Test Plan Documentation - Devices

HomeDork - Interactive Smart House

Members

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Revision History

Date	Version	Description	Author
19/09/2021	1.0	Initial Test Plan	A, B, C
21/10/2021	1.1	First test to check that components work in the smart house	A, B, C, D
16/11/2021	1.2	Updated – The table to remove some of the repetitive language and defined them outside the table. Added – Testing for window, water leakage, fire alarm, security alarm, stove, electricity consumption, power cut off, twilight system, communication, individual controller testing, and alarms	A, B, C, D
06/12/2021	1.3	Updated – The testing of the switches, sensors and the individual controllers. Added – The testing of the entire system with the fake threads	A, B C, D

Test Plan

Steps and Pre-conditions

Since we are working on devices the preconditions and steps required are like one another. As a precondition for testing, we needed to know the pins of the device we are testing, what sort of device it is in terms of whether they are input or output, and what the input would be for the output. The smart house has all the pin connections pre-installed, so the next steps are to connect the computer to the Arduino uno board, upload the code to the Arduino board, run the code and observe in accordance with the corresponding device a state change, or a printout to the serial monitor or other terminals. For code that deals with data manipulation from device input readings will have dedicated unit tests that can be run autonomously.

Test case ID	Summary	Results	Comment (Timeline tracked)
T1	Test the functionality all lights in smart house to see if all of them are in working order.	PASS	Indoor Light: Success, Outdoor Light: Success, Security Light: Success
T2	Test the functionality of the fan with different values, see if the values work, and observe if responds and in working order.	PASS	Loft Fan: Success, PWM all values work
T3	Test the reading of all thermometers, this test is restricted to seeing if the reading works not the conversion to C.	PASS	Indoor Thermometer: Success, analog reading of the value was successful, Indoor Thermometer Window: Success, analog reading of the value was successful, Outdoor Thermometer: Success, digital reading of the value was successful
T4	Test the functionality of the timer one light indicator to see if in working order.	FAIL	Timer One: FAIL, the light turns off if explicitly told to but one another device on the multiplexor is used the light is active again.
T5	Test the functionality of the timer two light indicator to see if in working order.	PASS	Timer Two: Success, the functionality of the light worked.
T6	Test the functionality of the siren for the alarm system to see if in working order.	PASS	Siren: Success, the siren functioned as intend and emitted a sound when active.
T7	Test the functionality of all heating elements or radiators in the smart home to observe whether they are in working order.	PASS	Radiator Set One: Success, they seemed to have turned on to be warm to the touch. Working on an automated way of testing with the use of the thermometer to register a change in temperature.
T8	Test the functionality of the window switch by observing an output in the serial monitor as to whether it operates as intended.	PASS	This is untested, we will be conducting tests on the switches when complete with the alarm controller and alarm class as to test all switches on the same day in the different systems.

T9	Test the functionality of the water leakage switch by observing an output in the serial monitor as to whether it operates as intended.	PASS	The functionality of the switch sensor works as intended.
T10	Test the functionality of the Fire alarm switch by observing the light and siren whether it operates as intended.	PASS	The functionality of the switch sensor works as intended.
T11	Test the functionality of the stove switch by observing an output in the serial monitor as to whether it operates as intended.	PASS	The functionality of the switch sensor works as intended.
T12	Test the functionality of the Security alarm door sensor by observing the light and siren whether it operates as intended.	PASS	The functionality of the door sensor works as intended.
T13	Test the functionality of the electricity consumption sensor by observing an output in the serial monitor as to whether it operates as intended.	PASS	The functionality of the sensor works as intended we receive the volts being used by the system.
T14	Test the functionality of the power cut off sensor to determine if it will observe a power failure.	NOT TESTED	Unsure of how to conduct the test will brainstorm and conduct the test within the next sprint.
T15	Test the functionality of the light sensor in the twilight system to see whether it is in working order.	PASS	Light Sensor: Success, the outdoor light came on when the lights were off in the lab.
T16	Test the communication between the server and the Arduino.	PASS	The Arduino was able to both send and receive messages, to and from the backend server.
T17	Test the operation of the device controller.	PASS	The device controller was tested separately outside of the “threading”.
T18	Test the operation of the sensor controller.	PASS	The sensor controller was tested separately outside of the “threading”.
T19	Test the operation of the twilight automatic system as a whole	PASS	The twilight system was tested separately outside of the “threading”.
T20	Test the operation of the alarms ensure they are working order.	PASS	The alarms have been tested not based on sensors but through activation by code. The alarm needs to be tested within its system and with the switches and sensors.
T21	Test the operation of the temperature controller ensure it operates as intended.	PASS	The temperature controller was tested separately outside of the “threading”.
T22	Test the operation of the alarm controller ensure it operates as intended.	PASS	The alarm controller was tested separately outside of the “threading”.
T23	Test the operation of the fake threads within the system for all controllers to be operational.	FAIL	Doesn’t work trying to figure it out.

Future Test Plans

Develop an automated test for visual verification, and user input for pass fail of devices in the network.