3.10. RESPONSIVE WIREFRAMING

1. What is Responsive Wireframing?

- **Responsive wireframing** is the process of creating wireframes that show how the **layout, content, and interactions adapt to different screen sizes and devices**.
- Common devices:
  - 📱 Mobile
  - 📱 Tablet
  - 🖥️ Desktop

2. Why is Responsive Wireframing Important?

Responsive wireframing:

- Provides a **better user experience** on all devices.
- Ensures content is **readable and easy to use**.
- Helps identify **layout and usability issues early**.
- Supports **mobile-first design approaches**.
- Saves **time, effort, and development cost**.

3. Key Principles of Responsive Wireframing

1. Flexible Layout

- Layouts should **adapt to different screen sizes**.

2. Responsive Navigation

- Menus should change according to the device.
- Example: **horizontal menu → hamburger menu** on mobile.

3. Flexible Images

- Images should resize appropriately to fit different screens.

4. Touch-Friendly Controls

- Buttons and controls should be **large enough and easy to tap** on mobile devices.

5. Responsive Typography

- Text should remain **readable across different devices**.

6. Spacing & Readability

- Use appropriate spacing to improve **readability and usability**.

4. Example – E-Commerce Home Page Wireframe

The example shows an e-commerce home page designed for **three screen sizes**.

A. Desktop — ≥ 1024px

Main elements:

- Logo
- Search bar
- Cart
- Profile
- Horizontal navigation:
    - Home
    - Categories
    - Deals
    - About Us
    - Contact Us
- Categories sidebar
- Promotional banner
- Popular products displayed in a row

B. Tablet — 768px–1023px

- Logo and cart
- Search bar
- Simplified navigation
- Promotional banner
- Categories displayed horizontally
- Popular products displayed in a **grid layout**

C. Mobile — < 768px

- Hamburger menu
- Logo
- Cart
- Search bar
- Promotional banner
- Categories displayed horizontally
- Popular products displayed as a **vertical list**
- Simplified interface for smaller screens

5. Responsive Wireframing Process

Step 1: Understand Users & Goals

- Identify who will use the product.
- Understand their goals and requirements.

Step 2: Identify Important Tasks / Red Routes

- Determine the most important actions users need to complete.

Step 3: Create Basic Wireframe

- Start with the basic structure and content arrangement.

Step 4: Choose Breakpoints

Design for different screen sizes:

- **Mobile**
- **Tablet**
- **Desktop**

Step 5: Adapt Layout

Adjust the layout through:

- Resize
- Reflow
- Stack
- Collapse

Step 6: Create Wireframes for Each Device

- Build separate responsive layouts for mobile, tablet, and desktop.

Step 7: Test on Multiple Devices

- Check usability and appearance across different screen sizes.
- Identify and fix responsive design problems.

6. Responsive Wireframing for E-Commerce

The example follows the **Red Route**:

Search → Product → Cart → Checkout → Payment → Confirmation

1. Search

- User searches for a product.
- Layout adapts across mobile, tablet, and desktop.

2. Product Details

- Product image
- Product information
- Price
- **Add to Cart**
- **Buy Now**

3. Cart

- Selected products
- Quantity
- Price
- Total
- **Checkout**

4. Checkout

- Delivery information
- Payment details
- **Place Order**

5. Payment

- Select payment method.
- Complete payment using available options.
- **Pay Now**

6. Confirmation

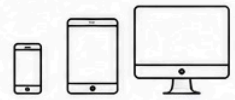
- Order confirmation message
- **View Order** option

RESPONSIVE WIREFRAMING

Designing wireframes that adapt to different screen sizes and devices.

1. WHAT IS RESPONSIVE WIREFRAMING?

- Responsive wireframing is the process of creating wireframes that show how the layout, content, navigation, and interface components adapt to different screen sizes and devices.



