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Personal Portfolio Using HTML and CSS

B.Dixitha, K.Dharani, P.Bhargavi

B.Dixitha ECE IARE
K.Dharani ECE IARE
P.Bhargavi ECE IARE

Abstract - A personal portfolio built using HTML and CSS is an essential tool for showcasing skills, projects, and professional achievements in a structured and visually appealing manner. This portfolio serves as a digital representation of an individual's expertise, combining clean, semantic HTML for content organization with modern CSS techniques for styling and layout. Key sections include an introduction with a professional bio, a detailed skills overview, a project gallery with interactive elements, a timeline of work experience, and a contact area with social media links. The design prioritizes responsiveness, ensuring seamless usability across devices such as desktops, tablets, and smartphones. By leveraging CSS features like Flexbox, Grid Layout, and media queries, the portfolio delivers a polished and engaging user experience. It also incorporates animations and hover effects to enhance interactivity while maintaining optimal performance. This project demonstrates the effectiveness of HTML and CSS in creating a professional, user-friendly portfolio that reflects personal creativity and technical proficiency.

A personal portfolio created using HTML and CSS is a modern and effective way to showcase an individual's skills, experience, and projects. This portfolio is structured using semantic HTML to organize content into clear and intuitive sections, such as an introduction, skills overview, project gallery, work experience timeline, and contact information. The use of CSS enhances the visual appeal and usability of the portfolio by employing modern techniques like Flexbox, Grid Layout, and media queries to create responsive, aesthetically pleasing designs that work seamlessly across all devices.

The introduction section highlights the individual's name, title, and a short bio, accompanied by a professional photograph or avatar. The skills section uses icons or progress bars to visually represent technical and soft skills, while the project gallery displays work samples with descriptions, technologies used, and links to live demos or GitHub repositories.

***Key Words*:** Personal Portfolio, HTML,CSS,Responsive Design, Web Development, Front-end Design,Professional Bio, Skills Showcase, Project Gallery,Work Experience Timeline,Interactive Elements, Semantic HTML,Gas leakage, Arduino, MQ sensor, IoT, safety, real-time monitoring

1.INTRODUCTION

A personal portfolio website is an essential tool for individuals to showcase their skills, projects, and professional journey. Built using HTML and CSS, this portfolio serves as an online representation of a person's expertise, offering potential employers, clients, or collaborators an easy way to explore their capabilities and accomplishments. HTML (HyperText Markup Language) is used to structure the content, ensuring clear and organized presentation, while CSS (Cascading Style Sheets) is responsible for styling and layout, creating an aesthetically pleasing and user-friendly design. The primary goal of this portfolio is to present a professional yet creative online identity, highlighting key areas such as skills, projects, work experience, and contact information. With the integration of responsive design principles, the portfolio adapts seamlessly to different devices, from desktop computers to smartphones, ensuring an optimal user experience across various platforms. Furthermore, interactive elements such as hover effects, animations, and smooth transitions are incorporated to enhance engagement,

while maintaining a clean, minimalist design that reflects modern web development practices. Overall, a personal portfolio built with HTML and CSS is a powerful way to showcase an individual's talents and make a lasting impression on their audience.

The first impression of a personal portfolio is crucial, and therefore, the design and layout need to be visually engaging while still prioritizing ease of navigation. The portfolio's homepage often features a brief introduction, accompanied by a professional photo or avatar, and a succinct description of the individual's background and expertise. This section serves as an introduction to who the person is and what they do, quickly giving visitors a sense of the individual's professional identity. The goal is to grab attention immediately and invite visitors to explore further.

A well-organized skills section is another essential part of any portfolio. It allows the individual to showcase both their hard and soft skills in a way that is easy to digest.

Using CSS, skills can be presented using graphical elements such as progress bars, icons, or charts, making it easier for viewers to understand the individual's proficiency level in different areas. This section might include technical skills such as coding languages (e.g., HTML, CSS, JavaScript), tools (e.g., Git, Photoshop), and frameworks (e.g., React, Bootstrap), as well as soft skills like communication, problem-solving, and collaboration.

The project showcase is the centerpiece of many personal portfolios. This section highlights the individual's most significant and relevant work, offering detailed descriptions, images, and links to live projects or GitHub repositories. Each project might include information about the tools and technologies used, the goals of the project, and the results achieved. In addition to static information, CSS can be utilized to create interactive elements such as hover effects and modal windows to engage the user further. By clicking on a project, visitors can dive deeper into the details, view a demo, or explore the code behind it, depending on the intended audience.

