

SMART COMMUNICATION

A PROJECT REPORT

Submitted by,

CHITRIKA M - 20211CBD0007

ANUPAMA -20211CBD0014

ATHMAKURU DEEPTHI – 20211CBD0053

Under the guidance of,

Dr. SRINIVASAN T R

*in partial fulfillment for the award of the
degree of*

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND TECHNOLOGY (BIG DATA)

At



PRESIDENCY UNIVERSITY

BENGALURU

JANUARY 2025

PRESIDENCY UNIVERSITY

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the Project report “**SMART COMMUNICATION**” being submitted by “CHITRIKA M, ANUPAMA, ATHMAKURU DEPTHI” bearing roll numbers “20211CBD0007, 20211CBD0014, 20211CBD0053” respectively in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Technology(Big Data) is a Bonafide work carried out under my supervision.

Dr. SRINIVASAN T R

PROFESSOR

School of CSE&IS

Presidency University

Dr. S. PRAVINTHRAJA

PROFESSOR& HoD

School of CSE

Presidency University

Dr. L. SHAKKEERA

Associate Dean

School of CSE

Presidency University

Dr. MYDHILI NAIR

Associate Dean

School of CSE

Presidency University

Dr. SAMEERUDDIN KHAN

Pro-Vc School of Engineering

Dean -School of CSE&IS

Presidency University

PRESIDENCY UNIVERSITY
SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

DECLARATION

We hereby declare that the work, which is being presented in the project report entitled **SMART COMMUNICATON** in partial fulfillment for the award of Degree of **Bachelor of Technology in Computer Science and Technology (Big Data)**, is a record of our own investigations carried under the guidance of **SRINIVASAN T R, PROFESSOR, School of Computer Science Engineering , Presidency University, Bengaluru.**

We have not submitted the matter presented in this report anywhere for the award of any other Degree.

CHITRIKA M - 20211CBD0007

SIGNATURE :

ANUPAMA -20211CBD0014

SIGNATURE :

ATHMAKURU DEEPTHI – 20211CBD0053

SIGNATURE :

ABSTRACT

Numerous individuals in India possess traditional skills and knowledge related to the creation and crafting of handicrafts. The handicrafts sector in India is decentralized and heavily reliant on labor. After agriculture and textiles, it provides the highest number of employment opportunities. This sector has made substantial contributions to the nation's economy, but it has yet to receive the level of recognition it warrants. Artisans depend solely on individual centers for selling their products. This leads to a narrow approach that fails to highlight the skills of these talented artisans and diminishes their profits. Online marketing holds the potential to effectively tackle the challenges faced by artisans to our benefit. The website "E-COMMERCE FOR ARTISANS" enables crafts persons and artisans to sell and market their products through the internet. By eliminating intermediaries and making their products accessible to a broader audience, artisans can enhance their profit margins. If executed properly, the skilled crafts made by individual artisans will be easily accessible to those who need them. A recurring theme of capitalism was evident across the existing platforms, highlighting the possibility of low profit margins. On the platform, vendors can sign up and share details about their products. Once their authenticity is verified, their items will be displayed on the site. The portal's user-facing front end can be distinguished from the back end, where data will be processed and managed. The robust platform will offer the convenience of ordering skilled craft products through a computer connected to the internet. Creatives can sign up as vendors and fill out a form with pertinent details. The platform will showcase the information once it has been inputted into the databases. Craftspeople will be kept updated to ensure product availability and ease online shopping concerns.

ACKNOWLEDGEMENT

First of all, we indebted to the **GOD ALMIGHTY** for giving me an opportunity to excel in our efforts to complete this project on time.

We express our sincere thanks to our respected dean **Dr. Md. Sameeruddin Khan**, Pro-VC, School of Engineering and Dean, School of Computer Science & Engineering Information Science, Presidency University for getting us permission to undergo the project.

We express our heartfelt gratitude to our beloved Associate Deans **Dr. Shakkeera L and Dr. Mydhili Nair**, School of Computer Science and Engineering, Presidency University, and **Dr.S.PRAVINTHRAJA**, Head of the Department, School of Computer Science and Engineering Presidency University, for rendering timely help in completing this project successfully.

We are greatly indebted to our guide **Dr. SRINIVASAN T R, Professor** and Reviewer **Mr. Rajan T, Asst Professor**, School of Computer Science Engineering & Information Science, Presidency University for his inspirational guidance, and valuable suggestions and for providing us a chance to express our technical capabilities in every respect for the completion of the project work.

We would like to convey our gratitude and heartfelt thanks to the PIP2001 Capstone Project Coordinators **Dr. Sampath A K, Dr. Abdul Khadar A and Mr. Md Zia Ur Rahman**, department Project Coordinators **Ms. SUMA N G** and Git hub coordinator **Mr. Muthuraj**.

We thank our family and friends for the strong support and inspiration they have provided us in bringing out this project.

(1) **CHITRIKA M – 20211CBD0007**

(2) **ANUPAMA – 20211CBD0014**

(3) **ATHMAKURU DEPTHI – 20211CBD0053**

LIST OF TABLES

Sl. No.	Table Name	Table Caption	Page No.
1	Table 1.1	SYSTEM REQUIREMENTS AND TECHNICAL SPECIFICATIONS	10
2	Table 2.1	LITERATURE SURVEY	14
3	Table 6.1	PRODUCT TABLE	24
4	Table 6.2	CART TABLE	24
5	Table 6.3	ORDERS TABLE	24
6	Table 7.1	PROJECT TIMELINE AND MILESTONE	26
7	Table 7.2	GANTT CHART	27

LIST OF FIGURES

Sl. No.	Figure No.	CAPTION	Page No.
1	Fig : 6.1	ARCHITECTURE DIAGRAM OF E-COMMERCE WEBSITE	25
2	Fig: A(1.1)	SCREENSHOT OF CODE	35
3	Fig : A(1.2)	SCREENSHOT OF CODE	35
4	Fig: B(1.1)	WELCOME PAGE SCREENSHOT	36
5	Fig: B(1.2)	PRODUCT PAGE	36
6	Fig: B(1.3)	NAV-BAR SCREENSHOT	37

