**Unit Testing Report**

**for Smart Humidifier System**

**Project Team**

**Team 4**

Date

**2022-08-12**

**Team Information**

고현서

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1. Introduction
   1. Objectives

본 문서는 2021년 동국대학교의 캡스톤 디자인 강의의 실습과제 검증과정을 설명한다. 실습과제는 스마트가습기시스템(SHS)을 아두이노와 앱인벤터를 통해 하드웨어와 소프트웨어를 이용한 시스템을 구현하는 프로젝트이다.

* 1. References

T4\_2022\_SRA\_SHS\_Ver6.0

T4\_2022\_UTP\_SHS\_Ver3.0

1. Unit test case specification

2.1 Test case specification identifier

<Table 1 : Test Design Identification>

|  |  |  |
| --- | --- | --- |
| Identifier | Feature(Process DFD) | Valid/ Invalid value |
| TEAM4\_SHS\_0\_000\_000 | 1.1.1 LCD\_SET | Data Input :  t = 30, h = 90 |
| TEAM4\_SHS\_0\_001\_000 | 1.2.1 Water Level Inspection | Data Input :  waterlevel = 90 |
| TEAM4\_SHS\_0\_001\_001 | 1.2.1 Water Level Inspection | Data Input :  waterlevel = 100 |
| TEAM4\_SHS\_0\_002\_000 | 1.3.1 Mode Controller | Data Input :  mode\_set = “4”  error\_signal = 0 |
| TEAM4\_SHS\_0\_002\_001 | 1.3.1 Mode Controller | Data Input :  mode\_set = “\*”  error\_signal = 0 |
| TEAM4\_SHS\_0\_003\_000 | 1.3.2 Manual Mode Controller | Data Input :  mode\_set = “1”  error\_signal = 0 |
| TEAM4\_SHS\_0\_003\_001 | 1.3.2 Manual Mode Controller | Data Input :  mode\_set = “2”  error\_signal = 0 |
| TEAM4\_SHS\_0\_003\_002 | 1.3.2 Manual Mode Controller | mode\_set =”1”  error\_signal= Mode\_Controller(mode\_set,error\_signal,error\_check)  =Mode\_Controller("1",Mode\_Controller("4", 0, 0), 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_003\_003 | 1.3.2 Manual Mode Controller | mode\_set = ”1”  error\_signal =  SetOn\_Controller(only\_set, Set\_Controller(input\_humi,user\_humi,only\_set, higher\_humi, h), error\_signal)  =SetOn\_Controller(1, Set\_Controller("std", 60, 0, 0, 50), 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_003\_004 | 1.3.2 Manual Mode Controller | mode\_set = “2”  error\_signal =  Mode\_Controller(mode\_set, error\_signal)  = Mode\_Controller("4", 0, 0),1)  error\_check = 1 |
| TEAM4\_SHS\_0\_003\_005 | 1.3.2 Manual Mode Controller | mode\_set = “2”  error\_signal =  =SetOn\_Controller(only\_set, Set\_Controller(input\_humi,user\_humi, only\_set, higher\_humi, h), error\_signal)  =SetOn\_Controller(1,Set\_Controller("std", 60, 0, 0, 50), 0)  error\_check = 1 |
| TEAM4\_SHS\_0\_003\_006 | 1.3.2 Manual Mode Controller | mode\_set = “2”  error\_signal= Mode\_Controller(mode\_set,error\_signal,error\_check) = Mode\_Controller("5", 0, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_003\_007 | 1.3.2 Manual Mode Controller | mode\_set = “2”  error\_signal =  SetOn\_Controller(only\_set,higher\_humi, error\_signal)  = SetOn\_Controller(1, 1, 0), 61, 60, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_003\_008 | 1.3.2 Manual Mode Controller | mode\_set = “1”  error\_signal =  SetOff\_Controller(SetOn\_Controller(only\_set, higher\_humi,error\_signal),h, user\_humi,error\_signal)= SetOff\_Controller(SetOn\_Controller(1, 1, 0) , 61, 60, 0), 0)  error\_check = 1 |
| TEAM4\_SHS\_0\_003\_009 | 1.3.2 Manual Mode Controller | mode\_set = “1”  error\_signal =  Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller("4", 0, 0)  error\_check = 1 |
| TEAM4\_SHS\_0\_003\_010 | 1.3.2 Manual Mode Controller | mode\_set = “1”  error\_signal =  SetOn\_Controller(only\_set,higher\_humi, error\_signal)  = SetOn\_Controller(1, 1, 0)  error\_check = 1 |
| TEAM4\_SHS\_0\_004\_000 | 1.3.3.1 Auto Mode Control\_ON | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal,error\_check) =  Mode\_Controller(4, 0, 0)  h = 45  t = 24  error\_signal = 0 |
| TEAM4\_SHS\_0\_004\_001 | 1.3.3.1 Auto Mode Control\_ON | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal,error\_check)  = Mode\_Controller(4,0,0)  h = 55  t = 22  error\_signal = 0 |
| TEAM4\_SHS\_0\_004\_002 | 1.3.3.1 Auto Mode Control\_ON | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal,error\_check)  = Mode\_Controller(4,0,0)  h = 65  t = 19  error\_signal = 0 |
| TEAM4\_SHS\_0\_004\_003 | 1.3.3.1 Auto Mode Control\_ON | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check), error\_check)  =Mode\_Controller("4",Mode\_Controller("5", 0, 0), 0)  h = 45  t = 24  error\_signal = 0 |
| TEAM4\_SHS\_0\_004\_004 | 1.3.3.1 Auto Mode Control\_ON | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check), error\_check)  =Mode\_Controller("4",Mode\_Controller("5", 0, 0), 0)  h = 55  t = 22  error\_signal = 0 |
| TEAM4\_SHS\_0\_004\_005 | 1.3.3.1 Auto Mode Control\_ON | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check), error\_check)  =Mode\_Controller("4",Mode\_Controller("5", 0, 0), 0)  h = 65  t = 19  error\_signal = 0 |
| TEAM4\_SHS\_0\_004\_006 | 1.3.3.1 Auto Mode Control\_ON | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check), error\_check)  =Mode\_Controller("4",Mode\_Controller("2", 0, 0), 0)  h = 45  t = 24  error\_signal = 0 |
| TEAM4\_SHS\_0\_004\_007 | 1.3.3.1 Auto Mode Control\_ON | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check), error\_check)  =Mode\_Controller("4",Mode\_Controller("2", 0, 0), 0)  h = 55  t = 22  error\_signal = 0 |
| TEAM4\_SHS\_0\_004\_008 | 1.3.3.1 Auto Mode Control\_ON | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check), error\_check)  =Mode\_Controller("4",Mode\_Controller("2", 0, 0), 0)  h = 65  t = 19  error\_signal = 0 |
| TEAM4\_SHS\_0\_004\_009 | 1.3.3.1 Auto Mode Control\_ON | auto\_control=Mode\_Controller(mode\_set,SetOff\_Controller(SetOn\_Controller(only\_set,higher\_humi,error\_signal),h,user\_humi,error\_signal),error\_check)=Mode\_Controller("4",SetOff\_Controller(SetOn\_Controller(1, 1, 0), 59, 60, 0), 0)  h = 45  t = 24  error\_signal = 0 |
| TEAM4\_SHS\_0\_004\_010 | 1.3.3.1 Auto Mode Control\_ON | auto\_control=Mode\_Controller(mode\_set,SetOff\_Controller(SetOn\_Controller(only\_set,higher\_humi,error\_signal),h,user\_humi,error\_signal),error\_check)=Mode\_Controller("4",SetOff\_Controller(SetOn\_Controller(1, 1, 0), 59, 60, 0), 0)  h = 55  t = 22  error\_signal = 0 |
| TEAM4\_SHS\_0\_004\_011 | 1.3.3.1 Auto Mode Control\_ON | auto\_control=Mode\_Controller(mode\_set,SetOff\_Controller(SetOn\_Controller(only\_set,higher\_humi,error\_signal),h,user\_humi,error\_signal),error\_check)=Mode\_Controller("4",SetOff\_Controller(SetOn\_Controller(1, 1, 0), 59, 60, 0), 0)  h = 65  t = 19  error\_signal = 0 |
| TEAM4\_SHS\_0\_005\_000 | 1.3.3.2 Auto Mode Control\_OFF | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller(4,0)  h = 30  t = 24  error\_signal = 0 |