The project showcase is the centerpiece of many personal portfolios. This section highlights the individual's most significant and relevant work, offering detailed descriptions,

2. Body of Paper

Developing a portfolio using HTML and CSS not only allows individuals to display their expertise but also provides an opportunity to demonstrate their web development skills. This paper explores how HTML and CSS are used to create a personal portfolio, focusing on structure, design, user experience, and responsiveness.

The proposed system consists of the following components:

1.User interface:

The User Interface is the front-end part of the system where users interact with the application.

2. HTML Structure:

The HTML structure is responsible for organizing and presenting the content of the portfolio. It includes the use of semantic HTML elements such as <header>, <footer>, <section>, <article>, and <nav>, which define the different sections of the website. The HTML structure ensures that the content is accessible, well-organized, and optimized for search engines (SEO).

3.CSS styling

The CSS component is responsible for the presentation of the portfolio, including the layout, design, color scheme, and typography. Using CSS, the website's appearance is customized to create a visually appealing experience.

CODE:

HTML:

```
<!DOCTYPE html>
<html lang="en">
<head>
   <meta charset="UTF-8">
     <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>Personal Portfolio</title>
   <link rel="stylesheet" href="style.css">
</head>
<body>
   <header class="header-background">
     <nav>
       <ul>
          <li><a href="#about">About</a></li>
          <li><a href="#portfolio">Portfolio</a></li>
          <li><a href="#contact">Contact</a></li>
```

```
        </ul>
    </nav>
    <div class="header-content">
        <img src="images.jpg" alt="Profile Photo of Arya">
        <h1>Hi, my name is Arya</h1>
        <p>Web Developer | Student </p>
    </div>
  </header>
  <main>
    <section id="about">
        <h2>~ About Me ~</h2>
            <img src="images (1).jpg" alt="Arya's Profile" class="profile-photo">
          <p>Hello there! I'm ARYA, I am a B.Tech student specializing in Electronics and Communication Engineering at IARE. Passionate about Software Development, I enjoy applying my knowledge to solve real-world problems through innovative projects. With skills in programming(PYTHON,JAVA,C),web development,data analysis. I am dedicated to continuous learning and growth. My goal is to contribute to impactful projects while building a successful career in the tech industry.</p>
        </section>
    <section id="portfolio">
        <h2>~ My Work ~</h2>
                                <div class="project" id="PROJECTS">PROJECTS</div>
        <div class="project" id="SKILLS">SKILLS</div>
                                <div class="project" id="LANGUAGES">LANGUAGES</div>
                                <div class="project" id="HOBBIES">HOBBIES</div>
    </section>
    <section id="contact">
        <h2>~ Keep in Touch ~</h2>
            <button class="btn btn-default td-btn outline white">Send me a message!</button>
    </section>
  </main>
  <footer>
    <p>Copyright @ARYA — All Rights Reserved</p>
  </footer>
</body>
</html>
```

