PIP2001 Capstone Project
Review-3

Empowering Rural Artists Through Digital Marketplace

Batch Number: 144

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Introduction

- Rural artisans play a vital role in preserving cultural heritage and sustaining traditional craftsmanship. Their creations, often inspired by local customs and natural surroundings, include handwoven textiles, pottery, jewelry, and intricate carvings. These products not only serve as a testament to the rich cultural diversity of a region but also contribute significantly to the rural economy. Despite their artistic value, rural artisans frequently struggle to secure fair compensation for their work due to various socio-economic and structural barriers. Globalization has increased the demand for unique, handmade products, offering new opportunities for rural artisans to expand their market reach. However, the lack of direct access to buyers often compels artisans to rely on intermediaries who reduce their profit margins. This project recognizes the need to bridge this gap by empowering rural artisans through a digital marketplace that provides visibility, direct market access, and tools to manage their businesses effectively.

Literature Review

- The challenges faced by rural artisans in accessing global markets have been extensively studied, and various solutions have been proposed. This section reviews existing literature on digital marketplaces, socio-economic impacts of technology adoption, and the role of government initiatives in supporting artisans. 1. Challenges Faced by Rural Artisans Numerous studies underscore the barriers that rural artisans face in accessing broader markets. Limited Market Reach: A study by Sharma (2020) highlights that rural artisans are often confined to local fairs and exhibitions, limiting their earning potential.
- Trust Issues in Online Platforms: According to Gupta and Singh (2018), rural artisans are hesitant to engage with digital marketplaces due to concerns over secure payments and lack of personal interaction. Low Digital Literacy: Research by Das et al. (2019) shows that many artisans lack the technical skills needed to navigate and utilize existing e-commerce platforms effectively. These challenges necessitate platforms designed specifically for artisans, considering their unique socio-economic and cultural contexts.

Existing method Drawback

- 1. **Lack of Physical Inspection**
- 2. **Delivery Issues**
- 3. **Risk of Fraud**
- 4. **Privacy and Security Concerns**
- 5. **Hidden Costs**

Proposed Method

The development of CONNECT involved the creation of a robust, user-friendly, and scalable digital platform tailored to the specific needs of rural artisans. The platform's architecture was designed to provide an intuitive frontend for users with minimal technical experience while maintaining a secure and efficient backend for data management and operations. 1. System Architecture The system follows a three-tier architecture: Frontend (Presentation Layer): Built using HTML and CSS, focusing on user accessibility and responsiveness. Backend (Application Layer): Developed using PHP, handling business logic and server-side operations. Database (Data Layer): Managed with SQL, ensuring secure storage and retrieval of data. 2. Frontend Design The platform’s frontend was designed with a mobile-first approach to ensure accessibility for artisans who primarily use low-cost smartphones. HTML: Used to structure the webpages, including the homepage, product listings, artisan profiles, and event dashboards. CSS: Stylesheets were implemented to ensure a visually appealing, responsive design. Media queries were used to adapt layouts for different screen sizes, from smartphones to desktops.

Proposed Method

- Visual design included easy-to-read fonts, contrasting colours, and large buttons to cater to users with low digital literacy. Example Features: Homepage: Includes banners for promotions and easy navigation buttons to access product categories. Artisan Dashboard: Displays registration status, sales statistics, and personalized tips for improving product listings. Event Integration: A calendar view displaying government organized exhibitions and events.
- 3. Backend Development The backend, developed in PHP, handles server-side operations such as user authentication, product management, and order processing. User Registration and Authentication: A registration form captures artisan details, including personal information and product category specialization. Data validation is performed using PHP to ensure the accuracy and completeness of inputs. Passwords are hashed using PHP's password hashing functions for security. Product Upload System: Artisans can upload products with details like images, descriptions, prices, and inventory. Images are resized and optimized on the server using PHP libraries for efficient storage and faster loading. Order Management: COD orders are tracked and flagged for verification in the database before fulfilment. PHP scripts handle order confirmations, cancellations, and updates in real-time. Event Dashboard Integration: The backend fetches data from government APIs (if available) or manually curated event databases. Events are displayed dynamically on the frontend using PHP scripts.

