

ECE 411-Team 11

HW 7- Test Plan

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Ver. 1.0

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Auto Cooling Fan: System Test Plan

1.0 Resources

- Analog Devices TMP36 Schematic
- Uctronics OLED Module 12864 Schematic

2.0 Test Equipment

- Multimeter(Any w/ VDC
- Room Temp Location
- 2-4 AA Batteries(For Power Supply)
- Alligator Clips
- Computer

3.0 System Tests

3.1 Functional Checks

3.1.1 Power Supply Voltage level

3.1.2 Relay switch

3.2 Temperature sensor Accuracy

3.3 OLED Display Visibility

3.4 24 Hour Stability

3.5 Vibration Test

3.6 Humidity and Heat Test

3.2 Temperature Accuracy Test Case

Test Writer: Brandon Garcia				
Test Case Name:	Temperature Sensor Accuracy		Test ID #:	
Description:	Check the temperature sensors ability to read correct temperatures, by testing the voltage readings w/ multimeter.		Type:	
Tester Information				
Name of Tester:			Date:	
Hardware Ver.			Time:	
Setup:	Temperature sensor must be a TMP36 and attached to voltage source. Must be in operating voltage range: 2.7-5.5 V. Multimeter should be in DC voltage mode, leads connected to ground and middle lead on TMP36. Must be in a room thats around 25° celsius in temperature.			
Step	Action	Expected Result	Pass,Fail,NA	Comments
1	Turn on Multimeter. Make sure sensor is free and away from everything.	Multimeter should have a reading around 0.75V(25° C).		
2	Turn on Multimeter. Make sure sensor is free and away from everything. Place ice cube on head of sensor.	Multimeter should have a rising temp to around 0.67V(18° C) or less.		

3	Turn on Multimeter. Make sure sensor is free and away from everything. Press the head of sensor	Multimeter should have a reading around 0.80V(29° C) or more.		
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3.3 OLED Display Visibility Test Case

Test Writer: Brandon Garcia				
Test Case Name:	OLED Display Visibility		Test ID #:	
Description:	Check that the OLED is fully working. Make sure all numbers are displaying and transitioning correctly. Check that you can see the screen from at least 2ft away.		Type:	
Tester Information				
Name of Tester:			Date:	
Hardware Ver.			Time:	
Setup:	OLED should be wired on breadboard with ESP32 controller. Breadboard must be powered. The Font must be ArialMT_Plain_24.			
Step	Action	Expected Result	Pass,Fail, NA	Comments
1	Write a program that operates the OLED and displays a # with correct font .	OLED must power on and display a number.		

2	Adjust the program so that the numbers are changing on the screen with a limit of 100 and decimal to the tenths.	OLED screen is on and numbers are changing up to 100 with a decimal place to the tenths.		
3	Now continue step 2, but stand at least 2ft away from screen.	You should be able to see the screen and numbers from at least 2ft away.		