CSS:

```
body {
    font-family: Arial, sans-serif;
    margin: 0;
    padding: 0;
    box-sizing: border-box;
    line-height: 1.6;
    color: #333;
}

a {
    text-decoration: none;
    color: #007BFF;
}

ul {
    list-style: none;
    padding: 0;
    margin: 0;
}

header {
    text-align: center;
    color: white;
    background: linear-gradient(to right, #007BFF, #6610f2);
    padding: 30px 0;
}

header nav ul {
    display: flex;
    justify-content: center;
    margin-bottom: 20px;
}

header nav ul li {
    margin: 0 15px;
}

header nav ul li a {
```

```
    color: white;
    font-weight: bold;
    transition: color 0.3s ease;
}

header nav ul li a:hover {
    color: #ffdd57;
}

.header-content img {
    border-radius: 50%;
    width: 150px;
    height: 150px;
    object-fit: cover;
    margin-bottom: 10px;
}

.header-content h1 {
    font-size: 2.5rem;
    margin: 10px 0;
}

.header-content p {
    font-size: 1.2rem;
}

/* About Section */
#about {
    padding: 40px 20px;
    text-align: center;
    background: #f8f9fa;
}

#about h2 {
    margin-bottom: 20px;
    font-size: 2rem;
}

#about img {
    border-radius: 50%;
    width: 150px;
    height: 150px;
    object-fit: cover;
    margin: 20px 0;
}

#about p {
    max-width: 600px;
    margin: 0 auto;
}

/* Portfolio Section */
#portfolio {
    padding: 40px 20px;
    background: #e9ecef;
    text-align: center;
}

#portfolio h2 {
    margin-bottom: 20px;
    font-size: 2rem;
}

.project {
    display: inline-block;
    margin: 10px;
    padding: 20px;
    width: 200px;
    height: 150px;
    background: white;
    box-shadow: 0 4px 6px rgba(0, 0, 0, 0.1);
    text-align: center;
    line-height: 150px;
    font-weight: bold;
    color: #333;
    transition: transform 0.3s ease, box-shadow 0.3s ease;
}

.project:hover {
    transform: translateY(-5px);
    box-shadow: 0 8px 12px rgba(0, 0, 0, 0.2);
}

/* Contact Section */
```

```
#contact {
    padding: 40px 20px;
    text-align: center;
    background: #f8f9fa;
}

#contact h2 {
    margin-bottom: 20px;
    font-size: 2rem;
}

.btn {
    padding: 10px 20px;
    font-size: 1rem;
    border: 2px solid #007BFF;
    border-radius: 5px;
    background: white;
    color: #007BFF;
    cursor: pointer;
    transition: all 0.3s ease;
}

.btn:hover {
    background: #007BFF;
    color: white;
}

/* Footer */
footer {
    text-align: center;
    padding: 20px;
    background: #333;
    color: white;
    font-size: 0.9rem;
}
```

2.2.Software Components

- **HTML (HyperText Markup Language):** HTML serves as the backbone of the portfolio system. It is used to create and structure the content, including text, images, and links, within the portfolio.
- **CSS(Cascading Style Sheets):**CSS is responsible for the design, layout, and overall presentation of the portfolio website.

2.3. Working

The working of the proposed personal portfolio system involves several components working together to provide a seamless experience for both the user and the website's visitors. These components include the HTML structure, CSS styling, JavaScript interactions (if applicable), backend services (if needed), and the deployment environment. Here's a breakdown of how the system functions:

1. Frontend (Client-side) Workflow

The frontend is where the user interacts with the portfolio. It consists of the following elements:

- **HTML Structure:**
  - When a user visits the website, the browser requests the HTML file from the server. The HTML file contains the structure of the page, with various sections like the homepage, skills, projects, and contact form.
  - The content is organized using semantic HTML tags (<header>, <footer>, <section>, etc.), making it easy to navigate and accessible.
- **CSS Styling:**
  - Once the browser loads the HTML content, the CSS file is applied to the content to define the visual layout and design of the page.
  - CSS is responsible for making the portfolio visually appealing, providing the right colors, fonts, spacing, and overall layout.
  - Media queries ensure that the portfolio is responsive, adjusting its layout depending on the screen size and resolution of the device.
- **JavaScript (Optional) Interactivity:**
  - JavaScript is used to add dynamic features to the portfolio. For example, a user can hover over a project thumbnail, triggering a

JavaScript function that displays additional information or an image carousel.
    - JavaScript also handles any form submissions, such as validating a contact form, ensuring that all required fields are filled in before submission.
- **Responsive Design:**
    - The system works by applying CSS rules based on the device's screen size. When a user visits the portfolio from a desktop, the layout could have multiple columns. On mobile devices, the layout switches to a single-column format for better readability and navigation.
    -

2. Backend (Server-side) Workflow (If Applicable)

For more complex portfolios, or if the portfolio includes features such as form submissions, user authentication, or a Content Management System (CMS), a backend is needed.

- **Backend Server:**
    - When a user submits a contact form, for example, the frontend sends the form data to the backend server through an HTTP request (usually a POST request).
    - The server processes the data and, depending on the system, can store it in a database or send an email notification to the portfolio owner.
- **Database (If Used):**
    - For portfolios that require dynamic content, a backend database stores information such as project details, work experience, or other dynamic elements.
    - When the website is loaded, the backend queries the database and dynamically loads the content into the portfolio, reducing the need to manually update the HTML.

3. Content Management (Optional)

If a Content Management System (CMS) is integrated into the portfolio, the user can easily update and manage content without directly modifying HTML or CSS code.

- The user accesses the CMS through an administrative interface.
- The CMS allows the user to create, edit, and delete content like projects, experiences, and other sections of the portfolio.
- The CMS then updates the database, and the frontend fetches the new content dynamically to reflect changes.