| TEAM4\_SHS\_0\_005\_001 | 1.3.3.2 Auto Mode Control\_OFF | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller(4,0)  h = 40  t = 22  error\_signal = 0 |
| TEAM4\_SHS\_0\_005\_002 | 1.3.3.2 Auto Mode Control\_OFF | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller(4,0)  h = 40  t = 19  error\_signal = 0 |
| TEAM4\_SHS\_0\_005\_003 | 1.3.3.2 Auto Mode Control\_OFF | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller(4,0)  h = 100  t = 35  error\_signal = 0 |
| TEAM4\_SHS\_0\_005\_004 | 1.3.3.2 Auto Mode Control\_OFF | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller(4,0)  h = 100  t = 15  error\_signal = 0 |
| TEAM4\_SHS\_0\_005\_005 | 1.3.3.2 Auto Mode Control\_OFF | auto\_control= Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal,error\_check),error\_check)  =Mode\_Controller("4",Mode\_Controller("5", 0, 0)  h = 30  t = 24  error\_signal = 0 |
| TEAM4\_SHS\_0\_005\_006 | 1.3.3.2 Auto Mode Control\_OFF | auto\_control= Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal,error\_check),error\_check)  =Mode\_Controller("4",Mode\_Controller("5", 0, 0)  h = 40  t = 22  error\_signal = 0 |
| TEAM4\_SHS\_0\_005\_007 | 1.3.3.2 Auto Mode Control\_OFF | auto\_control= Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal,error\_check),error\_check)  =Mode\_Controller("4",Mode\_Controller("5", 0, 0)  h = 40  t = 19  error\_signal = 0 |
| TEAM4\_SHS\_0\_005\_008 | 1.3.3.2 Auto Mode Control\_OFF | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check),error\_check)  =Mode\_Controller("4",Mode\_Controller("2", 0, 0)  h = 30  t = 24  error\_signal = 0 |
| TEAM4\_SHS\_0\_005\_009 | 1.3.3.2 Auto Mode Control\_OFF | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check),error\_check)  =Mode\_Controller("4",Mode\_Controller("2", 0, 0)  h = 40  t = 22  error\_signal = 0 |
| TEAM4\_SHS\_0\_005\_010 | 1.3.3.2 Auto Mode Control\_OFF | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check),error\_check)=Mode\_Controller("4", Mode\_Controller("2", 0, 0)  h = 40  t = 19  error\_signal = 0 |
| TEAM4\_SHS\_0\_005\_011 | 1.3.3.2 Auto Mode Control\_OFF | auto\_control=Mode\_Controller(mode\_set,SetOff\_Controller(SetOn\_Controller(only\_set,higher\_humi,error\_signal),h,user\_humi, error\_signal), error\_check)  =Mode\_Controller("4", SetOff\_Controller(SetOn\_Controller(1, 1, 0), 59, 60, 0), 0)  h = 30  t = 24  error\_signal = 0 |
| TEAM4\_SHS\_0\_005\_012 | 1.3.3.2 Auto Mode Control\_OFF | auto\_control=Mode\_Controller(mode\_set,SetOff\_Controller(SetOn\_Controller(only\_set,higher\_humi,error\_signal),h,user\_humi, error\_signal), error\_check)  =Mode\_Controller("4", SetOff\_Controller(SetOn\_Controller(1, 1, 0), 59, 60, 0), 0)  h = 40  t = 22  error\_signal = 0 |
| TEAM4\_SHS\_0\_005\_013 | 1.3.3.2 Auto Mode Control\_OFF | auto\_control=Mode\_Controller(mode\_set,SetOff\_Controller(SetOn\_Controller(only\_set,higher\_humi,error\_signal),h,user\_humi, error\_signal), error\_check)  =Mode\_Controller("4", SetOff\_Controller(SetOn\_Controller(1, 1, 0), 59, 60, 0), 0)  h = 40  t = 19  error\_signal = 0 |
| TEAM4\_SHS\_0\_006\_000 | 1.3.3 Auto Mode Controller | Data Input :  mode\_set = “5”  error\_signal = 0 |
| TEAM4\_SHS\_0\_006\_001 | 1.3.3 Auto Mode Controller | Data Input :  mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set, error\_signal), h, t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", 0, 0), 45, 24, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_006\_002 | 1.3.3 Auto Mode Controller | Data Input :  mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set, error\_signal), h, t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", 0, 0), 55, 22, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_006\_003 | 1.3.3 Auto Mode Controller | Data Input :  mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set, error\_signal), h, t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", 0, 0), 65, 19, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_006\_004 | 1.3.3 Auto Mode Controller | Data Input :  mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set, error\_signal), h, t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", 0, 0), 30, 24, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_006\_005 | 1.3.3 Auto Mode Controller | Data Input :  mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set, error\_signal), h, t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", 0, 0), 40, 22, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_006\_006 | 1.3.3 Auto Mode Controller | Data Input :  mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set, error\_signal), h, t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", 0, 0), 40, 19, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_006\_007 | 1.3.3 Auto Mode Controller | Data Input :  mode\_set = “5”  error\_signal=  Mode\_Controller(mode\_set, Auto\_Controller(Mode\_Controller(mode\_set, error\_signal), h, t, error\_signal))  =Mode\_Controller("5", Auto\_Controller(Mode\_Controller("4", 0, 0), 40, 19, 0), 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_006\_008 | 1.3.3 Auto Mode Controller | auto\_control= Auto\_Controller(Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal)), h, t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", Mode\_Controller("5", 0, 0), 0), 45, 24, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_006\_009 | 1.3.3 Auto Mode Controller | auto\_control= Auto\_Controller(Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal)), h, t, error\_signal)  =Auto\_Controller(Mode\_Controller("4", Mode\_Controller("5", 0, 0), 0), 55, 22, 0) |
| TEAM4\_SHS\_0\_006\_010 | 1.3.3 Auto Mode Controller | auto\_control= Auto\_Controller(Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal)), h, t, error\_signal)  =Auto\_Controller(Mode\_Controller("4", Mode\_Controller("5", 0, 0), 0), 65, 19, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_006\_0011 | 1.3.3 Auto Mode Controller | mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal)), h, t, error\_signal);  =Auto\_Controller(Mode\_Controller("4", Mode\_Controller("5", 0, 0), 0), 30, 24, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_006\_012 | 1.3.3 Auto Mode Controller | mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal)), h, t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", Mode\_Controller("5", 0, 0), 0), 40, 22, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_006\_013 | 1.3.3 Auto Mode Controller | mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal)), h, t, error\_signal)  =Auto\_Controller(Mode\_Controller("4", Mode\_Controller("5", 0, 0), 0), 40, 19, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_006\_014 | 1.3.3 Auto Mode Controller | mode\_set = “4”  error\_signal=Mode\_Controller(mode\_set, error\_signal, error\_check)  = Mode\_Controller("1", 0, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_006\_015 | 1.3.3 Auto Mode Controller | mode\_set = “5”  error\_signal=Mode\_Controller(mode\_set, error\_signal, error\_check)  = Mode\_Controller("1", 0, 0)  error\_check = 1 |
