson\jobs\T1_Testing\workspace\src\Test01.c Line Number 407
Condition	0
Running test DWS_UTC_2131_00 ... Failed	
File Name	C:\Users\dalee\work\hudson\jobs\T1_Testing\workspace\src\Test01.c Line Number 410
Condition	0
Running Suite DWS_UTC_2160	
Running test DWS_UTC_2160_00 ... Failed	
File Name	C:\Users\dalee\work\hudson\jobs\T1_Testing\workspace\src\Test01.c Line Number 448
Condition	0
Running Suite DWS_UTC_2150	
Running test DWS_UTC_2150_00 ... Failed	
File Name	C:\Users\dalee\work\hudson\jobs\T1_Testing\workspace\src\Test01.c Line Number 485
Condition	0
Running Suite DWS_UTC_2140	
Running test DWS_UTC_2140_00 ... Failed	
File Name	C:\Users\dalee\work\hudson\jobs\T1_Testing\workspace\src\Test01.c Line Number 523
Condition	0
Running Suite DWS_UTC_2130	
Running test DWS_UTC_2130_00 ... Failed	
File Name	C:\Users\dalee\work\hudson\jobs\T1_Testing\workspace\src\Test01.c Line Number 561
Condition	0
Running Suite DWS_UTC_2120	
Running test DWS_UTC_2120_00 ... Failed	
File Name	C:\Users\dalee\work\hudson\jobs\T1_Testing\workspace\src\Test01.c Line Number 605
Condition	0
Running Suite DWS_UTC_2110	
Running test DWS_UTC_2110_00 ... Failed	
File Name	C:\Users\dalee\work\hudson\jobs\T1_Testing\workspace\src\Test01.c Line Number 642
Condition	0

Cumulative Summary for Run					
Type	Total	Run	Succeeded	Failed	Inactive
Suites	14	14	- NA -	0	0
Test Cases	34	34	1	33	0
Assertions	34	34	1	33	n/a

3.2 Evaluation

T1은 SASD를 이용하여 SRS를 분석한 결과(SRA, SDS)가 Testing을 할 수 있는 수준으로 작성되어있지 않으며, 실제 구현 결과도 SRA, SDS와 일치하지 않는다.

Table 1 Test Case Identification

Identifier	Input	Pass/Fail Criteria	비고
DWS.UTC.1000	A 버튼 입력 B 버튼 입력 C 버튼 입력 D 버튼 입력 동시입력	Button Loc.에 A 저장 Button Loc.에 B 저장 Button Loc.에 C 저장 Button Loc.에 D 저장 동시에 들어온 입력 중 D > C > B > A의 우선 순위로 Button Loc.에 하나만 저장	
DWS.UTC.1000.00			
DWS.UTC.2000	Process Specification이 정의되지 않았음.		
DWS.UTC.2000.00			
DWS.UTC.2100	Button Data, tick을 받아서 Show command, Back Light Command를 출력한다.		
DWS.UTC.2100.00	Button Data == ???	Show command = ??? Back Light Command = ???	
DWS.UTC.2200	Show command를 입력 받아서 Show를 출력한다.		
DWS.UTC.2200.00	Show Command == ???	Show = ???	
DWS.UTC.2300	Back light command를 입력 받아서 Light를 출력한 다.		
DWS.UTC.2300.00	Back Light Command == ??	Light = ??	
DWS.UTC.2110	Button data, mode data, tick을 받아서 STD의 동작 을 수행한다.		

DWS.UTC.2110.00	Button Data == ??? Mode Data == ??? Tick		
DWS.UTC.2120	Button Data == D 일 경우 2.1.6 process를 trigger	2.1.6 이 trigger되는가?	
DWS.UTC.2120.00	Button Data == D	Trigger "LED Turn On"	
DWS.UTC.2130	Button data 1을 받아서 PM, time show command를 출력함		
DWS.UTC.2130.00	Button Data 1 = ???	PM = ?? Time show command = ??	
DWS.UTC.2140	Button data 2를 받아서 value, place show command를 출력함		
DWS.UTC.2140.00	Button Data 2 = ???	Value = ??? Place Show Command = ???	
DWS.UTC.2150	Button Data 3을 받아서 Activate , stop, reset, lap time show command를 출력함.		
DWS.UTC.2150.00	Button Data 3 = ???	Activate = ??? Stop = ??? Reset = ??? Lap time show command = ???	
DWS.UTC.2160	Trigger와 Tick을 받으면 Back Light Command를 출력한다.		
DWS.UTC.2160.00	Trigger Tick	Back Light Command = ???	
DWS.UTC.2131	Button data 1과 Tick을 받아서 STD의 동작을 수행한다.		