4. Hosting and Deployment Workflow

After the portfolio is developed, it needs to be deployed and made accessible on the internet.

- **Web Hosting:**
    - Once the HTML, CSS, and JavaScript files are ready, they are uploaded to a web hosting service such as GitHub Pages, Netlify, or traditional hosting providers.
    - The web hosting service makes the portfolio accessible to users worldwide by assigning a domain name and serving the portfolio's files when users request them.
- **Version Control and Continuous Integration (CI/CD):**
    - Developers can use Git and version control platforms like GitHub to manage the codebase.
    - Continuous integration tools (like GitHub Actions, CircleCI, etc.) automate the deployment process, ensuring that whenever changes are made to the code, they are tested and deployed automatically without manual intervention.
- **SEO and Analytics:**
    - SEO best practices are applied to the website to ensure it ranks well in search engines, making it easier for potential employers or clients to find the portfolio.
    - Google Analytics or other analytics tools track user behavior, helping the portfolio owner understand how visitors are interacting with the site.

5. User Interaction

The end-users of the portfolio (potential employers, clients, collaborators) interact with the website by:

- **Navigating the Portfolio:**
  - Users can navigate between sections like "About Me", "Skills", "Projects", and "Contact".
  - Interactive features such as scrolling animations, image sliders, and hover effects (e.g., showing project details on hover) engage users.
- **Viewing Projects and Contacting:**
  - Users can view detailed project information, including descriptions, images, and links to live demos or GitHub repositories.
  - Visitors can fill out a contact form, which gets sent to the portfolio owner for follow-up.

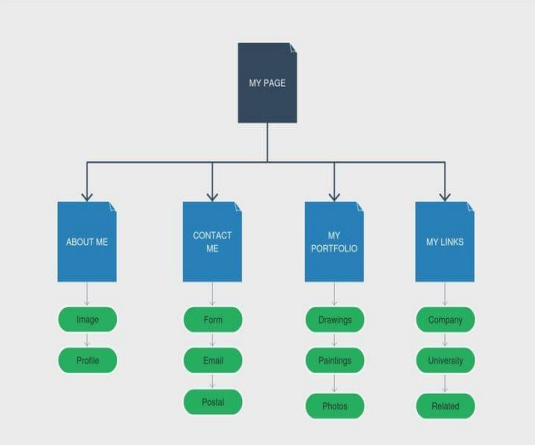

Fig.4.1.Block Diagram Of Proposed Model

2.4.Circuit Implementation

In the context of a personal portfolio or web-based system, the term "hardware setup" may not traditionally apply as the system is based on software technologies like HTML, CSS, and JavaScript. However, if the "circuit implementation" is referring to a physical component involved, such as building a hardware project or embedded system as part of a portfolio (e.g., a personal project or a portfolio website showcasing hardware work), then it involves integrating physical hardware components with a microcontroller, sensor, or other embedded devices.

2.5.Software Development :

1. Requirement Gathering and Analysis

This phase involves understanding the user's needs, project goals, and desired outcomes. For a personal portfolio, the goal is typically to create a website that showcases skills, projects, and experiences. Key activities include:

- **User Research:** Understanding what potential employers or clients expect from a portfolio.

2. Planning and Design

Once the requirements are gathered, the next step is to plan the software structure and design the user interface (UI).

- **Wireframing and Prototyping:** Creating a wireframe or prototype of the portfolio to visualize how different sections will be laid out and how users will interact with it. This could include sketching the design or using tools like Figma or Adobe XD to create interactive prototypes.

3. Development

The development phase is where the actual coding takes place, transforming the design and plans into a functional website or application.

- **Frontend Development:** Using HTML, CSS, and JavaScript to implement the website's structure, design, and interactivity.

4. Testing and Debugging

Testing is crucial to ensure that the portfolio functions correctly across different browsers and devices. This phase involves:

- **Functional Testing:** Ensuring all features work as expected, such as navigation, contact forms, and project displays.
- **Usability Testing:** Verifying that the portfolio is user-friendly and intuitive.
- **Cross-Browser Testing:** Ensuring that the portfolio works on different browsers (Chrome, Firefox, Safari, Edge) to ensure consistent appearance and functionality.

2.7.Safety Considerations :

1. **User Data Protection and Privacy**

When developing a personal portfolio, especially if it involves user input, such as a contact form or a backend that stores user information, protecting personal data is essential.