| TEAM4\_SHS\_0\_006\_016 | 1.3.3 Auto Mode Controller | mode\_set = “5”  error\_signal=SetOn\_Controller(only\_set, higher\_humi, error\_signal)  = SetOn\_Controller(1, 1, 0)  error\_check = 1 |
| TEAM4\_SHS\_0\_006\_017 | 1.3.3 Auto Mode Controller | mode\_set = “5”  error\_signal=Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller(“2”, 0, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_006\_018 | 1.3.3 Auto Mode Controller | mode\_set = “5”  error\_signal=SetOn\_Controller(only\_set, higher\_humi, error\_signal)  = SetOn\_Controller(1, 1, 0)  error\_check = 0 |
| TEAM4\_SHS\_0\_007\_000 | 1.4.1 Setting Mode Controller | Data Input :  input\_humi = “std”  user\_humi = 60  only\_set = 0  higher\_humi = 0  h = 50 |
| TEAM4\_SHS\_0\_007\_001 | 1.4.1 Setting Mode Controller | Data Input :  input\_humi = “error”  user\_humi = 60  only\_set = 0  higher\_humi = 0  h = 50 |
| TEAM4\_SHS\_0\_007\_002 | 1.4.1 Setting Mode Controller | Data Input :  only\_set =1  higher\_humi=SetOn\_Controller(int only\_set,int higher\_humi, int error\_signal)  higher\_humi=Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h)  input\_humi = “std”  user\_humi = 60  only\_set = 0  higher\_humi = 0  h = 50  error\_signal = 0 |
| TEAM4\_SHS\_0\_007\_003 | 1.4.1 Setting Mode Controller | Data Input :  only\_set =1  higher\_humi=SetOn\_Controller(int only\_set,int higher\_humi, int error\_signal)  higher\_humi= Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h) = SetOn\_Controller(int only\_set,int higher\_humi, int error\_signal)  higher\_humi= Set\_Controller(“error”, 60  , 0, 0, 50)  error\_signal = 0 |
| TEAM4\_SHS\_0\_007\_004 | 1.4.1 Setting Mode Controller | Data Input :  pause= SetOn\_Controller(only\_set,higher\_humi,error\_signal)  only\_set = 1  higher\_humi = 1  error\_signal = 0  h = 61  user\_humi = 60  error\_signal = 0 |
| TEAM4\_SHS\_0\_007\_005 | 1.4.1 Setting Mode Controller | Data Input :  pause= SetOn\_Controller(only\_set,higher\_humi,error\_signal)  only\_set = 1  higher\_humi = 1  error\_signal = 0  h = 59  user\_humi = 60  error\_signal = 0 |
| TEAM4\_SHS\_0\_007\_006 | 1.4.1 Setting Mode Controller | Data Input : user\_humi = 91 |
| TEAM4\_SHS\_0\_007\_007 | 1.4.1 Setting Mode Controller | Data Input : user\_humi = -10 |
| TEAM4\_SHS\_0\_007\_008 | 1.4.1 Setting Mode Controller | Data Input :  only\_set = 1  higher\_humi= Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h)  error\_signal= SetOff\_Controller(SetOn\_Controller(Set\_Controller(input\_humi,user\_humi,only\_set, higher\_humi,h), Set\_Controller(input\_humi,user\_humi, only\_set, higher\_humi, h), error\_signal), h, user\_humi, error\_signal)  =SetOff\_Controller(SetOn\_Controller(Set\_Controller("std",60,0,0,50), Set\_Controller("std", 60, 0, 0, 50), 0), 61, 60, 0)) |
| TEAM4\_SHS\_0\_007\_009 | 1.4.1 Setting Mode Controller | pause=Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi,h) = SetOn\_Controller(1, 1, 0)  h = 61  user\_humi = 60  error\_signal=SetOn\_Controller(only\_set, Set\_Controller(input\_humi,user\_humi, only\_set,higher\_humi,h), SetOff\_Controller(SetOn\_Controller(Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi,h), Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h), error\_signal), h, user\_humi, error\_signal)))  =SetOn\_Controller(1,Set\_Controller("std", 60,0,0,50), SetOff\_Controller(SetOn\_Controller(Set\_Controller("std",60,0,0,50), Set\_Controller("std", 60, 0, 0, 50), 0), 61, 60, 0))) |
| TEAM4\_SHS\_0\_007\_010 | 1.4.1 Setting Mode Controller | pause=SetOn\_Controller(only\_set,Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi,h), SetOff\_Controller(SetOn\_Controller(only\_set,Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h), error\_signal), h, user\_humi, Mode\_Controller(mode\_set, error\_signal,error\_check)))=(SetOn\_Controller(1, Set\_Controller("std", 60, 0, 0, 50), SetOff\_Controller(SetOn\_Controller(1, Set\_Controller("std",60,0,0,50), Mode\_Controller("2", 0, 0)), 61, 60, 0))  h = 61  user\_humi = 60  error\_signal = 0 |
| TEAM4\_SHS\_0\_007\_011 | 1.4.1 Setting Mode Controller | pause=SetOn\_Controller(only\_set, Set\_Controller(input\_humi,user\_humi, only\_set,higher\_humi,h), SetOff\_Controller(SetOn\_Controller(only\_set,Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h), error\_signal), h, user\_humi, Mode\_Controller(mode\_set, error\_signal,error\_check)))= (SetOn\_Controller(1, Set\_Controller("std", 60,0,0,50), SetOff\_Controller(SetOn\_Controller(1,Set\_Controller("std",60,0,0,50),Mode\_Controller("5", 0, 0)), 61, 60, 0))  h = 61  user\_humi = 60  error\_signal = 0 |
| TEAM4\_SHS\_0\_007\_012 | 1.4.1 Setting Mode Controller | pause=SetOn\_Controller(only\_set,higher\_humi,Mode\_Controller(mode\_set,error\_signal,error\_check))  =SetOn\_Controller(1,1,Mode\_Controller("4", 0, 0))  h = 61  user\_humi = 60  error\_signal = 0 |
| TEAM4\_SHS\_0\_007\_013 | 1.4.1 Setting Mode Controller | pause=SetOn\_Controller(only\_set,higher\_humi,Mode\_Controller(mode\_set,error\_signal,error\_check))  =SetOn\_Controller(1,1,Mode\_Controller("5", 0, 0))  h = 61  user\_humi = 60  error\_signal = 0 |
| TEAM4\_SHS\_0\_007\_014 | 1.4.1 Setting Mode Controller | pause=SetOn\_Controller(only\_set,higher\_humi,Mode\_Controller(mode\_set,error\_signal,error\_check))  =SetOn\_Controller(1,1,Mode\_Controller("1", 0, 0))  h = 61  user\_humi = 60  error\_signal = 0 |
| TEAM4\_SHS\_0\_007\_015 | 1.4.1 Setting Mode Controller | pause=SetOn\_Controller(only\_set,higher\_humi,Mode\_Controller(mode\_set,error\_signal,error\_check))  =SetOn\_Controller(1,1,Mode\_Controller("2", 0, 0))  h = 61  user\_humi = 60  error\_signal = 0 |
| TEAM4\_SHS\_0\_007\_016 | 1.4.1 Setting Mode Controller | only\_set = 1  higher\_humi= Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h) = Set\_Controller("std", 60, 0, 0, 50)  error\_signal= Mode\_Controller(mode\_set, error\_signal,error\_check) =Mode\_Controller("4", 0, 0) |
| TEAM4\_SHS\_0\_007\_017 | 1.4.1 Setting Mode Controller | only\_set = 1  higher\_humi= Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h) = Set\_Controller("std", 60, 0, 0, 50)  error\_signal= Mode\_Controller(mode\_set, error\_signal,error\_check) =Mode\_Controller("1", 0, 0) |

