

# Usability Heuristics Checklist

This checklist is based on Nielsen Norman Group's 10 Usability Heuristics. It helps evaluate whether a GUI design adheres to good usability principles.

Heuristic Principle	Checklist Question	✓/✗	Notes
1. Visibility of system status	Can users see system status clearly? Are there progress indicators, loading messages, or real-time feedback?	✓	1. give progress animation as real-time feedback when press "START" button 2. Will change button status after pressing it "START" ↔ "STOP" Blue ↔ Red 3. Can check progress at "MONITOR" tab
2. Match between system and the real world	Are words, icons, and flow familiar to the user's language and expectations?	✓	1. Use familiar icon to represent UV LED, Pump, Temperature and Humidity
3. User control and freedom	Are there clear ways to cancel, undo, or exit? Can users easily escape unwanted states?	✓	1. Can stop the system after pressing start button
4. Consistency and standards	Are UI elements consistent in style, naming, and function? Do they follow platform conventions?	✓	1. Consistent text style for whole system 2. Consistent text size of the same label label
5. Error prevention	Is the interface designed to prevent errors before they occur (e.g., dropdowns instead of free-text)?	✓	Limiting value range of input parameters for the system (microturbation, cycle duration)
6. Recognition rather than recall	Does the interface minimize the user's memory load by displaying all necessary options and context?	✓	Don't have hidden information need to remember
7. Flexibility and efficiency of use	Does the system support both novices and experts (e.g., shortcuts, customizations)?	✓	1. The GUI give linear slider & increment button to control the input value 2. GUI design is sufficiently simple, making it unnecessary to differentiate between beginner & advanced users
8. Aesthetic and minimalist design	Is the UI clean and not overly cluttered? Does it only show relevant information?	✓	1. Use different color to show different device status ON & OFF
9. Help users recognize, diagnose, and recover from errors	Are error messages clear and helpful? Do they explain what went wrong and how to fix it?	✓	1. A confirmation window is used to double-check before stopping the system, helping prevent accidental touches
10. Help and documentation	Is help available and easy to access? Is documentation concise and useful?	✓	1. Touching the "STOP" button opens a double-check window with clear instructions and buttons for the next action

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