2. Website Security

Security measures are important to protect the website from external attacks and ensure it functions properly without vulnerabilities.

3. Authentication and Authorization (If Applicable)

If your portfolio includes features that require user authentication.

2.4 Benefits of the System

- Provides a platform to display projects, work samples, skills, and experiences in a visually appealing and organized manner
- Enhanced User Engagement: Simplifies access to key information, making it easy for users to explore sections like About, Projects, and Contact.

2.5.Steps Involved

The development of the proposed system, whether it's a personal portfolio or an integrated hardware-software solution, involves a structured and systematic approach. Below are the key steps categorized into phases to ensure clarity and smooth execution:

1. Planning Phase

- This phase involves defining the scope, objectives, and resources required for the system.

2.Identify Objectives:

- For a portfolio: Showcase skills, projects, and achievements.
- For integrated systems: Define the problem the system will solve and the desired outcomes.

3.Research and Analysis:

- Research similar systems for inspiration and best practices.
- Identify the target audience and their expectations.

4.Requirements Gathering:

- List the features to include, such as a homepage, project gallery, or contact form for a portfolio.
- For hardware systems, specify required sensors, microcontrollers, or actuators.

5.Technology Selection:

- Choose technologies such as HTML, CSS, and JavaScript for the frontend.
- Select backend tools (if needed), such as Node.js, PHP, or Python.
- For hardware, choose platforms like Arduino or Raspberry Pi.

6. Design Phase

- This phase focuses on creating the blueprint and visual representation of the system.

7.Wireframing:

- Design wireframes or sketches of the system layout and user interface.

8.UI/UX Design:

- Choose color schemes, typography, and layout styles.
- Ensure responsive and accessible design principles are applied.

9.System Architecture:

- For a portfolio, plan the directory structure (e.g., assets, styles, scripts).
- For integrated systems, design the interaction between hardware components and software.

10. Development Phase

- This is the core phase where the system is built.

11.Frontend Development (For Portfolios):

HTML Development:

- Structure the content using semantic HTML elements.
- Include sections such as About, Projects, Contact, and Footer.

12.CSS Styling:

- Apply styles using CSS or frameworks like Bootstrap or Tailwind CSS.
- Ensure responsiveness with media queries.

13.JavaScript Integration:

- Add interactive elements such as animations, modals, or form validation.

13.Backend Development (If Applicable):

Setup Server:

- Use server-side technologies (e.g., Node.js, PHP) to handle dynamic content or form submissions.

14.Database Integration:

- Set up a database (e.g., MySQL, MongoDB) to store user data securely.

15.Hardware Integration (If Applicable):

Component Setup:

- Assemble the hardware components and connect them to the microcontroller.

16.Programming:

- Write the microcontroller code to collect, process, and transmit data to the software.

17.Testing:

- Test individual hardware components and their interaction with the software.

18. Testing Phase

- This phase ensures the system works as intended and is free of errors.

19.Unit Testing:

- Test individual components, such as forms, navigation links, or sensors, to ensure they function correctly.

20.Integration Testing:

- Test the interaction between various components, such as frontend and backend or hardware and software.

21.Performance Testing:

- Assess the system under different conditions, such as high traffic or extensive hardware usage.

22.Security Testing:

- Test for vulnerabilities like SQL injection, XSS, or CSRF attacks.

23.User Acceptance Testing (UAT):

- Gather feedback from users to ensure the system meets their expectations.

2.6.Challenges Faced

- **Contact and Feedback Mechanism:**

Enabling visitors to contact users via integrated forms or messaging features.

- **Professional Networking:**

Linking the portfolio to professional platforms such as LinkedIn, GitHub, or Behance.

- **IoT Applications:**

Monitoring and controlling devices remotely, such as smart home systems or industrial automation setups**.**

- **Environmental Monitoring:**

Collecting and analyzing data from sensors for applications like weather stations, pollution monitoring, or agricultural systems**.**

- **Healthcare Devices:**

Implementing real-time health monitoring solutions using wearable sensors or diagnostic tools.

- **Ambiguous Objectives:**

Defining clear goals for the system can be difficult, especially when multiple features or functionalities are under consideration.

- **Resource Limitations:**

Constraints in budget, time, or technical resources can limit the scope or quality of the system.

- **Technology Selection:**

Choosing the right technologies or frameworks that align with the project's goals.