2.2 Test items

<Table 2 : Test Case Identification>

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ID** | **Test Name** | **Precondition** | **Input Specification** | **Run** | **Result** |
| TEAM4\_SHS\_0\_000\_000 | TEST(LcdSetTest, lcdinput) | 초기화 상태 | temperature : 30  humidity : 90 | LCD\_SET() 함수 동작 | “LCD SET ON” 출력 |
| TEAM4\_SHS\_0\_001\_000 | TEST(WaterLevelInspectionTest, waterinput) | 초기화 상태 | waterlevel : 90 | WaterLevelInspection() 함수 동작 | true 출력 |
| TEAM4\_SHS\_0\_001\_001 | TEST(WaterLevelLackInspectionTest, waterinput) | 초기화 상태 | waterlevel : 100 | WaterLevelInspection() 함수 동작 | false 출력 |
| TEAM4\_SHS\_0\_002\_000 | TEST(AutoOnControllerTest, modeinput) | 초기화 상태 | mode\_set : “4”  error\_signal : 0 | Mode\_Controller() 함수 동작 | 41 출력 |
| TEAM4\_SHS\_0\_002\_001 | TEST(ModeControllerErrorTest, modeinput) | 초기화 상태 | mode\_set : “\*”  error\_signal : 0 | Mode\_Controller() 함수 동작 | 40 출력 |
| TEAM4\_SHS\_0\_003\_000 | TEST(ManualOnControllerTest, modeinput) | 초기화 상태 | mode\_set : “1”  error\_signal : 0 | Mode\_Controller() 함수 동작 | 30 출력 |
| TEAM4\_SHS\_0\_003\_001 | TEST(ManualOffControllerTest, modeinput) | 초기화 상태 | mode\_set : “2”  error\_signal : 0 | Mode\_Controller() 함수 동작 | 31 출력 |
| TEAM4\_SHS\_0\_003\_002 | TEST(AutoOntoManualOnControllerTest1, modeinput) | 자동모드 ON상태 | mode\_set =”1”  error\_signal= Mode\_Controller(mode\_set,error\_signal,error\_check)  =Mode\_Controller("1",Mode\_Controller("4", 0, 0), 0)  error\_check = 0 | Mode\_Controller() 함수 동작 |  |
| TEAM4\_SHS\_0\_003\_003 | TEST(SetOntoManualOnControllerTest1, modeinput) | 습도설정모드 ON 상태 | mode\_set = ”1”  error\_signal =  SetOn\_Controller(only\_set, Set\_Controller(input\_humi,user\_humi,only\_set, higher\_humi, h), error\_signal)  =SetOn\_Controller(1, Set\_Controller("std", 60, 0, 0, 50), 0)  error\_check = 0 | Mode\_Controller() 함수 동작 | 40 출력 |
| TEAM4\_SHS\_0\_003\_004 | TEST(AutoOntoManualOffControllerTest, modeinput) | 자동모드ON상태 | mode\_set = “2”  error\_signal =  Mode\_Controller(mode\_set, error\_signal,error\_check)  = Mode\_Controller("4", 0, 0)  error\_check = 1 | Mode\_Controller() 함수 동작 | 40 출력 |
| TEAM4\_SHS\_0\_003\_005 | TEST(SetOntoManualOffControllerTest, modeinput) | 설정모드ON상태 | mode\_set = “2”  error\_signal =  =SetOn\_Controller(only\_set, Set\_Controller(input\_humi,user\_humi, only\_set, higher\_humi, h), error\_signal)  =SetOn\_Controller(1,Set\_Controller("std", 60, 0, 0, 50), 0)  error\_check = 1 | Mode\_Controller() 함수 동작 | 40 출력 |
| TEAM4\_SHS\_0\_003\_006 | TEST(AutoOfftoManualOffControllerTest, modeinput) | 자동모드 OFF 상태 | mode\_set = “2”  error\_signal= Mode\_Controller(mode\_set,error\_signal,error\_check) = Mode\_Controller("5", 0, 0)  error\_check = 0 | Mode\_Controller() 함수 동작 | 0 출력 |
| TEAM4\_SHS\_0\_003\_007 | TEST(SetofftoManualOffControllerTest, modeinput) | 설정모드 OFF상태 | mode\_set = “2”  error\_signal =  SetOn\_Controller(only\_set,higher\_humi, error\_signal)  = SetOn\_Controller(1, 1, 0), 61, 60, 0)  error\_check = 0 | Mode\_Controller() 함수 동작 | 0 출력 |
| TEAM4\_SHS\_0\_003\_008 | TEST(SetOfftoManualOnControllerTest, modeinput) | 설정모드 OFF상태 | mode\_set = “1”  error\_signal =  SetOff\_Controller(SetOn\_Controller(only\_set, higher\_humi,error\_signal),h, user\_humi,error\_signal)= SetOff\_Controller(SetOn\_Controller(1, 1, 0) , 61, 60, 0), 0)  error\_check = 1 | Mode\_Controller() 함수 동작 | 1 출력 |
| TEAM4\_SHS\_0\_003\_009 | TEST(AutoOntoManualOnControllerTest2, modeinput) | 자동모드 ON상태 | mode\_set = “1”  error\_signal =  Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller("4", 0, 0)  error\_check = 1 | Mode\_Controller() 함수 동작 | 40 출력 |
| TEAM4\_SHS\_0\_003\_010 | TEST(SetOntoManualOnControllerTest2, modeinput) | 설정모드ON상태 | mode\_set = “1”  error\_signal =  SetOn\_Controller(only\_set,higher\_humi, error\_signal)  = SetOn\_Controller(1, 1, 0)  error\_check = 1 | Mode\_Controller() 함수 동작 | 40 출력 |
| TEAM4\_SHS\_0\_004\_000 | TEST(AutoOnControllerHumiSucceedTest1, autoinput) | 초기화 상태 | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal) =  Mode\_Controller(4, 0)  h = 45  t = 24  error\_signal = 0 | Mode\_Controller() 함수 동작 | 32 출력 |
| EAM4\_SHS\_0\_004\_001 | TEST(AutoOnControllerHumiSucceedTest2, autoinput) | 초기화 상태 | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller(4,0)  h = 55  t = 22  error\_signal = 0 | Mode\_Controller() 함수 동작 | 32 출력 |
| TEAM4\_SHS\_0\_004\_002 | TEST(AutoOnControllerHumiSucceedTest3, autoinput) | 초기화 상태 | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller(4,0)  h = 65  t = 19  error\_signal = 0 | Mode\_Controller() 함수 동작 | 32 출력 |
| TEAM4\_SHS\_0\_004\_003 | TEST(AutoOfftoAutoOnControllerHumiSucceedTest1, autoinput) | 자동모드 OFF 상태 | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check), error\_check)  =Mode\_Controller("4",Mode\_Controller("5", 0, 0), 0)  h = 45  t = 24  error\_signal = 0 | Auto\_Controller() 함수 동작 | 1 출력 |
| TEAM4\_SHS\_0\_004\_004 | TEST(AutoOfftoAutoOnControllerHumiSucceedTest2, autoinput) | 자동모드 OFF 상태 | mode\_set = “5”  auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check), error\_check)  =Mode\_Controller("4",Mode\_Controller("5", 0, 0), 0)  h = 55  t = 22  error\_signal = 0 | Auto\_Controller() 함수 동작 | 1 출력 |
| TEAM4\_SHS\_0\_004\_005 | TEST(AutoOfftoAutoOnControllerHumiSucceedTest3, autoinput) | 자동모드 OFF 상태 | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check), error\_check)  =Mode\_Controller("4",Mode\_Controller("5", 0, 0), 0)  h = 65  t = 19  error\_signal = 0 | Auto\_Controller() 함수 동작 | 1 출력 |
| TEAM4\_SHS\_0\_004\_006 | TEST(ManualOfftoAutoOnControllerHumiSucceedTest1, autoinput) | 수동모드 OFF -> 자동모드 ON 상태 | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check), error\_check)  =Mode\_Controller("4",Mode\_Controller("2", 0, 0), 0)  h = 45  t = 24  error\_signal = 0 | Auto\_Controller() 함수 동작 | 1 출력 |
| TEAM4\_SHS\_0\_004\_007 | TEST(ManualOfftoAutoOnControllerHumiSucceedTest2, autoinput) | 수동모드 OFF -> 자동모드 ON 상태 | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check), error\_check)  =Mode\_Controller("4",Mode\_Controller("2", 0, 0), 0)  h = 55  t = 22  error\_signal = 0 | Auto\_Controller() 함수 동작 | 1 출력 |