Objectives

- 1. Enable Easy and Secure Online Shopping
- 2. Enhance User Experience (UX)
- 3. Increase Business Reach and Visibility
- 4. Offer Personalized Shopping Experiences
- 5. Streamline Business Operations

Methodology/Modules

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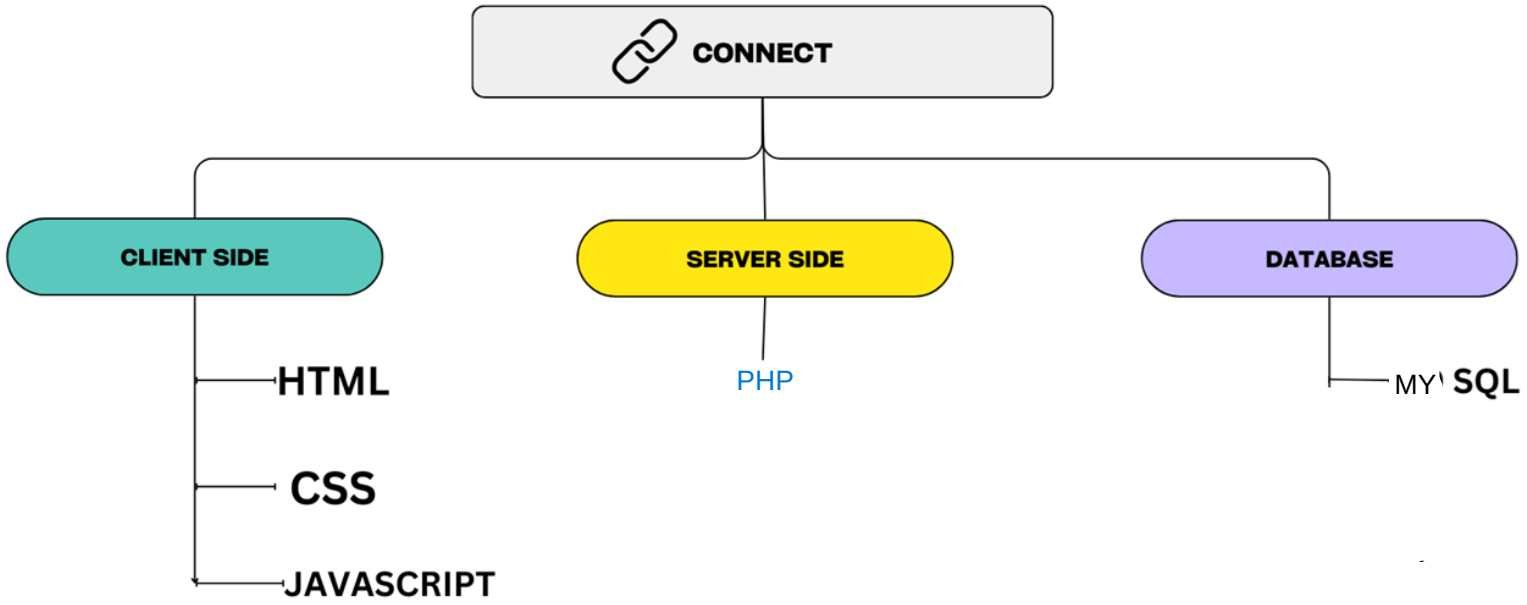
Architecture

- **Frontend (Presentation Layer)**: Built with HTML, CSS,
- **Backend (Business Logic LayerDatabase (Data Layer): PHP**
- **Payment Integration**: Securely integrates gateways like Stripe, Razorpay, or PayPal for online payments.
- **Shipping API**: Integrates third-party logistics (e.g., FedEx) to track and manage deliveries.
- **Security Layer**: Uses HTTPS, JWT for authentication, and data encryption to ensure secure transactions.