2. WHY IS IT IMPORTANT?

- Provides a better user experience on all devices
- Ensures content is readable and easy to use
- Helps identify layout and usability issues early
- Supports mobile-first design approach
- Saves time, effort, and development cost

3. KEY PRINCIPLES

Flexible Layout
Layouts adapt to screen size

Responsive Navigation
Menus change (horizontal menu to hamburger menu)

Flexible Images
Images resize according to space

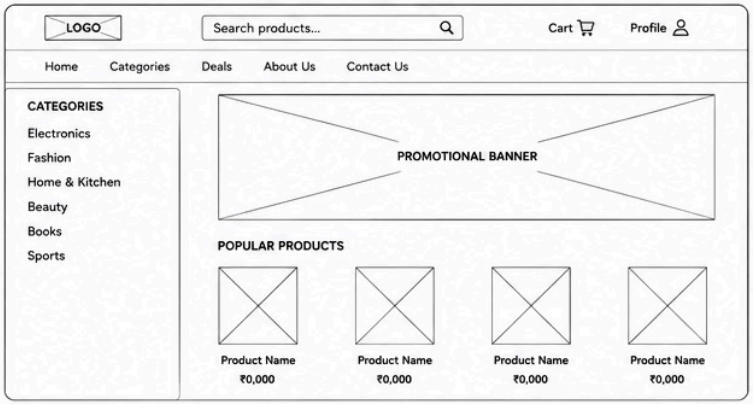
Touch-Friendly Controls
Buttons and controls are easy to tap

Responsive Typography
Text remains readable across devices

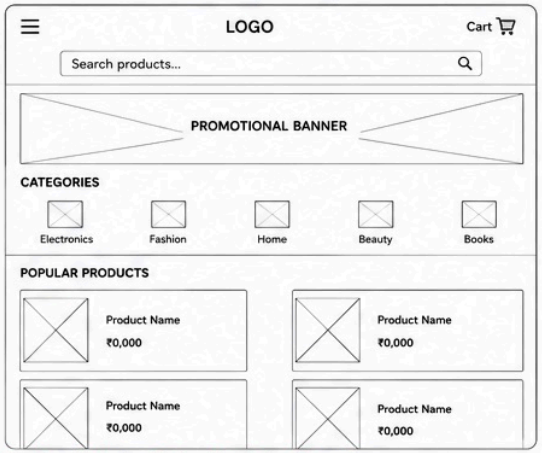
Spacing & Readability
Proper spacing for better readability

4. EXAMPLE – E-COMMERCE HOME PAGE WIREFRAME

DESKTOP (≥ 1024px)



TABLET (768px – 1023px)



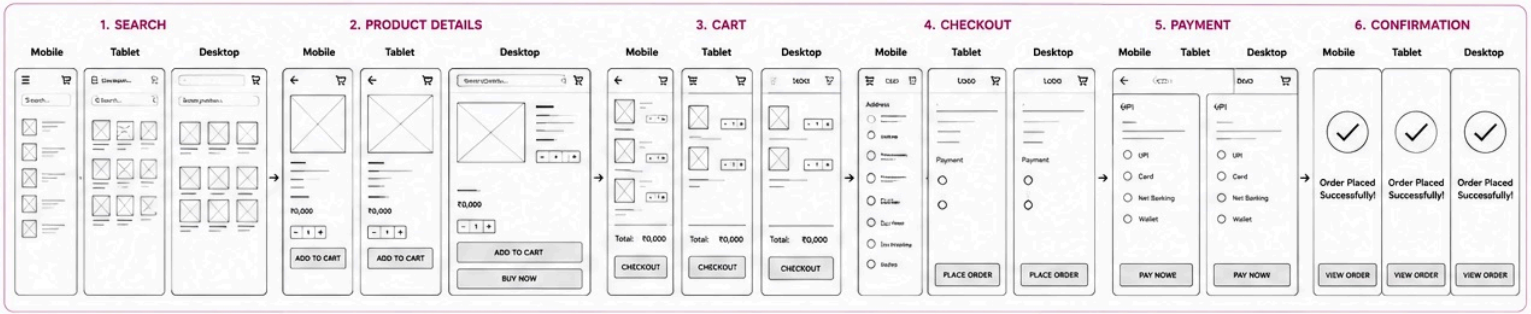
MOBILE (< 768px)



