Potentiometer sensor

A potentiometer sensor is a device that measures changes in position or movement by adjusting resistance.

PIR sensor

A PIR (Passive Infrared) sensor is a device that detects motion by sensing infrared radiation (heat) from objects in its field of view. When a warm object, like a person or animal, moves in front of the sensor, it detects the change and can trigger actions like turning on lights or sending alerts.

CPS system

A CPS (Cyber-Physical System) is a combination of digital (cyber) components with physical processes, where sensors, actuators, and software interact to monitor and control physical systems.
CPS systems allow machines to make decisions and act on their own, like adjusting temperatures, speeds, or other settings automatically, making processes more efficient and smarter.

ESP32

The ESP32 is a low-cost, powerful microcontroller chip with built-in Wi-Fi and Bluetooth capabilities. It's commonly used in IoT projects because it allows devices to connect to the internet or communicate wirelessly with other devices. The ESP32 has multiple inputs and outputs, making it useful for controlling sensors, LEDs, motors, and other components.

Golden Rules of interface

1. Strive for Consistency:

Maintain uniformity in layout, color, fonts, and functionality across the interface to build familiarity and reduce confusion.

2. Enable Frequent Users to Use Shortcuts:

Provide shortcuts or faster ways for experienced users to perform tasks, improving efficiency and user satisfaction.

3. Offer Informative Feedback:

Give immediate feedback for user actions (e.g., button clicks) to confirm actions have been received and processed.

4. Design Dialogs to Yield Closure:

Ensure dialogs or steps in a process give a clear indication of completion, helping users feel progress and finality in their tasks.

5. Offer Error Prevention and Simple Error Handling:

Minimize errors with intuitive design, but provide helpful solutions and clear error messages when they occur.

6. Permit Easy Reversal of Actions:

Allow users to undo actions easily, giving them freedom to explore and recover from mistakes.

7. Support Internal Locus of Control:

Give users a sense of control over their actions and the system, so they feel confident and empowered.

8. Reduce Short-Term Memory Load:

Minimize the information users need to remember by displaying options and relevant information directly on the screen.

Ui/Ux

UI (User Interface): UI is the visual part of a product that users interact with, like buttons, icons, and layout. It focuses on making the design look good and easy to use.

UX (User Experience): UX is about how a user feels while using the product. It involves making sure the product is useful, enjoyable, and meets user needs effectively.

Difference between UI/Ux

1. Focus:

UI focuses on design elements like colors, buttons, and layout.

UX focuses on the user journey and making the product easy to use.

2. Goal:

UI aims to make the product visually appealing.

UX aims to make the product functional, enjoyable, and user-friendly.