DWS.UTC.2131.00	State == "" Button Data 1 == "" Tick	State = Time	
DWS.UTC.2131.01	State == "" Button Data 1 == "" PM == true Tick	State = PMIndicator Enable "PM Indicator"	
DWS.UTC.2131.02	State == "" Button Data 1 == "" PM == false Tick	State = Time Disable "PM Indicator"	
DWS.UTC.2132	Enable/disable과 Time data를 받아서 PM Show Command를 출력한다.		
DWS.UTC.2132	Enable Time Data == ???	PM Show Command = ???	
DWS.UTC.2133	Enable/disable과 Time data를 받아서 Time Data, Time Show Command를 출력한다.		
DWS.UTC.2133.00	Enable Time Data == ???	Time Data = ????? Time Show Command = ?????	
DWS.UTC.2141	Button data 2와 Tick을 받아서 STD대로 동작함		
DWS.UTC.2141.00	Tick	State = Change	
DWS.UTC.2141.01	State == Change Button Data 2 == !D && !C && B && (A B) Tick	Trigger "Increase Value" State = IncreaseValue	
DWS.UTC.2141.02	State == Change	State = ChangePlace	

	Button Data 2 == !D && C && (A B C) Tick	Trigger "ChangePlace"	
DWS.UTC.2141.03	State == IncreaseValue Button Data 2 == !D && !C && B && (A B) Tick	State = IncreaseValue Trigger "IncreaseValue"	
DWS.UTC.2141.04	State == IncreaseValue Button Data 2 == !D && C && (A B C) Tick	State = ChangePlace Trigger "Change Place"	
DWS.UTC.2141.05	State == ChangePlace Button Data 2 == !D && C && (A B C) Tick	State = ChangePlace Trigger "Change Place"	
DWS.UTC.2141.06	State == ChangePlace Button Data 2 == !D && !C && B && (A B) Tick	State = IncreaseValue Trigger "Increase Value"	
DWS.UTC.2142	Trigger와 Tick, Time Data를 받아서 Time Data와 Value show command를 출력함		
DWS.UTC.2142.00	Trigger Tick Time Data ==???	Value Show Command = ???	
DWS.UTC.2143	Trigger와 Tick, Time Loc.을 받아 Place Show Command를 출력함		
DWS.UTC.2143.00	Trigger Tick Time Loc. ==???	Place Show Command = ???	
DWS.UTC.2143.01	Trigger	1	

	Place_under = 0		
DWS.UTC.2151	Button Data 3을 받아서 Tick이 올 때마다 STD의 동작을 수행 함.		
DWS.UTC.2151.00	State == "" Button Data 3 == !D && !C && B && (A B) Tick	State = TimeActivate Enable "Time Activate"	
DWS.UTC.2151.01	State == TimeActivate Button Data 3 == A && !B && !C && !D Tick	State = LapTime Trigger "Laptime"	
DWS.UTC.2151.02	State == TimeActivate Button Data 3 == !D && !C && B && (A B) Tick	State = Stop Trigger "Stop" Disable "Time Activate"	
DWS.UTC.2151.03	State == LapTime Tick	State = TimeActivate	
DWS.UTC.2151.04	State == Stop Button Data 3 == !D && !C && B && (A B) Tick	State = TimeActivate Enable "Time Activate"	
DWS.UTC.2151.05	State == Stop Button Data 3 == A && !B && !C && !D Tick	State = Reset Trigger "Reset"	
DWS.UTC.2151.06	State == Reset Button Data 3 == !D && !C && B && (A B) Tick	State = TimeActivate	
DWS.UTC.2152	Enable/disable받으면 Activate Show Command를 출력함		

DWS.UTC.2152.00	Enable	Activate Show Command	
DWS.UTC.2152.01	Disable	Activate Show Command	
DWS.UTC.2153	Trigger되면 Stop show command를 출력함		
DWS.UTC.2153.00	Trigger	Stop show command	
DWS.UTC.2154	Trigger되면 Lap time show command를 출력함		
DWS.UTC.2154.00	Trigger	Lap time show command	
DWS.UTC.2155	Trigger되면 reset show command를 출력함		
DWS.UTC.2155.00	Trigger	Reset Show Command	

Table 2 Result of the Test Data Generation

Identifier	Data 생성 결과
DWS.UTC.1000	
DWS.UTC.1000.00	수행하지 않음
DWS.UTC.2000	
DWS.UTC.2000.00	수행하지 않음
DWS.UTC.2100	
DWS.UTC.2100.00	수행하지 않음
DWS.UTC.2200	
DWS.UTC.2200.00	수행하지 않음
DWS.UTC.2300	
DWS.UTC.2300.00	수행하지 않음
DWS.UTC.2110	void Display(int *y,int *m,int *d,char pm[],int *h,int *min,int *s,int *pm_mode,char *button,int *button_v,int *mil_sec,int *val_mil_sec,int *stop_watch_mode,int *place_under,int *val_under,int *now_mode) I/O 불일치 State 대응 불가 STD와 상관없는 구현상태로 Testing을 수행할 수가 없음
DWS.UTC.2110.00	
DWS.UTC.2120	void LED(char *button,int *button_val) I/O 불일치
DWS.UTC.2120.00	I/O 불일치로 Testing 불가
DWS.UTC.2130	time_keeping(int *y,int *m,int *d,int *h,int *min,int *s,int *mil_sec,int *val_mil_sec,char date[][4],int *date_i,int mon_day[],int *lastday,int *day_v,char pm[],int *pm_mode,int *now_mode) I/O 불일치