5. RESPONSIVE WIREFRAMING PROCESS

1. Understand Users & Goals
2. Identify Important Tasks (Red Routes)
3. Create Basic Wireframe
4. Choose Breakpoints
   Mobile → Tablet → Desktop
5. Adapt Layout (Reflow, Stack, Collapse)
6. Create Wireframes for Each Device
7. Test on Multiple Devices

6. RESPONSIVE WIREFRAMING FOR E-COMMERCE – RED ROUTE (Search → Product → Cart → Checkout → Payment)



3.11. MICRO INTERACTIONS

1. What is a Micro-Interaction?

- A **micro-interaction** is a small, focused interaction that occurs when a user performs an action or when the system responds to an action.

Examples

- Clicking a **Like** button
- Seeing a **loading spinner**
- Getting an **error message**
- Toggling a **switch**
- Adding an item to a **cart**

Key Point:

- Micro-interactions are small, but they make the interface feel **useful, understandable, and responsive**.

2. The 4 Parts of a Micro-Interaction

A micro-interaction generally consists of **four parts**:

1. Trigger: The **trigger starts the interaction**.

Example: User clicks the Like button.

2. Rules: Rules define **how the system should respond** to the user's action.

Example: When the user clicks Like, the heart icon changes.

3. Feedback: Feedback tells the user **what happened**.

Example: The heart becomes filled and the Like count increases.

4. Loops & Modes: Loops and modes define **different states and what happens when the interaction is repeated**.

Example: Clicking the Like button again changes it back to Unlike.

Example – Like Button

User clicks Like → Like icon changes → Like count increases → Clicking again removes Like

3. Types of Micro-Interactions

1. Button Interaction

A button changes its appearance when the user:

- Hovers
- Clicks
- Loads

2. Toggle Interaction: A switch changes between different states.

Example: OFF → ON

3. Loading Interaction: Shows that the system is processing or waiting.

Example: Loading spinner or progress indicator.

4. Error Interaction: Displays an error or warning message.

Example: "Invalid email address."

5. Success Interaction: Confirms that an action has been completed successfully.

Example: "Order Placed Successfully."

6. Hover Interaction: The interface changes when the pointer moves over an element.

7. Swipe / Pull Interaction: An action performed by swiping or pulling.

Examples:

- Pull to refresh
- Swipe to delete
- Swipe between screens

4. Real-Time Examples of Micro-Interactions

Action	Micro-Interaction
Like Button	Like → Liked
Add to Cart	Add to Cart → Added
Quantity Change	1 → 2
Login	Login → Logging in → Welcome
Toggle Switch	OFF → ON
Download	Download → Downloading → Completed
Delete	Delete → Confirmation message

5. Micro-Interaction in E-Commerce User Journey

Micro-interactions can be seen throughout an online shopping process.

Step 1: Add to Cart

User clicks **Add to Cart**.

Step 2: Cart Badge

The cart icon shows the number of items.

Example: Cart → 1

Step 3: Go to Cart

User opens the cart and views the selected product.

Step 4: Checkout

User enters:

- Address
- Payment method

Step 5: Payment: The system shows a processing state.

Example:

Processing... → Please wait

Step 6: Confirmation: The system confirms the order.

Example:

✓ Order Placed!

This gives the user continuous feedback throughout the shopping journey.

6. Principles of Good Micro-Interactions

1. Keep It Simple

- Do one thing well.
- Avoid unnecessary interaction.

2. Provide Immediate Feedback

- Respond quickly to the user's action.
- Quick feedback builds user trust.

3. Make Feedback Meaningful

- Clearly communicate what happened.
- Example: "Saved Successfully."

4. Avoid Excessive Animation

- Use animation only when it has a purpose.
- Avoid distracting users.

5. Maintain Consistency

- Similar actions should have similar responses.

- Use consistent interaction patterns.

6. Support Accessibility

- Do not depend only on color or motion.
- Make interactions usable by different types of users.