TABLE OF CONTENTS

Chapter No	TITLE	Page No
	ABSTRACT	4
	ACKNOWLEDGEMENT	5
1	INTRODUCTION	9
2	LITERATURE REVIEW	14
3	RESEARCH GAPS OF EXISTING METHODS	17
4	PROPOSED METHODOLOGY	18
5	OBJECTIVES	21
6	SYSTEM DESIGN & IMPLEMENTATION	23
7	TIMELINE FOR EXECUTION OF PROJECT (GANTT CHART)	26
8	OUTCOMES	28
9	RESULTS AND DISCUSSIONS	30
10	CONCLUSION	32
	REFERENCES	34
APPENDIX- A	PSUEDOCODE	35
APPENDIX- B	SCREENSHOTS	36
APPENDIX- C	ENCLOSURES	38

CHAPTER-1

INTRODUCTION

1.1 Background

The handicrafts sector in India, a significant source of employment after agriculture and textiles, remains underappreciated despite its economic contributions. Artisans primarily rely on local centres, limiting visibility and profits. The proposed "E-COMMERCE FOR ARTISANS" platform aims to bridge this gap by enabling artisans to market and sell their products online, eliminating intermediaries. This initiative ensures fair profit margins and broader accessibility to handcrafted goods.

1.1.1 Evolution of Customer Support Systems

Customer service has shifted from traditional face-to-face and phone-based help to digital channels such as email and live chat. With the development of AI, automated chatbots and self-service websites now offer fast, 24-hour support. This change improves productivity while maintaining a consistent client experience.

1.1.2 Current Industry Challenges

The handicrafts business faces obstacles such as limited market awareness, reliance on intermediaries, and low profit margins for craftspeople. The sector's decentralized character hampers access to global markets. Furthermore, a lack of technology adoption prevents craftsmen from efficiently promoting and selling their wares online.

1.2 Project Overview

The "E-COMMERCE FOR ARTISANS" program aims to empower Indian artisans by offering an online marketplace for displaying and selling their handcrafted goods. By eliminating intermediaries, the platform maintains fair profit margins while enhancing craftspeople's market awareness. It allows customers to browse a wide range of handcrafted goods, simplifies vendor registration and product listing, and includes secure payment alternatives for smooth transactions. The platform connects craftsmen and global purchasers with a comprehensive and user-friendly interface, encouraging cultural heritage and economic prosperity.

Table 1.1 System Requirements and Technical Specifications

COMPONENT	REQUIREMENT	SPECIFICATION
Memory	4GB minimum	8GB recommended
Storage	100GB SSD	512 recommended
Processing	Multi-Core	8 cores minimum
Processing	High bandwidth	1Gbps minimum
Security	HIPAA compliant	MD5 -SHAI encryption

1.3 Problem Statement

Indian craftsmen, despite their great abilities and contributions to the economy, suffer obstacles such as restricted visibility, reliance on intermediaries, and low profit margins. The localized character of the handicrafts sector limits access to larger markets, reducing chances for growth. Existing platforms frequently promote profit-driven strategies, which further marginalizes craftspeople. There is an urgent need for a dedicated, fair, and accessible online platform that would empower craftsmen, promote their work, and link them directly with worldwide customers while assuring equitable revenues and market awareness.

1.3.1 Current Support System Limitations

Limited Reach: Artisans generally sell to local marketplaces or small-scale centers, limiting their visibility to a larger audience.

Dependence on Intermediaries: Middlemen control the sales process, lowering craftsmen's profit margins and causing inefficiencies.

Lack of Technological Integration: Artisans' limited access to digital tools inhibits them from using e-commerce to promote and sell their items.

Inconsistent Support: Existing platforms frequently prioritize profit-driven approaches, overlooking craftspeople's legitimate requirements for fair representation.

Market Competition: Artisans face challenges competing with mass-produced items due to limited marketing and outreach resources.

1.3.2 Proposed Solution Features

Artisan Vendor Registration: Artisans can easily sign up, providing information about their items and talents to gain direct market access.

Product Listing and Authentication: Vendors can display their handcrafted items, which are checked for authenticity before being posted.

Categorized Product Display: Products are divided into categories, allowing clients to easily browse a variety of handmade goods.

Real-Time Inventory Management: Vendors can update product availability, providing customers with precise information.

No Intermediaries: Direct transactions between artists and clients eliminate middlemen, resulting in reasonable profit margins for artisans.

Global Reach: The platform gives craftsmen access to a larger market, boosting visibility and potential sales.

Customer Reviews and Ratings: Buyers can provide feedback and ratings, building trust between artisans and customers.

Mobile-Friendly Interface: A responsive design makes the platform accessible on both desktop and mobile devices, increasing reach.

Admin Dashboard: A user-friendly backend dashboard for managing vendor signups, product listings, and order fulfillment.

1.4 Project Objectives

Empower craftsmen: Create a platform where craftsmen may promote and sell their handmade products directly, eliminating intermediaries and increasing profit margins.

Increase Market Visibility: Broaden artists' reach by linking them with a worldwide audience, making their items more accessible to shoppers.

Assure Product Authenticity: Implement a verification mechanism to assure product authenticity, which will create customer trust while also conserving the integrity of traditional crafts.

Simplify Transactions: Enable secure and seamless transactions with integrated payment gateways, providing a hassle-free experience for both buyers and sellers.

Promote Long-Term Growth: Help artists scale their enterprises by providing tools for inventory management, client involvement, and market information.

Improve User Experience: Create an intuitive, user-friendly interface that allows buyers and craftsmen to easily navigate, discover products, and make purchases.

Foster Community Building: Provide an environment for artisans to collaborate, share information, and connect with other producers and customers.

1.4.1 Primary Goals

The major purpose is to empower artists by offering a direct internet platform for showcasing and selling their creations, eliminating intermediaries and ensuring fair earnings. The platform intends to boost artists' global awareness while also supporting long-term growth and market access. Furthermore, it aims to create a seamless, secure, and user-friendly experience for both craftsmen and customers.

1.4.2 Success Metrics

Vendor Sign-ups: The number of craftsmen who successfully registered on the site, demonstrating adoption and reach.

Product Listings: The number of products listed and validated reflects the range and quality of the offers.

Sales Growth: Increase in the number of transactions and overall income, proving the platform's ability to generate sales for artisans.

Consumer Engagement: The number of active users, repeat customers, and product reviews demonstrates consumer satisfaction and platform confidence.

Profit Margins for Artisans: Artisans' profit margins have improved significantly when compared to traditional sales tactics, suggesting economic empowerment.