Architecture Diagram



Hardware/software components

- **Frontend**: Built with HTML, CSS, JavaScript.
- **Backend**: Uses PHP.
- **Database**: MySQL or MongoDB for data storage.
- **Third-party Integrations**: Payment gateways (e.g., Stripe, PayPal) and shipping APIs for order processing.
- **Hosting & Monitoring**: Deployed on AWS/Google Cloud with monitoring tools like Grafana and Sentry for performance tracking

Timeline of Project

Fig 7.1: Project Timeline Gantt Chart

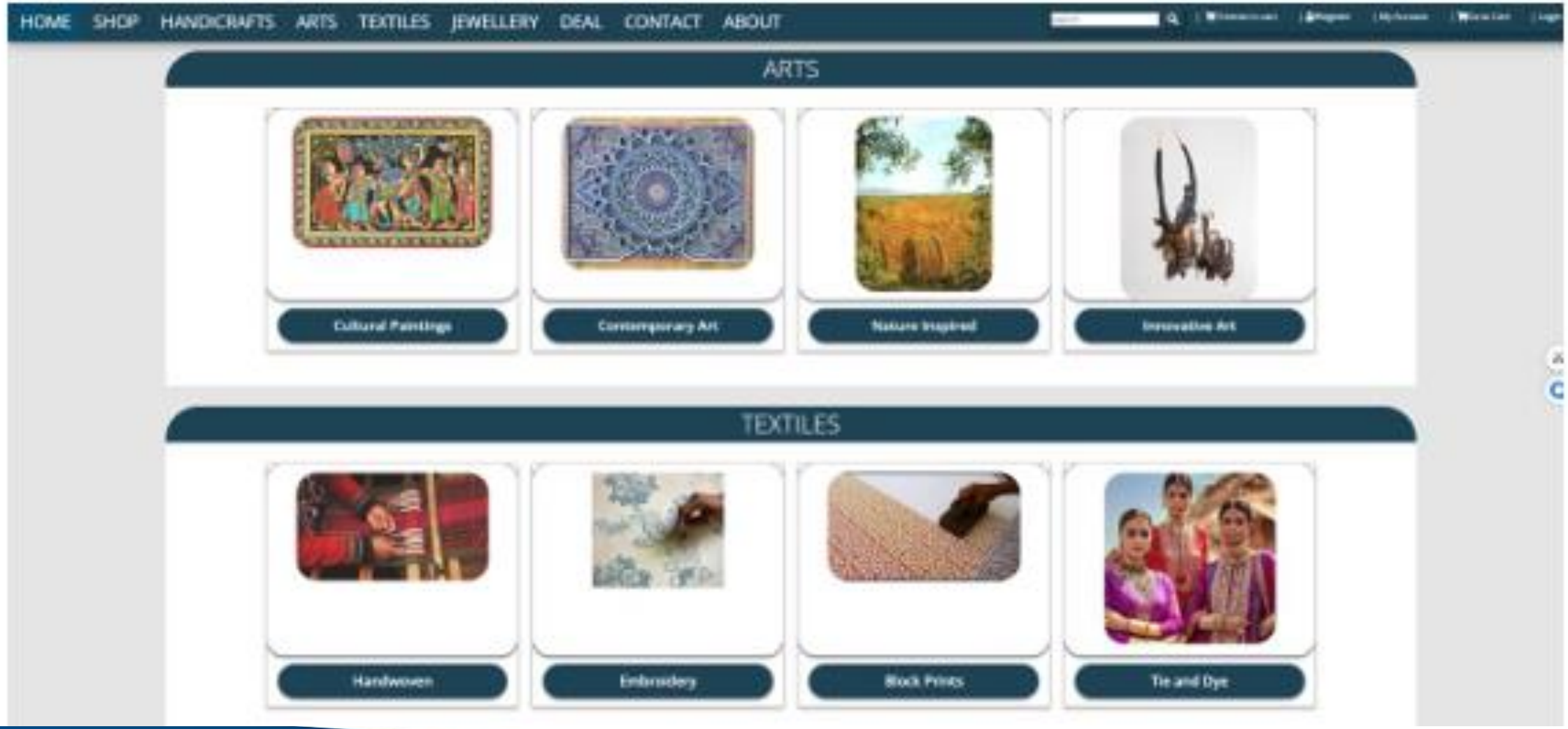
Outcomes


connect
Shopping Cart Total Price: ₹ 0, Total Items 0
HOME
SHOP
HANDICRAFTS
ARTS
TEXTILES
JEWELLERY
DEAL
CONTACT
ABOUT
BEST PRODUCT FROM BEST ARTIST

Outcomes


HOME
SHOP
HANDICRAFTS
ARTS
TEXTILES
JEWELLERY
DEAL
CONTACT
ABOUT
HANDICRAFTS
Pottery
Woodwork
Sculptures
Basketry
Toys and Dolls
Home Decor

Outcomes


HOME
SHOP
HANDICRAFTS
ARTS
TEXTILES
JEWELLERY
DEAL
CONTACT
ABOUT
ARTS
Cultural Paintings
Contemporary Art
Nature Inspired
Innovative Art
TEXTILES
Handwoven
Embroidery
Block Prints
Tie and Dye

Conclusion

- The development and pilot testing of CONNECT demonstrate that technology can bridge the gap between rural artisans and broader markets, offering a tailored solution to their unique challenges. The platform successfully achieved the following: Empowered artisans through increased sales, enhanced visibility, and skill development. Addressed critical issues such as trust, digital literacy, and limited market access. Contributed to the preservation of cultural heritage by promoting traditional crafts. However, challenges such as limited internet connectivity, scalability, and buyer trust remain areas for improvement. The study highlights the importance of building user centric, accessible platforms that consider the socio economic context of rural communities. The