7. Consider Context

- Show feedback that is relevant to the user's current action.

Key Point:

Good micro-interactions help users **feel informed and in control**.

7. User Action → System Response

The basic flow of a micro-interaction is:

User Action → System Response → Feedback → User Understanding

Example: Save Button

Click Save
↓
Saving...
↓
Saved ✓
↓
User knows that the file is saved

Four Stages

1. **User Action** – User performs an action.
2. **System Response** – System processes the action.
3. **Feedback** – System communicates the result.
4. **User Understanding** – User understands what happened.

8. Before vs After Micro-Interaction

Without Micro-Interaction

Click Save
↓
Nothing happens...
↓
User becomes confused.

With Micro-Interaction

Click Save
↓
Saving... ⟳
↓
Saved Successfully ✓

↓

User understands that the action is completed.

Importance: Micro-interactions reduce **confusion and uncertainty** by showing the user what is happening.

9. Examples of Micro-Interactions – UI States

Micro-interactions can be represented through different **UI states**.

A. Button States

Common button states include:

- **Default** – Normal button appearance
- **Hover** – Pointer is over the button
- **Pressed** – User has clicked the button
- **Loading** – System is processing
- **Success** – Action is completed

Example

Default → Hover → Pressed → Loading → Success

B. Toggle States

A toggle can have different states:

- OFF
- ON

Other controls can also show state changes.

Example:

Checkbox: Unchecked → Checked

C. Input Field States

An input field can have states such as:

- Empty
- Typing
- Error
- Success

Example

Name field → Typing → Invalid input → Error message → Correct input → Success

D. Progress Bar States

A progress bar shows the progress of an operation.

Examples:

- **0%** – Not started
- **45%** – In progress
- **90%** – Almost complete
- **100%** – Complete

10. Where Do We See Micro-Interactions?

Micro-interactions are found in many digital applications.

Examples

1. **E-Commerce**
   - Add to cart
   - Product quantity
   - Wishlist
2. **Banking Apps**
   - Payment confirmation
   - Toggle settings
   - Transaction status
3. **Chat Apps**
   - Typing indicator
   - Message delivered
   - Message sent
4. **Social Media**
   - Like
   - Follow
   - Notifications
5. **Email Apps**
   - Mail sent
   - Attachment upload
   - New message notification
6. **File Upload / Download**
   - Upload progress
   - Completion message
   - Download progress
7. **Settings Panels**
   - Toggle switches
   - Checkbox selection
8. **Maps & Navigation**
   - Location updates
   - Navigation feedback
   - Route changes
9. **Calendar Apps**
   - Event creation
   - Reminder notifications
10. **Games**

- Button feedback
- Level completion
- Scores

MICRO INTERACTIONS – CONCEPTS

Small details, Big Impact: How tiny interactions create delightful user experiences

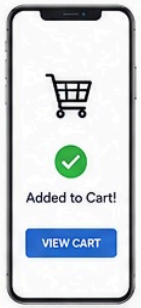
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A micro-interaction is a small, focused interaction that occurs when a user performs an action or when the system responds to an action.

Examples:

- Clicking a Like button
- Seeing a loading spinner
- Getting an error message
- Toggling a switch
- Adding an item to cart

They are small but they make the interface feel alive and understandable.



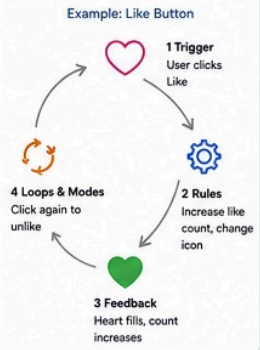
2. THE 4 PARTS OF MICRO-INTERACTION

Trigger
Starts the interaction.

Rules
Define how the system should respond.

Feedback
The system communicates what happened.