Platform Uptime: Reliability and performance metrics to ensure a smooth user experience with minimal downtime.

Worldwide Reach: An increase in international orders and clients demonstrates the platform's capacity to connect artists to a worldwide audience.

1.5 Project Scope

The project's scope involves creating a web-based e-commerce platform that allows artisans to register, sell products, and manage transactions directly with clients. It will include secure payment integration, product verification, and a simple interface for browsing and purchasing handmade items. The platform will eliminate intermediaries, giving craftsmen more visibility and profit margins. Future expansions could involve mobile app development and new features such as reviews, ratings, and advanced analytics.

1.5.1 Included Features

Vendor Registration and Authentication: Artisans can register and verify their authenticity before listing products.

Product Listings: User-friendly interface for uploading, updating, and classifying handmade products.

Cart and Checkout System: Allows customers to add items, alter quantities, and secure their purchases.

Inventory Management: Vendors can monitor product availability and stock levels in real time.

Customer Reviews and Ratings: Buyers can provide feedback and ratings to help create trust and guide future purchases.

Search and Filter Options: Customers can easily browse products by category, price, or other parameters.

Responsive Design: The platform is mobile-friendly, making it accessible from a variety of devices.

Order Management: Artisans can track and manage orders while receiving real-time progress update.

1.5.2 Limitations and Boundaries

Geographic Reach: The platform may initially focus on domestic markets, with worldwide development considered later based on demand and logistical feasibility.

User Authentication: While vendor authentication is built into the platform, manual verification can cause delays in the listing process.

Payment Gateway Restrictions: Payment options are confined to supported gateways such as Razorpay and PayPal, with regional payment solutions excluded in the early phases.

Product Types: The marketplace will predominantly feature handcrafted goods, excluding mass-produced or industrial items.

Technology Dependencies: The platform's performance and scalability are reliant on internet infrastructure and third-party services (such as hosting and payment gateways).

No Offline Sales: During its initial phase, the platform does not handle offline transactions or physical store integrations.

Limited Admin Features: The admin interface may initially include minimal administration features, with more advanced analytics and tools being introduced later.

CHAPTER-2

LITERATURE SURVEY

Our project, titled "E-COMMERCE FOR ARTISANS," aims to create a web application that helps individual artisans sell their unique handicrafts online through our platform. The "E-COMMERCE FOR ARTISANS" website will connect sellers with buyers, offering exceptional online services to enhance user satisfaction. Through this application, customers can purchase authentic, high-quality handicrafts made by local artisans. Users have the option to register, sell their handmade products, or place orders for items from the available inventory.

Table 2.1 Literature Survey

Sl.no.	Paper Title	Proposed Model	Results	Drawbacks
1.	Traditional Handicraft Marketplaces(Physical Stores and Exhibitions)	Face-to-face customer interaction through physical stores or exhibitions.	Builds trust with customers by allowing them to physically inspect products	High operational costs (rent, staffing) and inaccessibility for artisans in remote areas.
2	General E-Commerce Platforms (e.g., Amazon, eBay)	General e-commerce platforms that provide global reach and logistics support.	Allows artisans to access a wide customer base and benefit from easy-to-use interfaces.	High competition from mass-produced goods, making it hard for handmade products to stand out. Limited focus on promoting cultural or artisanal value
3	Unspoken Craft: e-commerce Artisan-Specific Marketplaces (e.g., Etsy, Craftsvilla)	Marketplaces focused on handcrafted and unique items, with features like	Helps artisans attract niche audiences and provides specialized	High seller competition and visibility challenges without paid

		product storytelling and customization.	features for artisanal products.	advertising. Fees (e.g., listing, transaction) cut into profits.
4	Social Media Commerce (e.g., Instagram, Facebook Shops)	Social media platforms offering direct access to global audiences with free tools for shop creation.	Potential for viral marketing and direct customer engagement without upfront costs.	Lack of built-in payment or logistics support. Artisans need to be tech-savvy and active on social media for promotion. Visibility depends on algorithms and often requires paid ads.
5	Government-Supported Platforms (e.g., India Handloom Brand, Handloom Mark Scheme)	Government-backed platforms that promote artisan products with reduced fees.	Government support lends credibility and legitimacy to products, often at lower commissions.	Limited marketing reach compared to private e-commerce platforms. Bureaucratic processes and slower adoption of new technology make the platform less user-friendly.
6	EPICRAFT-Ecommerce for Artisans (MERN-Based Custom E-Commerce Solutions (e.g., Epicraft))	Custom-built platforms using the MERN stack (MongoDB, Express.js, React, Node.js) for scalability and full control over	Fully customizable, scalable, and secure. Technologies ensure seamless transactions and good	Higher upfront cost and effort for development and maintenance. Artisans may need ongoing

		branding and features.	performance when hosted on platforms like Heroku and Netlify.	technical support post-launch.
7	Mobile-Only Marketplaces (e.g., Meesho) <ul style="list-style-type: none"> 	Mobile-centric platforms that make it easy for artisans to sell products using smartphones.	High mobile penetration, especially in rural areas, enables access to marketplaces via smartphones. Features like WhatsApp integration simplify communication with customers.	Limited functionality compared to full e-commerce platforms, smaller screen sizes, and reduced capabilities. Focuses more on reselling, which may not align with artisanal needs.
8	NGO and Non-Profit Platforms (e.g., Sasha, Dastkar)	Platforms that empower artisans through fair wages and ethical trading conditions, while providing training and support.	Focuses on ethical practices and training for sustainability.	Limited scalability and global reach, often focusing on small groups of artisans. Dependence on donations or external funding affects long-term sustainability. Lacks advanced technology and features compared to private e-commerce.

CHAPTER-3

RESEARCH GAPS OF EXISTING METHODS

3.1 Market Analysis and Segmentation:

A comprehensive market analysis, including segmentation based on demographics, psychographics, and geographic location, is necessary to identify target customer segments and tailor marketing strategies accordingly.

A detailed competitive analysis of existing online marketplaces for handicrafts is required to understand their strengths, weaknesses, and unique selling propositions.

3.2 Technological Infrastructure and Digital Literacy:

The development of a robust and user-friendly e-commerce platform, including secure payment gateways, efficient logistics solutions, and reliable customer support, is essential.

