

Example Test Case

Test Author: Team 15						
	Test Case Name:	Testing Distance Sensor system works	Test ID #:		DIST-LED-01	
	Description:	<i>This test checks that the system reads the ultrasonic distance correctly and lights the correct LED based on the measured distance.</i>	Type:		<input type="checkbox"/> white box <input checked="" type="checkbox"/> black box <input type="checkbox"/> _____	
Tester Information						
	Name of Tester:	Dawood	Date:		12/06/2025	
	HW/SW Version:	1.0	Time:		12:30	
	Setup:	<i>Connect ESP32, ultrasonic sensor, OLED, and LEDs. Place objects at fixed distances: 50 cm, 120 cm, and 180 cm. Power system with USB.</i>				
S T E P	Action	Expected Result	P A S S	F A I L	N / A	Comments
1	Power the system ON	OLED initializes and shows distance	✓			
2	Place object at 20 cm	OLED shows ~50 cm, RED LED turns ON	✓			
3	Move object away to 60 cm	OLED updates to ~120 cm, YELLOW LED turns ON	✓			
4	Move object to 110 cm	OLED shows ~180 cm, BLUE LED turns ON	✓			
5	Remove Object	OLED shows "---", all LEDs OFF	✓			
6	Place object quickly back at 60 cm	OLED updates instantly, RED LED turns ON	✓			
7	Shake object to cause fast changes	OLED updates smoothly with no freezing	✓			
8	Leave system running for 1 minute	No crash or freeze occurs	✓			
9	Reset system using EN button	System restarts cleanly and works normally	✓			
	Overall test result:		✓			

Example Matrix Test (for varying parameters)

Test Author: Team 15						
	Test Case Name:	Ultrasonic Distance Accuracy Matrix Test	Test ID #:	DIST-MAT-01		
	Description:	This matrix test verifies that the ultrasonic sensor reports correct distance values for multiple known distances.	Type:	<input type="checkbox"/> white box <input type="checkbox"/> black box <input type="checkbox"/> _____		
Tester Information						
	Name of Tester:	Dawood	Date:	12/06/2025		
	HW/SW Version:	1.0	Time:	1:30		
	Setup:	Place objects at measured distances: 50, 100, 120, 150, 180 cm and no object. Use a ruler or tape measure..				
T E S T	INPUTS	EXPECTED OUTPUTS	P A S S	F A I L	N / A	Comments
1	50cm	48–52 cm (Red)				
2	100 cm	98–102 cm (Either Red or Yellow)				
3	120 cm	118-122 cm (Yellow)				
4	150 cm	148-152 cm (Either Yellow or BLue)				
5	180 cm	178-182 cm (Blue)				
6	No object	— (No LEDs light up)				

	Overall test result:				
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