- **Showcasing Hobbies:**

Sharing creative endeavors like DIY electronics, woodworking, or photography projects.

- **Learning Experience:**

Using the system as a hands-on project for improving skills in coding, design, or hardware assembly.

- **Awareness Campaigns:**

Creating platforms to promote social causes, environmental conservation, or charitable projects.

- **Community Projects:**

Sharing community initiatives or collaborative efforts to inspire collective action.

- **Visitor Analytics:**

Using the system to track visitor statistics, engagement, and behavior for data-driven improvements.

- **Data Visualization:**

Integrating tools to present complex data in an intuitive, user-friendly manner.

2.7.Applications

- **Visibility:**

Improves online presence and acts as a central hub for showcasing work, skills, and achievements.

- **First Impression:**

Provides a professional and polished first impression to potential employers, clients, or collaborators.

- **Brand Identity:**

Helps create a unique personal brand, differentiating users from competitors. Showcasing skills, projects, and achievements to potential employers, clients, or collaborators.

Enhancing online visibility with a customized and Soptimized platform.

- r**esume Replacement:**

Serving as a digital resume, offering a dynamic and interactive alternative to traditional paper-based resumes.

- .**Freelancing and Consulting:**

Attracting freelance opportunities by displaying completed work and testimonials.

Monitoring enclosed ship spaces for combustible or toxic gases to ensure crew safety.

Detecting leaks in gas-powered ships or yachts.

- **Industrial Automation:**

Automating processes like inventory tracking, quality control, or machinery diagnostics in industries.

- **Smart Agriculture:**

Implementing systems for soil moisture monitoring, irrigation control, or crop health analysis.

- **Wearable Technology:**

Developing fitness trackers, medical devices, or other personal monitoring systems.

2.7.Advantages

- **Visibility:** Improves online presence and acts as a central hub for showcasing work, skills, and achievements.
- **First Impression:** Provides a professional and polished first impression to potential employers, clients, or collaborators.
- B**rand Identity:** Helps create a unique personal brand, differentiating users from competitors. Real-Time Alerts: Immediate notification of leaks prevents delays in response.
- **24/7 Availability:** Accessible to anyone, anywhere, at any time, enabling global reach.
- **Centralized Information:** Consolidates personal and professional details in a single, easy-to-navigate platform.
- **Tailored Design:** Offers the flexibility to personalize the layout, color schemes, and functionality to reflect an individual's personality or brand.
- **Interactive Features:** Supports the integration of dynamic elements like animations, modals, or galleries to engage users.
- **Technical Proficiency:** Demonstrates expertise in web development, design, and coding for job seekers in tech-related fields.
- **Portfolio Showcase:** Provides a platform to highlight past projects, testimonials, and certifications.

2.8.Changes and Improvements for Future Research

Technically, integrating advanced technologies such as artificial intelligence and machine learning can enable personalized experiences and predictive capabilities. Blockchain technology could also enhance data security and transparency, particularly for sensitive applications. Performance optimization through code refinement and hardware upgrades can improve speed, energy efficiency, and overall functionality. Enhancing user experience by incorporating interactive features, simplifying navigation, and adhering to Web Content Accessibility Guidelines (WCAG) would make the system more inclusive and user-friendly. Providing multilingual support can further broaden its accessibility. Scalability and modularity are crucial for adapting to future needs, with cloud integration offering better handling of increased traffic and modular designs enabling easier updates and expansions. Security should remain a top priority, with the implementation of robust encryption methods, regular vulnerability assessments, and compliance with evolving security standards. Finally, exploring innovative solutions to ensure compatibility with emerging technologies, such as foldable screens or AR/VR devices, will future-proof the system. These changes and improvements aim to create a versatile, secure, and adaptable platform that meets the demands of evolving technologies and diverse user requirements.

3. CONCLUSIONS

The system faces challenges such as performance optimization, accessibility compliance, and integration of emerging technologies. Future research can address these limitations by incorporating advanced features like AI, machine learning, and blockchain technology, while also focusing on improving security, modularity, and user experience. Scalability and cross-platform compatibility should remain key priorities to ensure the system adapts seamlessly to evolving technologies and user needs.

In conclusion, this system represents a significant step toward bridging the gap between modern technology and practical application. With ongoing improvements and research, it has the potential to serve as a robust, adaptable, and future-proof solution, contributing to both personal and professional development in an increasingly digital world.

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