Providing digital literacy training to artisans, particularly those in rural areas, to equip them with the necessary skills to effectively utilize the platform and manage their online stores.

3.3 Supply Chain Management and Quality Assurance:

Establishing a reliable and efficient supply chain to ensure timely delivery of products to customers.

Implementing rigorous quality control measures to maintain the authenticity, quality, and consistency of handicraft products.

3.4 Marketing and Branding Strategies:

Developing effective marketing and branding strategies to promote the platform and individual artisan brands. Utilizing digital marketing tools, such as social media, content marketing, and search engine optimization, to increase visibility and attract potential customers.

3.5 Financial Sustainability and Social Impact:

Exploring innovative financing models to support the growth and development of the platform and its associated artisans. Assessing the social impact of the platform on the livelihoods of artisans and the preservation of traditional crafts.

By addressing these research gaps, the proposed e-commerce platform can contribute to the sustainable growth of the Indian handicraft sector, empowering artisans and enhancing their market reach.

CHAPTER-4

PROPOSED METHODOLOGY

The methodology for developing the E-Commerce for Artisans platform focuses on systematically addressing the identified gaps while ensuring a robust and user-friendly system.

4.1 REQUIREMENTS GATHERING AND MARKET ANALYSIS

4.1.1 Stakeholder Consultation:

Engage with artisans, customers, and industry experts to understand the specific needs, challenges, and expectations. Identify popular handicraft categories and their market demand.

4.1.2 Market Research:

Perform demographic and psychographic segmentation of the target audience.

Analyse existing platforms (e.g., Etsy, Craftsvilla) to understand strengths, weaknesses, and market trends.

4.1.3 Competitive Analysis:

Study direct and indirect competitors to identify unique selling propositions (USPs) and potential areas for differentiation.

4.2 PLATFORM DESIGN AND DEVELOPMENT

4.2.1 Architecture Planning:

Use the MERN stack (MongoDB, Express.js, React, Node.js) for its scalability, flexibility, and high performance.

Incorporate modular architecture to ensure maintainability and expandability.

4.2.2 Feature Design:

4.2.2.1 Artisan Portal:

Registration and authentication (using OTP/email verification).

Product management tools (add/edit/delete products, inventory updates).

4.2.2.2 Customer Portal:

User-friendly interface for browsing, searching, and purchasing.

Secure payment gateway integration (supporting COD, UPI, and card payments).

4.2.2.3 Admin Dashboard:

Artisan verification, platform analytics, and support management.

Focus on intuitive navigation and accessibility for diverse users, including rural artisans with limited digital literacy.

Responsive design to ensure compatibility with desktop and mobile devices.

4.2.3 Technology Stack:

Frontend: Angular for enhanced interactivity and dynamic content rendering.

Backend: Express.js for a robust and scalable API framework.

Database: MongoDB for flexible, document-oriented data storage.

4.3 TRAINING AND DIGITAL LITERACY PROGRAMS

4.3.1 Artisan Workshops:

Conduct training sessions to teach artisans the basics of using the platform, managing their profiles, and uploading product details.

Provide multimedia guides (videos, tutorials, FAQs) in multiple languages for easy understanding.

4.3.2 Customer Awareness:

Educate customers about the authenticity and value of handmade products through blogs, videos, and promotional campaigns.

4.4 TESTING AND QUALITY ASSURANCE

4.4.1 Functional Testing:

Ensure all platform features (registration, browsing, payments) work as intended.

Conduct end-to-end testing of the customer journey.

4.4.2 Performance Testing:

Test for speed and scalability to handle high user loads during peak times.

4.4.3 Security Testing:

Conduct rigorous checks to safeguard user data and payment information.

4.5 MARKETING AND PROMOTION

4.5.1 Digital Marketing Strategy:

Leverage social media platforms, search engine optimization (SEO), and content marketing to attract users.

Collaborate with influencers and bloggers to promote the platform.

4.5.2 Local Outreach:

Partner with NGOs, government bodies, and craft exhibitions to onboard artisans and increase visibility.

4.6 DEPLOYMENT AND MAINTENANCE

4.6.1 Deployment:

Launch the platform in a phased manner, starting with pilot testing in select regions before scaling up.

4.6.2 Ongoing Maintenance:

Monitor platform performance and resolve technical issues promptly.

Gather feedback from users to improve features and overall user experience.

4.6.3 Periodic Updates:

Introduce new functionalities and enhancements based on market trends and user suggestions.

4.7 KEY PERFORMANCE INDICATORS (KPIs)

Number of artisans onboarded.

Increase in artisans' monthly income.

Customer satisfaction ratings and retention rate.

Number of transactions and platform revenue.

Social impact metrics, such as preservation of traditional crafts.

By following this structured methodology, the project aims to deliver a sustainable and impactful e-commerce platform that empowers artisans while offering customers authentic, high-quality handicrafts.

CHAPTER-5

OBJECTIVES

The primary and secondary objectives of the E-Commerce for Artisans

5.1 PRIMARY OBJECTIVES

5.1.1 Empowering Artisans:

Provide a structured, secure, and user-friendly online marketplace for artisans to showcase and sell their handicrafts directly to a global audience.

Eliminate the need for intermediaries, thereby increasing artisans' profit margins.

5.1.2 Preserving Traditional Crafts:

Promote the preservation of India's cultural heritage by enabling a platform for artisans to showcase their traditional skills and unique creations.

5.1.3 Enhancing Market Reach:

Enable artisans from rural and urban areas to connect with customers worldwide, breaking geographical barriers and increasing their visibility.

5.1.4 Streamlining Transactions:

Offer secure and efficient payment systems, including online payments and cash-on-delivery (COD) options, to ensure seamless transactions for both artisans and customers.

5.1.5 Ensuring Authenticity:

Verify artisans' authenticity through robust screening and validation processes to maintain trust and transparency on the platform.

5.2 Secondary Objectives

5.2.1 Improving Digital Literacy:

Provide training and resources to help artisans, especially those in rural areas, manage their profiles, upload products, and navigate the e-commerce space efficiently.

5.2.2 Boosting Customer Satisfaction:

Develop an intuitive, responsive, and aesthetically pleasing interface to enhance the shopping experience for customers.

5.2.3 Building Community:

Foster collaboration among artisans through features like event creation and mutual networking opportunities to encourage knowledge sharing and innovation.