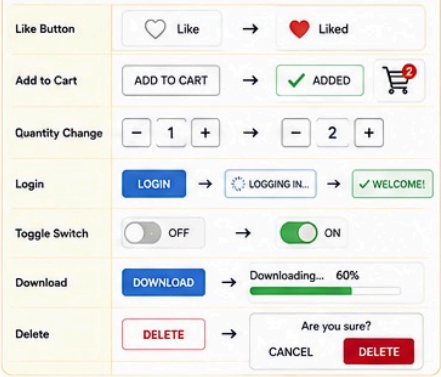
Loops & Modes
Define states & what happens when repeated.



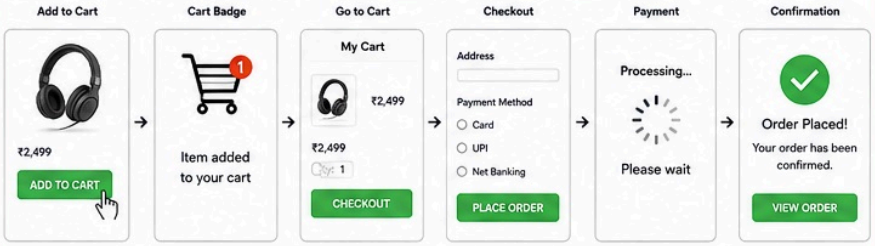
3. TYPES OF MICRO-INTERACTIONS

- **Button Interaction** – Button changes on hover, click, loading
- **Toggle Interaction** – Switches change states
- **Loading Interaction** – Shows progress or waiting state
- **Error Interaction** – Shows error or warning message
- **Success Interaction** – Confirms successful action
- **Hover Interaction** – Changes when pointer is over
- **Swipe / Pull Interaction** – Pull to refresh, swipe action

4. REAL-TIME EXAMPLES



5. MICRO-INTERACTION IN E-COMMERCE (USER JOURNEY)



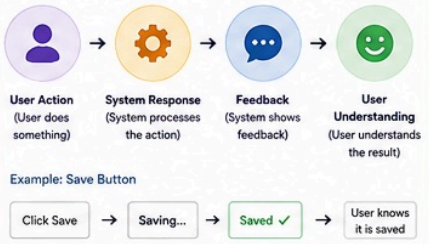
6. PRINCIPLES OF GOOD MICRO-INTERACTIONS

- **Keep it Simple** – Do one thing well.
- **Provide Immediate Feedback** – Quick response builds trust.
- **Make Feedback Meaningful** – Communicate what happened.
- **Avoid Excessive Animation** – Use motion with purpose.
- **Maintain Consistency** – Similar actions, similar responses.
- **Support Accessibility** – Don't rely only on color or motion.
- **Consider Context** – Show relevant feedback.

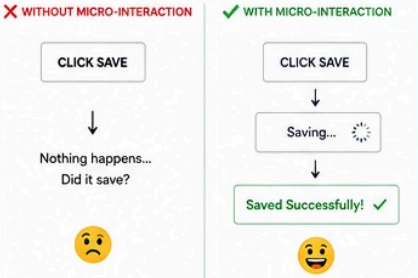
Good micro-interactions help users feel in control.

7. USER ACTION → SYSTEM RESPONSE

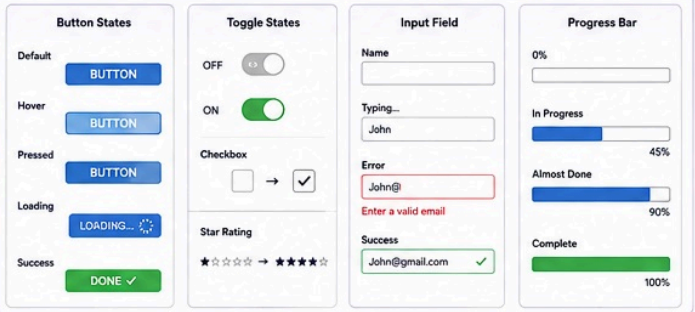
The basic flow of any micro-interaction



8. BEFORE vs AFTER MICRO-INTERACTION



9. EXAMPLES OF MICRO-INTERACTIONS (UI STATES)



10. WHERE DO WE SEE MICRO-INTERACTIONS?



Micro-interactions are everywhere. Good designers make them meaningful.