	State 대응 불가 STD와 상관없는 구현상태로 Testing을 수행할 수가 없음
DWS.UTC.2130.00	State 대응 불가
DWS.UTC.2140	setting(int *y,int *m,int *d,int *h,int *min,int *s,int *val_mil_sec,char date[][4],int *date_i,char pm[],int *place_under,int *now_mode,int *val_under,char *button,int *button_v,int *pm_mode,int *lastday) I/O 불일치 State 대응 불가 STD와 상관없는 구현상태로 Testing을 수행할 수가 없음.
DWS.UTC.2140.00	State 대응 불가
DWS.UTC.2150	void stop_watch(char pm[],int *h,int *min,int *stop_watch_mode,int *now_mode) I/O 불일치
DWS.UTC.2150.00	I/O가 맞지 않아 확인 불가능. Button 입력 자체가 없음
DWS.UTC.2160	unsigned _stdcall backlight(void *arg) Tick을 PC의 Clock을 사용하여 계산하는 구조 I/O가 맞지 않음.
DWS.UTC.2160.00	I/O가 맞지 않아 Testing 불가. 구현한 코드 자체는 UT에서 확인할 수 없는 형태로 구현되어 있음. System 함수를 호출하여 CMD의 문자 색을 바꿈
DWS.UTC.2131	time_keeping(int *y,int *m,int *d,int *h,int *min,int *s,int *mil_sec,int *val_mil_sec,char date[][4],int *date_i,int mon_day[],int *lastday,int *day_v,char pm[],int *pm_mode,int *now_mode) I/O 불일치 State 대응 불가 STD와 상관없는 구현상태로 Testing을 수행할 수가 없음.
DWS.UTC.2131.00	State 대응 불가
DWS.UTC.2131.01	State 대응 불가
DWS.UTC.2131.02	State 대응 불가

DWS.UTC.2132	void pm_indicator(int *y,int *m,int *d,char pm[],int *h,int *min,int *s,int *pm_mode) I/O 불일치 pm_mode라는 새로운 Input
DWS.UTC.2132	
DWS.UTC.2133	-
DWS.UTC.2133.00	Module 확인 불가
DWS.UTC.2141	void setting(int *y,int *m,int *d,int *h,int *min,int *s,int *val_mil_sec,char date[][4],int *date_i,char pm[],int *place_under,int *now_mode,int *val_under,char *button,int *button_v,int *pm_mode,int *lastday) I/O 불일치 State 대응 불가
DWS.UTC.2141.00	State 대응 불가
DWS.UTC.2141.01	State 대응 불가
DWS.UTC.2141.02	State 대응 불가
DWS.UTC.2141.03	State 대응 불가
DWS.UTC.2141.04	State 대응 불가
DWS.UTC.2141.05	State 대응 불가
DWS.UTC.2141.06	State 대응 불가
DWS.UTC.2142	increase_value(int *y,int *m,int *d,int *h,int *min,int *s,char pm[],int *pm_mode,int *place_under,int *lastday) I/O 불일치 place_under가 가지는 숫자가 무엇을 의미하는지 알 수 없음
DWS.UTC.2142.00	I/O 불일치로 Testing 불가
DWS.UTC.2142.01	
DWS.UTC.2143	void change_place(int *place_under) I/O가 맞지 않음. place_under가 가지는 숫자가 무엇을 의미하는지 알 수 없기 때문에 Code를 보지 않고서는 테스트가 불가능 하다.
DWS.UTC.2143.00	I/O 불일치로 Testing 불가

DWS.UTC.2143.00	코드를 확인하여 만든 TC - 의미를 가질 수는 없음
DWS.UTC.2151	
DWS.UTC.2151.00	Module 확인 불가
DWS.UTC.2151.01	Module 확인 불가
DWS.UTC.2151.02	Module 확인 불가
DWS.UTC.2151.03	Module 확인 불가
DWS.UTC.2151.04	Module 확인 불가
DWS.UTC.2151.05	Module 확인 불가
DWS.UTC.2151.06	Module 확인 불가
DWS.UTC.2152	
DWS.UTC.2152.00	Module 확인 불가
DWS.UTC.2152.01	Module 확인 불가
DWS.UTC.2153	
DWS.UTC.2153.00	Module 확인 불가
DWS.UTC.2154	
DWS.UTC.2154.00	Module 확인 불가
DWS.UTC.2155	
DWS.UTC.2155.00	Module 확인 불가