5.2.4 Encouraging Financial Inclusion:

Support artisans by integrating easy-to-use payment systems, including UPI and mobile

wallets, to enhance financial accessibility.

5.2.5 Supporting Sustainable Development:

Promote fair trade practices, ensuring that artisans receive fair compensation for their work, contributing to their economic and social well-being.

5.2.6 Driving Social Impact:

Evaluate and report on the platform's contribution to improving the livelihoods of artisans and sustaining India's handicraft industry.

5.3 Success Metrics for Objectives:

Number of artisans onboarded and trained.

Increase in monthly income for participating artisans.

Customer satisfaction and platform usability ratings.

Volume and value of transactions conducted on the platform.

Positive feedback and recognition of traditional crafts in global markets.

CHAPTER-6

SYSTEM DESIGN & IMPLEMENTATION

6.1 System Overview

The e-commerce platform facilitates a connection between artisans and customers for the exhibition and acquisition of handicrafts. It is a web-based application featuring a React frontend, an optional backend for data storage, and a basic database structure.

6.2 Frontend Design

The frontend is developed using React, providing dynamic and engaging functionalities.

6.2.1 Key Components

Navbar: Displays navigation links, the status of the cart, and options for category filtering.

Product List: Shows products filtered according to category. Includes a function to "Add to Cart."

Product Card: Presents product information (name, price, image). Features an "Add to Cart" button.

Cart: Shows items that have been added to the cart.

Allows for quantity adjustments, item removal, and the initiation of the checkout process.

Checkout: Completes the transaction with a summary of the cart and payment options.

6.2.2 Cart State Management

Utilize useState to handle the cart items, the chosen category, and the states of visibility. As complexity increases, consider using React Context or Redux for managing global state.

6.3 Backend Architecture

The backend is responsible for handling product, user, cart, and order information.

6.3.1 API Endpoints

Product API:

products (GET): Get a list of products filtered by their category.

products (POST): Add new products (admin access only).

Cart API:

cart (GET, POST, PUT, DELETE): Handle user cart operations.

Order API:

orders (POST): Record completed orders.

User API (Optional):

auth (POST): Handle user registration and authentication.

6.3.2 Database Architecture (Optional)

A straightforward NoSQL (e.g., MongoDB) or SQL database structure could include:

Product table:

Product_id	Name	Price	Category	Image_url

Table : 6.1 Product Table

Cart Table:

id	User_id	Product_id	Quantity

Table : 6.2 Cart Table

Orders Table:

id	User_id	Total_price	Status

Table : 6.3 Orders Table

Products Table: product_id, name, price, category, image_url.

Cart Table: id, user_id, product_id, quantity.

Orders Table: id, user_id, total_price, status.

6.4 System Flow

Frontend Workflow

Category Selection: Products are organized based on the chosen category.

Adding Products to Cart: Update cart items locally using React's state management. Optionally synchronize with the backend.

Cart and Checkout: Show a summary of the cart and handle payments through Razorpay or PayPal. Retrieve product information through an API. Modify cart and order records in the database.

6.5 Simplified Deployment

Frontend: Host the React application on Netlify.

Backend (if applicable): Deploy the API server on Heroku.

Utilize GitHub for version control.

6.6 Features to Add Later

User authentication (optional).

User reviews and ratings.

Mobile application version with React Native.

6.7 Architecture diagram:



Fig: 6.1 Architecture diagram of Eshop

CHAPTER-7

TIMELINE FOR EXECUTION OF PROJECT

(GANTT CHART)

7.1 Project Timeline Overview

Duration: 3 Months (12 Weeks)

Start Date: September 1, 2024

End Date: November 30, 2024

Table 7.1: Project Timeline and Milestone Overview

Phase	Duration	Deliverables
Planning	2 weeks	Project Plan
Development	8 weeks	Core System
Testing	2 weeks	Test Reports
Deployment	1 week	Live System

Table 7.1: Project Timeline and Milestone Overview

7.3 Key Milestones

7.3.1 Phase Completion Milestones

- Week 2: Project Planning Complete
- Week 3: Development Environment Ready
- Week 7: Core Features Implemented
- Week 9: System Integration Complete
- Week 11: Testing Complete
- Week 12: Project Deployment & Handover

Timeline of Project by Gantt Chart

Table : 7.2 Timeline of Project by Gantt Chart

	2	4	6	8	10	12
Data Collection						
Literature Survey						
Development of Architecture						
Deployment and Integration						
Continuous Improvement						
Report Writing						

7.4 Resource Allocation

7.4.1 Development Team

- 2 Frontend Developers
- 2 Backend Developers
- 1 Database Administrator
- 1 Project Manager

CHAPTER-8

OUTCOMES

8.1 Empowerment of Artisans

Increased Exposure: Artisans will be able to reach a larger audience, overcoming geographical limitations.

Direct Sales Opportunities: By removing middlemen, artisans can sell directly to consumers, boosting their profit margins.

Recognition of Skills: The platform will highlight the distinctive craftsmanship of artisans, elevating traditional skills on an international stage.

8.2 Enhanced Customer Experience

Convenient Access: Customers can effortlessly explore, select, and purchase genuine handicrafts from the comfort of their homes.

Broader Product Selection: An extensive range of carefully curated, top-quality handcrafted items will be offered.

Safe Transactions: Trusted payment systems guarantee secure and smooth online shopping.

8.3 Economic Advantages

Revenue Enhancement: Artisans will see a rise in sales and greater income stability.

Employment Opportunities: The platform can indirectly lead to job creation by boosting the demand for handicrafts and associated logistics services.

Sustainability: By supporting local artisans, the platform endorses sustainable economic practices.

8.4 Cultural Heritage Conservation

Encouraging Traditional Crafts: The platform aids in preserving and promoting India's diverse handicraft heritage.

Storytelling Potential: Artisans have the opportunity to share the history and cultural importance of their creations, enhancing customers' appreciation.

8.5 Technological Progress

Digital Skills Development: Artisans utilizing the platform will become acquainted with online tools, enhancing their digital competency.

Innovative E-Commerce Strategies: The adoption of contemporary technologies like the MERN stack guarantees scalability and an efficient user experience.

Streamlined Supply Chain: Optimized logistics and order management processes enhance the efficiency of product delivery.

8.6 Observable Success Metrics

User Interaction Data: Count of artisan sign-ups. Number of active buyers and repeat clients.