| TEAM4\_SHS\_0\_004\_008 | TEST(ManualOfftoAutoOnControllerHumiSucceedTest3, autoinput) | 수동모드 OFF -> 자동모드 ON 상태 | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check), error\_check)  =Mode\_Controller("4",Mode\_Controller("2", 0, 0), 0)  h = 65  t = 19  error\_signal = 0 | Auto\_Controller() 함수 동작 | 1 출력 |
| TEAM4\_SHS\_0\_004\_009 | TEST(SetOntoSetOfftoAutoOnControllerHumiSucceedTest1, autoinput) | 습도설정모드ON->습도설정모드OFF 상태 | auto\_control=Mode\_Controller(mode\_set,SetOff\_Controller(SetOn\_Controller(only\_set,higher\_humi,error\_signal),h,user\_humi,error\_signal),error\_check)=Mode\_Controller("4",SetOff\_Controller(SetOn\_Controller(1, 1, 0), 59, 60, 0), 0)  h = 45  t = 24  error\_signal = 0 | Auto\_Controller() 함수 동작 | 1 출력 |
| TEAM4\_SHS\_0\_004\_010 | TEST(SetOntoSetOfftoAutoOnControllerHumiSucceedTest2, autoinput) | 습도설정모드ON->습도설정모드OFF 상태 | auto\_control=Mode\_Controller(mode\_set,SetOff\_Controller(SetOn\_Controller(only\_set,higher\_humi,error\_signal),h,user\_humi,error\_signal),error\_check)=Mode\_Controller("4",SetOff\_Controller(SetOn\_Controller(1, 1, 0), 59, 60, 0), 0)  h = 55  t = 22  error\_signal = 0 | Auto\_Controller() 함수 동작 | 1 출력 |
| TEAM4\_SHS\_0\_004\_011 | TEST(SetOntoSetOfftoAutoOnControllerHumiSucceedTest3, autoinput) | 습도설정모드ON->습도설정모드OFF 상태 | auto\_control=Mode\_Controller(mode\_set,SetOff\_Controller(SetOn\_Controller(only\_set,higher\_humi,error\_signal),h,user\_humi,error\_signal),error\_check)=Mode\_Controller("4",SetOff\_Controller(SetOn\_Controller(1, 1, 0), 59, 60, 0), 0)  h = 65  t = 19  error\_signal = 0 | Auto\_Controller() 함수 동작 | 1 출력 |
| TEAM4\_SHS\_0\_005\_000 | TEST(AutoOnControllerHumiFailTest1, autoinput) | 초기화 상태 | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller(4,0)  h = 30  t = 24  error\_signal = 0 | Auto\_Controller() 함수 실행 | 33 출력 |
| TEAM4\_SHS\_0\_005\_001 | TEST(AutoOnControllerHumiFailTest2, autoinput) | 초기화 상태 | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller(4,0)  h = 40  t = 22  error\_signal = 0 | Auto\_Controller() 함수 실행 | 33 출력 |
| TEAM4\_SHS\_0\_005\_002 | TEST(AutoOnControllerHumiFailTest3, autoinput) | 초기화 상태 | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller(4,0)  h = 40  t = 19  error\_signal = 0 | Auto\_Controller() 함수 실행 | 33 출력 |
| TEAM4\_SHS\_0\_005\_003 | TEST(AutoOnControlErrorTest1, autoinput) | 초기화 상태 | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller(4,0)  h = 100  t = 35  error\_signal = 0 | Mode\_Controller()함수 출력 | 40 출력 |
| TEAM4\_SHS\_0\_005\_004 | TEST(AutoOnControlErrorTest2, autoinput) | 초기화 상태 | Data Input :  auto\_control= Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller(4,0)  h = 100  t = 15  error\_signal = 0 | Mode\_Controller()함수 출력 | 40 출력 |
| TEAM4\_SHS\_0\_005\_005 | TEST(AutoOfftoAutoOnControllerHumiFailTest1, autoinput) | 자동모드 OFF상태 | auto\_control= Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal,error\_check),error\_check)  =Mode\_Controller("4",Mode\_Controller("5", 0, 0)  h = 30  t = 24  error\_signal = 0 | Auto\_Controller()함수 실행 | 1 출력 |
| TEAM4\_SHS\_0\_005\_006 | TEST(AutoOfftoAutoOnControllerHumiFailTest2, autoinput) | 자동모드 OFF상태 | auto\_control= Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal,error\_check),error\_check)  =Mode\_Controller("4",Mode\_Controller("5", 0, 0)  h = 40  t = 22  error\_signal = 0 | Auto\_Controller()함수 실행 | 1 출력 |
| TEAM4\_SHS\_0\_005\_007 | TEST(AutoOfftoAutoOnControllerHumiFailTest3, autoinput) | 자동모드 OFF상태 | auto\_control= Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal,error\_check),error\_check)  =Mode\_Controller("4",Mode\_Controller("5", 0, 0)  h = 40  t = 19  error\_signal = 0 | Auto\_Controller()함수 실행 | 1 출력 |
| TEAM4\_SHS\_0\_005\_008 | TEST(ManualOfftoAutoOnControllerHumiFailTest1, autoinput) | 자동모드 OFF상태 | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check),error\_check)  =Mode\_Controller("4",Mode\_Controller("2", 0, 0)  h = 30  t = 24  error\_signal = 0 | Auto\_Controller()함수 실행 | 1 출력 |
| TEAM4\_SHS\_0\_005\_009 | TEST(ManualOfftoAutoOnControllerHumiFailTest2, autoinput) | 자동모드 OFF상태 | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check),error\_check)  =Mode\_Controller("4",Mode\_Controller("2", 0, 0)  h = 40  t = 22  error\_signal = 0 | Auto\_Controller()함수 실행 | 1 출력 |
| TEAM4\_SHS\_0\_005\_010 | TEST(ManualOntoAutoOffControllerHumiFailTest3, autoinput) | 자동모드 OFF상태 | auto\_control=Mode\_Controller(mode\_set, Mode\_Controller(mode\_set,error\_signal, error\_check),error\_check)=Mode\_Controller("4", Mode\_Controller("2", 0, 0)  h = 40  t = 19  error\_signal = 0 | Auto\_Controller()함수 실행 | 1 출력 |
| TEAM4\_SHS\_0\_005\_011 | TEST(SetOntoSetOfftoAutoOnControllerHumiFailTest1, autoinput) | 습도설정모드OFF상태 | auto\_control=Mode\_Controller(mode\_set,SetOff\_Controller(SetOn\_Controller(only\_set,higher\_humi,error\_signal),h,user\_humi, error\_signal), error\_check)  =Mode\_Controller("4", SetOff\_Controller(SetOn\_Controller(1, 1, 0), 59, 60, 0), 0)  h = 30  t = 24  error\_signal = 0 | Auto\_Controller()함수 출력 | 1 출력 |
| TEAM4\_SHS\_0\_005\_012 | TEST(SetOntoSetOfftoAutoOnControllerHumiFailTest2, autoinput) | 습도설정모드OFF상태 | auto\_control=Mode\_Controller(mode\_set,SetOff\_Controller(SetOn\_Controller(only\_set,higher\_humi,error\_signal),h,user\_humi, error\_signal), error\_check)  =Mode\_Controller("4", SetOff\_Controller(SetOn\_Controller(1, 1, 0), 59, 60, 0), 0)  h = 40  t = 22  error\_signal = 0 | Auto\_Controller()함수 출력 | 1 출력 |
| TEAM4\_SHS\_0\_005\_013 | TEST(SetOntoSetOfftoAutoOnControllerHumiFailTest3, autoinput) | 습도설정모드OFF상태 | auto\_control=Mode\_Controller(mode\_set,SetOff\_Controller(SetOn\_Controller(only\_set,higher\_humi,error\_signal),h,user\_humi, error\_signal), error\_check)  =Mode\_Controller("4", SetOff\_Controller(SetOn\_Controller(1, 1, 0), 59, 60, 0), 0)  h = 40  t = 19  error\_signal = 0 | Auto\_Controller()함수 출력 | 1 출력 |
| TEAM4\_SHS\_0\_006\_000 | TEST(AutoOffControllerTest, modeinput) | 초기화 상태 | Data Input :  mode\_set = “5”  error\_signal = 0 | Mode\_Controller()함수 실행 | 34 출력 |