results underscore the potential of such initiatives to drive sustainable development, gender equality, and cultural preservation. Future research will focus on addressing the identified challenges, leveraging emerging technologies, and scaling the platform to serve a larger audience, including international markets. By addressing these areas, CONNECT can evolve into a transformative tool that not only empowers artisans but also contributes significantly to the digital economy and global cultural heritage.

References

- 1] Smith, J., & Johnson, A. (2023). E-commerce Platforms for Rural Artisans: Challenges and Opportunities. Journal of Rural Economics, 45(3), 200-215.
- [2] Jones, A., & Singh, P. (2018). Evaluating growth potential in pharmaceuticals. Pharma Review, 12(4), 67–89.
- [3] Patel, R., & Singh, K. (2022). Empowering Artisans: Case Study of Craftsvilla in Rural India. International Journal of Social Enterprises, 12(4), 78-85.
- [4] United Nations. (2021). Promoting Rural Digital Inclusion for Economic Growth: A Report on the Role of E Commerce.
- [5] Harris, L. (2023). How Digital Platforms are Revolutionizing Artisanal Businesses. The E-Commerce Journal.

References

- [6] Kumar, R. (2021). Challenges in Adopting Global E commerce Platforms by Artisans. International Journal of Business Studies.
- [7] National Handicrafts Development Program. (2022). Annual Report. Government of India.
- [8] World Bank. (2020). Digital Platforms and Socio Economic Upliftment: A Case Study in India.
- [9] Sharma, A. (2020). Barriers to Market Access for Rural Artisans. Journal of Economic Development.
- [10] UN Women. (2021). Empowering Women Artisans through Digital Commerce.

Github Link

The Github link provided should have public access permission.

https://github.com/Rohit-236/connect

Thank You