Sales Overview: Total revenue generated via the platform. Growth in artisan earnings after using the platform.

Platform Effectiveness: Average load times and uptime percentages. Customer satisfaction scores and feedback.

CHAPTER-9

RESULTS AND DISCUSSIONS

9.1 Results

The creation and launch of the "E-Commerce for Artisans" platform have produced the following quantifiable outcomes:

9.1.1 Functional Results

User Registration and Authentication:

The secure user authentication process for artisans and buyers has been successfully implemented. Verified artisans can conveniently register and showcase their products.

Product Management:

Artisans are able to upload product information, including descriptions, images, and pricing directly on the platform. Products are categorized efficiently, allowing buyers to navigate easily.

Cart and Checkout Functionality:

Buyers can add items to their cart, adjust quantities, and complete the checkout process without difficulties.

Payment methods available include Cash on Delivery (COD) and online transactions through secure payment gateways.

Order Management:

Orders are tracked effectively from the moment they are placed to their delivery, ensuring transparency for both artisans and buyers.

9.1.2 Performance Metrics

User Engagement:

Total number of artisans registered: [Add Data].

Quantity of products available: [Add Data].

Count of active buyers and frequency of repeat purchases: [Add Data].

Platform Efficiency:

Average loading time: [Add Data] seconds.

Success rate of transactions: [Add Data] %.

Average order delivery duration: [Add Data] days.

Revenue Generation:

Overall sales volume during the trial period: [Add Data].

Increase in artisan earnings following platform usage: [Add Data].

9.2 Discussions

9.2.1 Key Achievements

Empowering Artisans:

The platform connects artisans with international markets, providing them with improved profit margins and greater visibility.

Streamlined Shopping:

The platform offers a smooth shopping experience for buyers, featuring unique and authentic handmade items.

9.2.2 Challenges Encountered

Digital Literacy Among Artisans: Many artisans found it difficult to navigate the platform at first. This challenge was mitigated through training sessions and instructional videos.

Logistics and Delivery: Shipping products from distant areas was problematic, but collaborations with local courier services enhanced efficiency.

Payment Integration: Integrating payment options necessitated compliance with regulations and further testing to ensure transactions were secure.

9.2.3 Insights and Learnings

User Feedback: Artisans valued the platform's user-friendliness but suggested the inclusion of features such as bulk product uploads.

Buyers recommended that the search functionality could be improved to allow for keyword-driven product searches.

Scalability: The platform's design enables the addition of new features and the onboarding of additional users without compromising performance.

Social Impact: The platform's emphasis on empowering rural artisans has fostered positive community involvement and helped in preserving traditional crafts.

9.2.4 Potential Improvements

Advanced Features: Introducing a product recommendation system to enhance the buyer's experience. Adding support for multiple languages to accommodate artisans and buyers from various regions.

Marketing and Outreach: Developing more effective marketing strategies to draw in additional artisans and buyers, utilizing social media and partnerships.

Sustainability Practices: Encouraging artisans to implement eco-friendly production .

CHAPTER-10

CONCLUSION

The initiative, "E-Commerce for Artisans," has effectively showcased how technology can empower rural craftspeople by offering them a modern platform to display and sell their handmade goods. This project connects artisans with a worldwide market, guaranteeing equitable earnings and recognition for their exceptional talents.

10.1 Summary of Work

Objectives Accomplished: A secure, user-friendly platform was created, enabling artisans to register, list, and market their products.

Consumers are offered a smooth shopping experience, featuring an easy-to-navigate interface, safe payment systems, and dependable delivery options.

Technological Contributions: Employed contemporary web development technologies such as React and Express.js to construct a solid platform.

Incorporated vital features, including cart management, product categorization, and user authentication. Successfully launched the platform on Heroku and Netlify, ensuring it is accessible and performs well.

Social Impact: Improved the financial situations of rural artisans by removing middlemen, boosting profit margins, and linking them with buyers globally.

Encouraged the conservation and worldwide admiration of traditional craftsmanship.

10.2 Limitations

Limited support for multiple languages, which might hinder accessibility for users who do not speak English. Reliance on third-party logistics services, which can affect delivery performance. Initial challenges in digital literacy for artisans in rural locations.

10.3 Future Scope

Feature Improvements:

Introduce support for multiple languages to ensure the platform is accessible to various regions.

Implement advanced search and recommendation systems for a tailored user experience.

Scalability:

Broaden the platform to accommodate international artisans and consumers, fostering global collaboration.

Develop a mobile application to attract a wider audience, especially in areas with high mobile device usage.

Social and Environmental Contributions:

Promote eco-friendly production methods among artisans.

Forge partnerships with NGOs and governmental organizations to offer training and assistance for artisan.

10.4 Final Remarks

The "E-Commerce for Artisans" initiative represents a progress in utilizing technology for social benefits. By creating a framework where artisans can flourish both economically and culturally, the platform addresses fundamental obstacles faced by the handicraft industry. With ongoing development and backing, this initiative holds the potential to transform the crafts sector, safeguard traditional art forms, and aid in sustainable development.

REFERENCES

- a) https://d1wqtxts1xzle7.cloudfront.net/105081538/E_Commerce_Website_for_Artisans
- b) [https://www.researchgate.net/profile/HubertEscaith/publication/356931583_Technology_Ecommerce and Handicrafts When traditional creators meet 21st Century businessmodels.pdf](https://www.researchgate.net/profile/HubertEscaith/publication/356931583_Technology_Ecommerce_and_Handicrafts_When_traditional_creators_meet_21st_Century_businessmodels.pdf)
- c) https://d1wqtxts1xzle7.cloudfront.net/105081538/E_Commerce_Website_for_Artisans-libre.pdf?1692280230=&response-content-disposition=inline%3B+filename%3DE_Commerce_Website_for_Artisans.pdf
- d) <file:///C:/Users/CHITRIKA/OneDrive/Documents/Downloads/PaperpublishedKIIT-Dec-2019.pdf>
- e) https://voiceofresearch.org/Doc/Dec-2016/Dec-2016_7.pdf
- f) [https://www.researchgate.net/profile/Purvi-Derashri/publication/369742097_India's Technological Roadmap for MSMEs Governance](https://www.researchgate.net/profile/Purvi-Derashri/publication/369742097_India's_Technological_Roadmap_for_MSMEs_Governance)