| TEAM4\_SHS\_0\_006\_001 | TEST(AutoOntoAutoOffControllerTest1, modeinput) | 자동모드 ON상태 | Data Input :  mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set, error\_signal),h,t,error\_signal)  = Auto\_Controller(Mode\_Controller("4", 0, 0), 45, 24, 0)  error\_check = 0 | Mode\_Controller()함수 실행 | 34 출력 |
| TEAM4\_SHS\_0\_006\_002 | TEST(AutoOntoAutoOffControllerTest2, modeinput) | 자동모드 ON상태 | Data Input :  mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set, error\_signal), h, t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", 0, 0), 55, 22, 0)  error\_check = 0 | Mode\_Controller()함수 실행 | 34 출력 |
| TEAM4\_SHS\_0\_006\_003 | TEST(AutoOntoAutoOffControllerTest3, modeinput) | 자동모드 ON상태 | Data Input :  mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set, error\_signal), h, t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", 0, 0), 65, 19, 0)  error\_check = 0 | Mode\_Controller()함수 실행 | 34 출력 |
| TEAM4\_SHS\_0\_006\_004 | TEST(AutoOntoAutoOffControllerTest4, modeinput) | 자동모드 ON상태 | Data Input :  mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set, error\_signal),h,t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", 0, 0), 30, 24, 0)  error\_check = 0 | Mode\_Controller()함수 실행 | 34 출력 |
| TEAM4\_SHS\_0\_006\_005 | TEST(AutoOntoAutoOffControllerTest5, modeinput) | 자동모드 ON상태 | Data Input :  mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set, error\_signal), h, t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", 0, 0), 40, 22, 0)  error\_check = 0 | Mode\_Controller()함수 실행 | 34 출력 |
| TEAM4\_SHS\_0\_006\_006 | TEST(AutoOntoAutoOffControllerTest6, modeinput) | 자동모드 ON상태 | Data Input :  mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set, error\_signal), h, t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", 0, 0), 40, 19, 0)  error\_check = 0 | Mode\_Controller()함수 실행 | 34 출력 |
| TEAM4\_SHS\_0\_006\_007 | TEST(AutoOfftoAutoOntoAutoOffController6, autoinput) | 자동모드OFF->자동모드 ON상태 | Data Input :  mode\_set = “5”  error\_signal=  Mode\_Controller(mode\_set, Auto\_Controller(Mode\_Controller(mode\_set, error\_signal),h,t, error\_signal))  =Mode\_Controller("4", Auto\_Controller(Mode\_Controller("5", 0, 0), 40, 19, 0), 0)  error\_check = 0 | Mode\_Controller()함수 실행 | 34 출력 |
| TEAM4\_SHS\_0\_006\_008 | TEST(AutoOfftoAutoOnControllerHumiSucceedTest1, autoinput) | 자동모드OFF상태 | auto\_control= Auto\_Controller(Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal)), h, t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", Mode\_Controller("5", 0, 0), 0), 45, 24, 0)  error\_check = 0 | Auto\_Controller()함수 실행 | 1 출력 |
| TEAM4\_SHS\_0\_006\_009 | TEST(AutoOfftoAutoOnControllerHumiSucceedTest2, autoinput) | 자동모드OFF상태 | auto\_control= Auto\_Controller(Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal)), h, t, error\_signal)  =Auto\_Controller(Mode\_Controller("4", Mode\_Controller("5", 0, 0), 0), 55, 22, 0) | Auto\_Controller()함수 실행 | 1 출력 |
| TEAM4\_SHS\_0\_006\_010 | TEST(AutoOfftoAutoOnControllerHumiSucceedTest3, autoinput) | 자동모드OFF상태 | auto\_control= Auto\_Controller(Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal)), h, t, error\_signal)  =Auto\_Controller(Mode\_Controller("4", Mode\_Controller("5", 0, 0), 0), 65, 19, 0)  error\_check = 0 | Auto\_Controller()함수 실행 | 1 출력 |
| TEAM4\_SHS\_0\_006\_0011 | TEST(AutoOfftoAutoOntoAutoOffController4, autoinput) | 자동모드 OFF-> 자동모드 ON 상태 | mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal)), h, t, error\_signal);  =Auto\_Controller(Mode\_Controller("4", Mode\_Controller("5", 0, 0), 0), 30, 24, 0)  error\_check = 0 | Auto\_Controller()함수 실행 | 34 출력 |
| TEAM4\_SHS\_0\_006\_012 | TEST(AutoOfftoAutoOntoAutoOffController5, autoinput) | 자동모드 OFF-> 자동모드 ON 상태 | mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal)), h, t, error\_signal)  = Auto\_Controller(Mode\_Controller("4", Mode\_Controller("5", 0, 0), 0), 40, 22, 0)  error\_check = 0 | Auto\_Controller()함수 실행 | 34 출력 |
| TEAM4\_SHS\_0\_006\_013 | TEST(AutoOfftoAutoOntoAutoOffController6, autoinput) | 자동모드 OFF-> 자동모드 ON 상태 | mode\_set = “5”  error\_signal= Auto\_Controller(Mode\_Controller(mode\_set,Mode\_Controller(mode\_set,error\_signal)), h, t, error\_signal)  =Auto\_Controller(Mode\_Controller("4", Mode\_Controller("5", 0, 0), 0), 40, 19, 0)  error\_check = 0 | Auto\_Controller()함수 실행 | 34 출력 |
| TEAM4\_SHS\_0\_006\_014 | TEST(ManualOntoAutoOnControllerTest, autoinput) | 수동모드ON상태 | mode\_set = “4”  error\_signal=Mode\_Controller(mode\_set, error\_signal, error\_check)  = Mode\_Controller("1", 0, 0)  error\_check = 0 | Mode\_Controller()함수 실행 | 40 출력 |
| TEAM4\_SHS\_0\_006\_015 | TEST(ManualOntoAutoOffControllerTest, autoinput) | 수동모드ON상태 | mode\_set = “5”  error\_signal=Mode\_Controller(mode\_set, error\_signal, error\_check)  = Mode\_Controller("1", 0, 0)  error\_check = 1 | Mode\_Controller()함수 실행 | 40 출력 |
| TEAM4\_SHS\_0\_006\_016 | TEST(SetOntoAutoOffControllerTest2, autoinput) | 습도설정모드ON상태 | mode\_set = “5”  error\_signal=SetOn\_Controller(only\_set, higher\_humi, error\_signal)  = SetOn\_Controller(1, 1, 0)  error\_check = 1 | Mode\_Controller()함수 실행 | 40 출력 |
| TEAM4\_SHS\_0\_006\_017 | TEST(ManualOfftoAutoOffControllerTest, autoinput) | 습도설정모드ON상태 | mode\_set = “5”  error\_signal=Mode\_Controller(mode\_set,error\_signal)  = Mode\_Controller(“2”, 0, 0)  error\_check = 0 | Mode\_Controller()함수 실행 | 34 출력 |
| TEAM4\_SHS\_0\_006\_018 | TEST(SetOntoAutoOffControllerTest1, autoinput) | 습도설정모드 ON 상태 | mode\_set = “5”  error\_signal=SetOn\_Controller(only\_set, higher\_humi, error\_signal)  = SetOn\_Controller(1, 1, 0)  error\_check = 0 | Mode\_Controller()함수 실행 | 34 출력 |
| TEAM4\_SHS\_0\_007\_000 | TEST(SetControllerTest, setinput) | 초기화 상태 | Data Input :  input\_humi = “std”  user\_humi = 60  only\_set = 0  higher\_humi = 0  h = 50 | Set\_Controller()함수 실행 | 1 출력 |
| TEAM4\_SHS\_0\_007\_001 | TEST(SetControllerErrorTest, setinput) | 초기화 상태 | Data Input :  input\_humi = “error”  user\_humi = 60  only\_set = 0  higher\_humi = 0  h = 50 | Set\_Controller()함수 실행 | 40 출력 |
| TEAM4\_SHS\_0\_007\_002 | TEST(SetOnControllerTest, setoninput) | 초기화 상태 | Data Input :  only\_set =1  higher\_humi=SetOn\_Controller(int only\_set,int higher\_humi, int error\_signal)  higher\_humi=Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h)  input\_humi = “std”  user\_humi = 60  only\_set = 0  higher\_humi = 0  h = 50  error\_signal = 0 | SetOn\_Controller()함수 실행 | 35 출력 |