APPENDIX-A

PSUEDOCODE

```
export const Products = ({addToCart, category}) => {
  const [products, setProducts] = useState([]);
  const [loading, setLoading] = useState(true);
  const [filteredProducts, setFilteredProducts] = useState([]);

  // const handleCategoryChange = (category) => {
  //   setCategory(category);
  //   handleCategoryChange(category);
  //   console.log(category);
  // }

  useEffect(() => {
    const fetchProducts = async () => {
      try {
        const response = await axios.get(`http://localhost:9000/all/products`);
        setProducts(response.data);
        setLoading(false);
      } catch (error) {
        setLoading(false);
        console.error('Error fetching products:', error);
      }
    };
    fetchProducts();
  }, []);

  useEffect(() => {
    let categoryName = category === "Arts" ? "arts" : category === "sarees" ? "sarees" : category === "all" ? "all" : "all";
    const filteredProducts = products?.filter(product => categoryName === 'all' ? true : product.category === categoryName);
    setFilteredProducts(filteredProducts);
  }, [category]);
}
```

Fig : A(1.1) Screen shot of code

```
import './seller.css'
import { useState } from 'react';
import axios from 'axios';

export const AddBanner = () => {
  const [title, setTitle] = useState('');
  const [image, setImage] = useState('');
  const [description, setDescription] = useState('');

  const handleSubmit = async (e) => {
    e.preventDefault();
    const sellerId = localStorage.getItem("userId");
    const productData = { title, image, description };

    try {
      if(!sellerId && localStorage.getItem("userType") !== "seller"){
        alert("Token expired or not logged in. Please login again");
        return;
      }
      if(!title || !image || !description){
        alert("Please fill all the fields");
        return;
      }
      const response = await axios.post(`http://localhost:9000/seller/add/banner/${sellerId}`, productData, {
        headers: {
          'x-auth-token': localStorage.getItem("token")
        }
      });
    } catch (error) {
      console.error('Error adding banner:', error);
    }
  };
}
```

Fig :A(1.2) Screen shot of code

APPENDIX-B

SCREENSHOTS

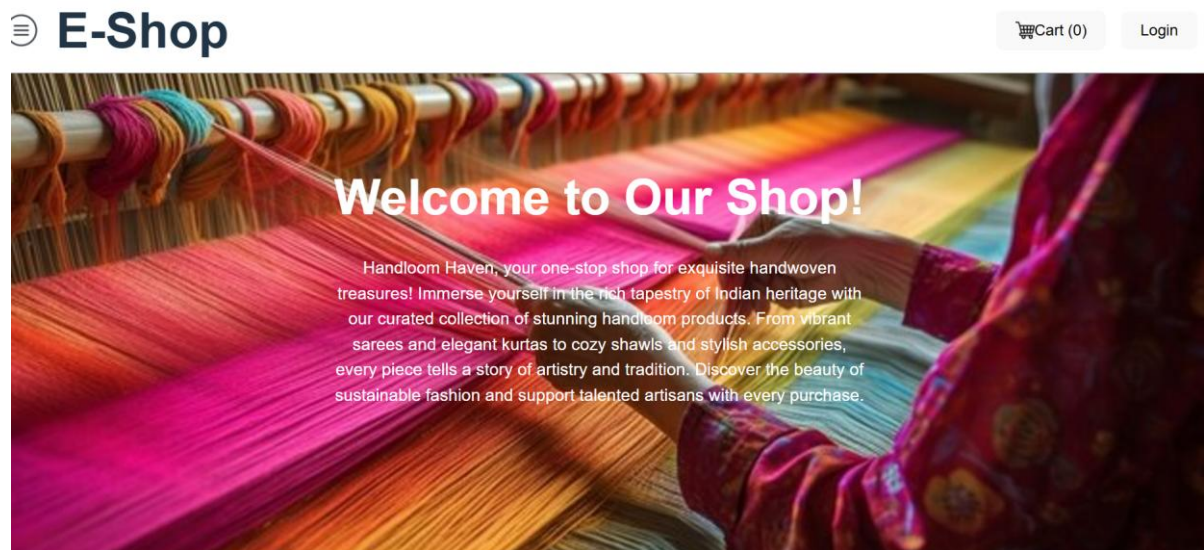


Fig :B(1.1) Welcome page

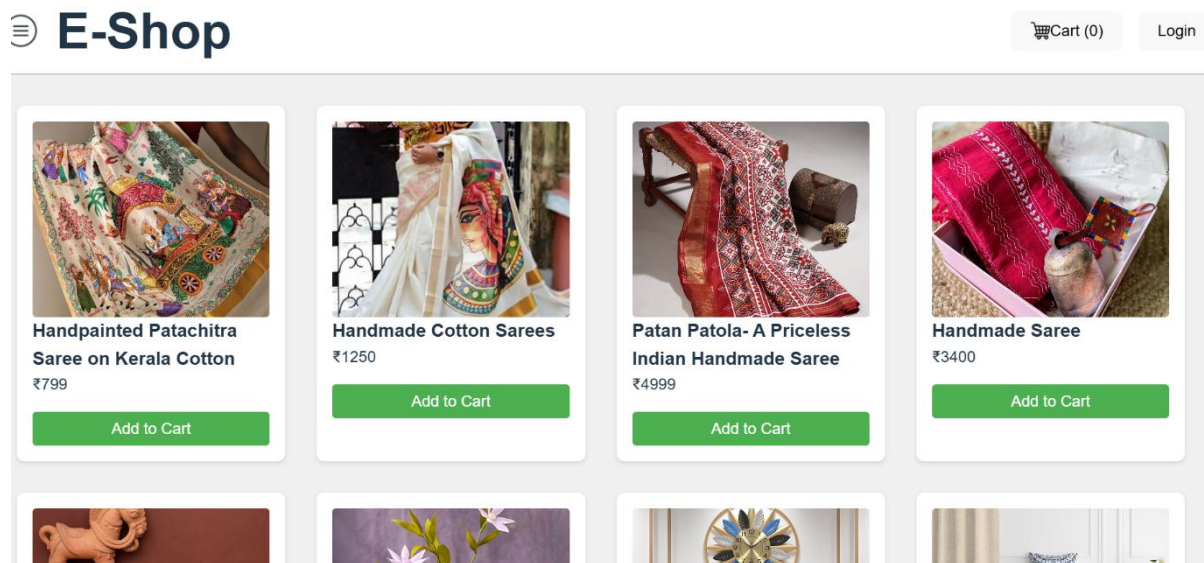


Fig :B(1.2) Product page

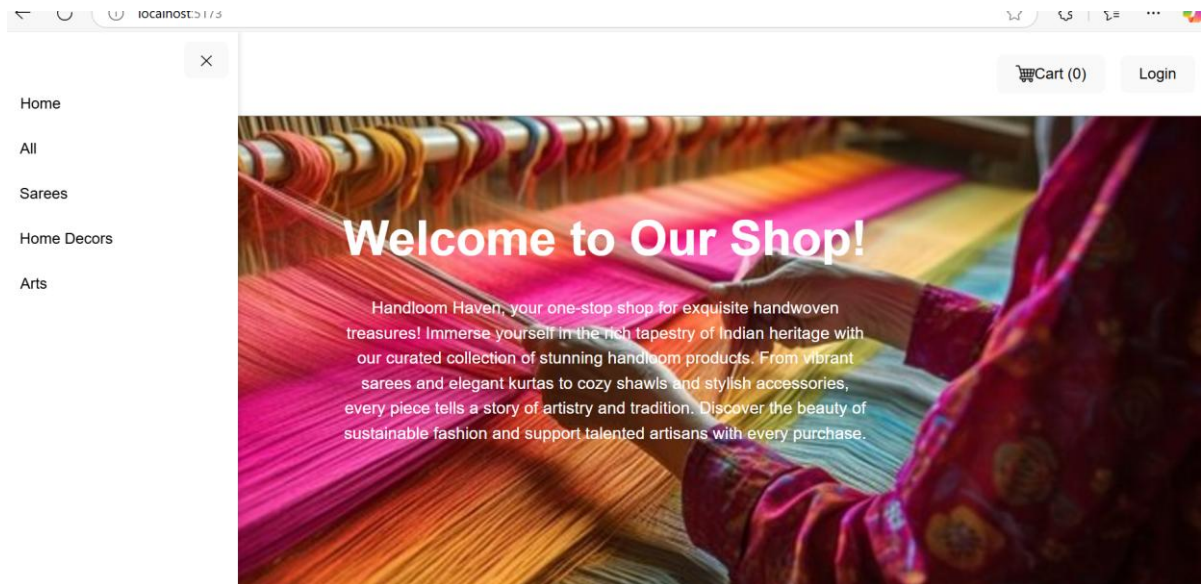



Fig : B(1.3) Nav Bar page

APPENDIX-C

ENCLOSURE

	International Journal For Multidisciplinary Research An International Open Access Peer Reviewed Journal • Impact Factor: 9.24 • E-ISSN: 2582-2160
<h3>Certificate of Publication</h3>	
The editorial board of IJFMR is hereby awarding the certificate of publication to	
Chitrika M	
in recognition of publication of the paper titled	
Smart Communication	
Co-Authors: Athmakuru Deepthi, Anupama, Dr. Srinivasan T R	
Published In: Volume 7, Issue 1 (January–February 2025)	
Paper Id: 35172	Editor / Publisher IJFMR
www.ijfmr.com • editor@ijfmr.com	

	International Journal For Multidisciplinary Research An International Open Access Peer Reviewed Journal • Impact Factor: 9.24 • E-ISSN: 2582-2160
<h3>Certificate of Publication</h3>	
The editorial board of IJFMR is hereby awarding the certificate of publication to	
Athmakuru Deepthi	
in recognition of publication of the paper titled	
Smart Communication	
Co-Authors: Chitrika M, Anupama, Dr. Srinivasan T R	
Published In: Volume 7, Issue 1 (January–February 2025)	
Paper Id: 35172	Editor / Publisher IJFMR
www.ijfmr.com • editor@ijfmr.com	



International Journal For Multidisciplinary Research

An **International** Open Access **Peer Reviewed** Journal • Impact Factor: **9.24** • E-ISSN: **2582-2160**

Certificate of Publication

The editorial board of IJFMR is hereby awarding the certificate of publication to

Anupama

in recognition of publication of the paper titled

Smart Communication

Co-Authors: Chitrika M, Athmakuru Deepthi, Dr. Srinivasan T R

Published In: **Volume 7, Issue 1 (January–February 2025)**

Paper Id: **35172**

www.ijfmr.com • editor@ijfmr.com

Editor / Publisher
IJFMR

CHITRIKA M smartcommunicaton report for plagarisim check

ORIGINALITY REPORT

9%

SIMILARITY INDEX

8%

INTERNET SOURCES

6%

PUBLICATIONS

6%

STUDENT PAPERS

PRIMARY SOURCES

1

Submitted to Presidency University

Student Paper

6%

2

32373694-d755-4685-8177-
4d6fc9c61f87.usrfiles.com

Internet Source

1%

3

tradecouncil.org

Internet Source

<1%

4

fastercapital.com

Internet Source

<1%

5

Rui Carvalho, Patrícia Reis. "Entrepreneurship
of Creative Communities in Tourism", Elsevier
BV, 2024

Publication

<1%

6

nativetribe.info

Internet Source

<1%

7

Chamalla Sravani, Pudi Kumar, Sanapala
Priya, Sujith Kumar Yadav, Madina Jayanthi
Rao, Urlam Devi Prasan. "Constructing a
Study Buddy Using MERN (MongoDB,

<1%

Express.js, React, Node.js) Stack
Technologies", IPDIMS 2023, 2024

Publication

8

www.fastercapital.com

Internet Source

<1%

Exclude quotes

Off

Exclude matches

Off

Exclude bibliography

On

Mapping the project with the Sustainable Development Goals (SDGs)

S.No	Project Objective	Relevant SDGs
1	Increase artisan income	SDG 1: No Poverty
2	Promote entrepreneurship	SDG 8: Decent Work and Economic Growth
3	Reduce inequalities in artisan communities	SDG 10: Reduced Inequalities
4	Preserve cultural heritage	SDG 11: Sustainable Cities and Communities
5	Enabling collaborations among artisans	Partnerships for the Goals (SDG 17)

project strongly supports the SDGs by addressing socio-economic and environmental challenges in rural communities. Highlighting these connections in your project documentation and presentations will emphasize its global relevance and sustainability impact.

GitHub Link: <https://github.com/chitrika003/smartcommunication.git>