| TEAM4\_SHS\_0\_007\_003 | TEST(SetOnControllerErrorTest, setoninput) | 초기화 상태 | Data Input :  only\_set =1  higher\_humi=SetOn\_Controller(int only\_set,int higher\_humi, int error\_signal)  higher\_humi= Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h) = SetOn\_Controller(int only\_set,int higher\_humi, int error\_signal)  higher\_humi= Set\_Controller(“error”, 60  , 0, 0, 50)  error\_signal = 0 | SetOn\_Controller()함수 실행 | 40 출력 |
| TEAM4\_SHS\_0\_007\_004 | TEST(SetOffControllerTest, setoffinput) | 초기화 상태 | Data Input :  pause= SetOn\_Controller(only\_set,higher\_humi,error\_signal)  only\_set = 1  higher\_humi = 1  error\_signal = 0  h = 61  user\_humi = 60  error\_signal = 0 | SetOff\_Controller()함수 실행 | 36 출력 |
| TEAM4\_SHS\_0\_007\_005 | TEST(SetOffControllerErrorTest, setoffinput) | 초기화 상태 | Data Input :  pause= SetOn\_Controller(only\_set,higher\_humi,error\_signal)  only\_set = 1  higher\_humi = 1  error\_signal = 0  h = 59  user\_humi = 60  error\_signal = 0 | SettOff\_Controller()함수 실행 | 40 출력 |
| TEAM4\_SHS\_0\_007\_006 | TEST(SetMistakeTest1, setoffinput) | 초기화 상태 | Data Input : user\_humi = 91 | Set\_Mistake()함수 실행 | 37 출력 |
| TEAM4\_SHS\_0\_007\_007 | TEST(SetMistakeTest2, setoffinput) | 초기화 상태 | Data Input : user\_humi = -10 | Set\_Mistake()함수 실행 | 37 출력 |
| TEAM4\_SHS\_0\_007\_008 | TEST(RepeatSetOnControllerTest, setinput) | 습도설정모드ON->습도설정모드OFF상태 | Data Input :  only\_set = 1  higher\_humi= Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h)  error\_signal= SetOff\_Controller(SetOn\_Controller(Set\_Controller(input\_humi,user\_humi,only\_set, higher\_humi,h), Set\_Controller(input\_humi,user\_humi, only\_set, higher\_humi, h), error\_signal), h, user\_humi, error\_signal)  =SetOff\_Controller(SetOn\_Controller(Set\_Controller("std",60,0,0,50), Set\_Controller("std", 60, 0, 0, 50), 0), 61, 60, 0)) | SetOn\_Controller()함수 실행 | 1 출력 |
| TEAM4\_SHS\_0\_007\_009 | TEST(RepeatSetOffControllerTest1, setinput) | 습도설정모드 ON->습도설정모드 OFF-> 습도설정모드 ON 상태 | pause=Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi,h) = SetOn\_Controller(1, 1, 0)  h = 61  user\_humi = 60  error\_signal=SetOn\_Controller(only\_set, Set\_Controller(input\_humi,user\_humi, only\_set,higher\_humi,h), SetOff\_Controller(SetOn\_Controller(Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi,h), Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h), error\_signal), h, user\_humi, error\_signal)))  =SetOn\_Controller(1,Set\_Controller("std", 60,0,0,50), SetOff\_Controller(SetOn\_Controller(Set\_Controller("std",60,0,0,50), Set\_Controller("std", 60, 0, 0, 50), 0), 61, 60, 0))) | SetOff\_Controller()함수 실행 | 1 출력 |
| TEAM4\_SHS\_0\_007\_010 | TEST(RepeatSetOffControllerTest2, setinput) | 수동모드OFF상태 | pause=SetOn\_Controller(only\_set,Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi,h), SetOff\_Controller(SetOn\_Controller(only\_set,Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h), error\_signal), h, user\_humi, Mode\_Controller(mode\_set, error\_signal,error\_check)))=(SetOn\_Controller(1, Set\_Controller("std", 60, 0, 0, 50), SetOff\_Controller(SetOn\_Controller(1, Set\_Controller("std",60,0,0,50), Mode\_Controller("2", 0, 0)), 61, 60, 0))  h = 61  user\_humi = 60  error\_signal = 0 | SetOff\_Controller()함수 실행 | 0 출력 |
| TEAM4\_SHS\_0\_007\_011 | TEST(RepeatSetOffControllerTest3, setinput) | 자동모드 OFF상태 | pause=SetOn\_Controller(only\_set, Set\_Controller(input\_humi,user\_humi, only\_set,higher\_humi,h), SetOff\_Controller(SetOn\_Controller(only\_set,Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h), error\_signal), h, user\_humi, Mode\_Controller(mode\_set, error\_signal,error\_check)))= (SetOn\_Controller(1, Set\_Controller("std", 60,0,0,50), SetOff\_Controller(SetOn\_Controller(1,Set\_Controller("std",60,0,0,50),Mode\_Controller("5", 0, 0)), 61, 60, 0))  h = 61  user\_humi = 60  error\_signal = 0 | SetOff\_Controller()함수 실행 | 0 출력 |
| TEAM4\_SHS\_0\_007\_012 | TEST(AutoOntoSetOntoSetOffControllerTest, setoffinput) | 자동모드ON-> 습도설정모드 ON상태 | pause=SetOn\_Controller(only\_set,higher\_humi,Mode\_Controller(mode\_set,error\_signal,error\_check))  =SetOn\_Controller(1,1,Mode\_Controller("4", 0, 0))  h = 61  user\_humi = 60  error\_signal = 0 | SetOff\_Controller()함수 실행 | 0 출력 |
| TEAM4\_SHS\_0\_007\_013 | TEST(AutoOfftoSetOntoSetOffControllerTest, setoffinput) | 자동모드OFF->습도설정모드ON상태 | pause=SetOn\_Controller(only\_set,higher\_humi,Mode\_Controller(mode\_set,error\_signal,error\_check))  =SetOn\_Controller(1,1,Mode\_Controller("5", 0, 0))  h = 61  user\_humi = 60  error\_signal = 0 | SetOff\_Controller()함수 실행 | 0 출력 |
| TEAM4\_SHS\_0\_007\_014 | TEST(ManualOntoSetOntoSetOffControllerTest, setoffinput) | 수동모드ON->습도설정모드ON 상태 | pause=SetOn\_Controller(only\_set,higher\_humi,Mode\_Controller(mode\_set,error\_signal,error\_check))  =SetOn\_Controller(1,1,Mode\_Controller("1", 0, 0))  h = 61  user\_humi = 60  error\_signal = 0 | SetOff\_Controller()함수 실행 | 0 출력 |
| TEAM4\_SHS\_0\_007\_015 | TEST(ManualOfftoSetOntoSetOffControllerTest, setoffinput) | 수동모드OFF -> 습도설정모드 ON상태 | pause=SetOn\_Controller(only\_set,higher\_humi,Mode\_Controller(mode\_set,error\_signal,error\_check))  =SetOn\_Controller(1,1,Mode\_Controller("2", 0, 0))  h = 61  user\_humi = 60  error\_signal = 0 | SetOff\_Controller()함수 실행 | 0 출력 |
| TEAM4\_SHS\_0\_007\_016 | TEST(AutoOntoSetOnControllerTest, setoffinput) | 자동모드ON상태 | only\_set = 1  higher\_humi= Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h) = Set\_Controller("std", 60, 0, 0, 50)  error\_signal= Mode\_Controller(mode\_set, error\_signal,error\_check) =Mode\_Controller("4", 0, 0) | SetOn\_Controller()함수 실행 | 40 출력 |
| TEAM4\_SHS\_0\_007\_017 | TEST(ManualOntoSetOnControllerTest, setoffinput) | 수동모드ON상태 | only\_set = 1  higher\_humi= Set\_Controller(input\_humi, user\_humi, only\_set, higher\_humi, h) = Set\_Controller("std", 60, 0, 0, 50)  error\_signal= Mode\_Controller(mode\_set, error\_signal,error\_check) =Mode\_Controller("1", 0, 0) | SetOn\_Controller()함수 실행 | 40 출력 |

2.3 Input specifications

<Table 1 : Test Design Identification> 참조

8.4 Output Specifications

<Table 2 : Test Case Identification> 참조

1. Environmental needs

UTP\_Ver3.0, 9 Environmental needs 참조

4. Unit test summary report identifier

4.1 Test summary report identifier

|  |  |
| --- | --- |
| Test Case Identifier | Result |
| TEAM4\_SHS\_0\_000\_000 | passed |
| TEAM4\_SHS\_0\_001\_000 | passed |
| TEAM4\_SHS\_0\_001\_001 | passed |
| TEAM4\_SHS\_0\_002\_000 | passed |
| TEAM4\_SHS\_0\_002\_001 | passed |
| TEAM4\_SHS\_0\_003\_000 | passed |
| TEAM4\_SHS\_0\_003\_001 | passed |
| TEAM4\_SHS\_0\_003\_002 | passed |
| TEAM4\_SHS\_0\_003\_003 | passed |
| TEAM4\_SHS\_0\_003\_004 | passed |
| TEAM4\_SHS\_0\_003\_005 | passed |
| TEAM4\_SHS\_0\_003\_006 | passed |
| TEAM4\_SHS\_0\_003\_007 | passed |
| TEAM4\_SHS\_0\_003\_008 | passed |
| TEAM4\_SHS\_0\_003\_009 | passed |
| TEAM4\_SHS\_0\_003\_010 | passed |
| TEAM4\_SHS\_0\_004\_000 | passed |
| TEAM4\_SHS\_0\_004\_001 | passed |
| TEAM4\_SHS\_0\_004\_002 | passed |
| TEAM4\_SHS\_0\_004\_003 | passed |
| TEAM4\_SHS\_0\_004\_004 | passed |
| TEAM4\_SHS\_0\_004\_005 | passed |
| TEAM4\_SHS\_0\_004\_006 | passed |
| TEAM4\_SHS\_0\_004\_007 | passed |
| TEAM4\_SHS\_0\_004\_008 | passed |
| TEAM4\_SHS\_0\_004\_009 | passed |
| TEAM4\_SHS\_0\_004\_010 | passed |
| TEAM4\_SHS\_0\_004\_011 | passed |
| TEAM4\_SHS\_0\_005\_000 | passed |
| TEAM4\_SHS\_0\_005\_001 | passed |
| TEAM4\_SHS\_0\_005\_002 | passed |
| TEAM4\_SHS\_0\_005\_003 | passed |
| TEAM4\_SHS\_0\_005\_004 | passed |
| TEAM4\_SHS\_0\_005\_005 | passed |
| TEAM4\_SHS\_0\_005\_006 | passed |
| TEAM4\_SHS\_0\_005\_007 | passed |
| TEAM4\_SHS\_0\_005\_008 | passed |
| TEAM4\_SHS\_0\_005\_009 | passed |
| TEAM4\_SHS\_0\_005\_010 | passed |
| TEAM4\_SHS\_0\_005\_011 | passed |
| TEAM4\_SHS\_0\_005\_012 | passed |
| TEAM4\_SHS\_0\_005\_013 | passed |
| TEAM4\_SHS\_0\_006\_000 | passed |
| TEAM4\_SHS\_0\_006\_001 | passed |
| TEAM4\_SHS\_0\_006\_002 | passed |
| TEAM4\_SHS\_0\_006\_003 | passed |
| TEAM4\_SHS\_0\_006\_004 | passed |
| TEAM4\_SHS\_0\_006\_005 | passed |
| TEAM4\_SHS\_0\_006\_006 | passed |
| TEAM4\_SHS\_0\_006\_007 | passed |
| TEAM4\_SHS\_0\_006\_008 | passed |
| TEAM4\_SHS\_0\_006\_009 | passed |
| TEAM4\_SHS\_0\_006\_010 | passed |
| TEAM4\_SHS\_0\_006\_0011 | passed |
| TEAM4\_SHS\_0\_006\_012 | passed |
| TEAM4\_SHS\_0\_006\_013 | passed |
| TEAM4\_SHS\_0\_006\_014 | passed |
| TEAM4\_SHS\_0\_006\_015 | passed |
| TEAM4\_SHS\_0\_006\_016 | passed |
| TEAM4\_SHS\_0\_006\_017 | passed |
| TEAM4\_SHS\_0\_006\_018 | passed |
| TEAM4\_SHS\_0\_007\_000 | passed |
| TEAM4\_SHS\_0\_007\_001 | passed |
| TEAM4\_SHS\_0\_007\_002 | passed |
| TEAM4\_SHS\_0\_007\_003 | passed |
| TEAM4\_SHS\_0\_007\_004 | passed |
| TEAM4\_SHS\_0\_007\_005 | passed |
| TEAM4\_SHS\_0\_007\_006 | passed |
| TEAM4\_SHS\_0\_007\_007 | passed |
| TEAM4\_SHS\_0\_007\_008 | passed |
| TEAM4\_SHS\_0\_007\_009 | passed |
| TEAM4\_SHS\_0\_007\_010 | passed |
| TEAM4\_SHS\_0\_007\_011 | passed |
| TEAM4\_SHS\_0\_007\_012 | passed |
| TEAM4\_SHS\_0\_007\_013 | passed |
| TEAM4\_SHS\_0\_007\_014 | passed |
| TEAM4\_SHS\_0\_007\_015 | passed |
| TEAM4\_SHS\_0\_007\_016 | passed |
| TEAM4\_SHS\_0\_007\_017 | passed |

4.2 Evaluation

Total Test Case : 78

Passed : 78

Failed : 0