

Empowering Women through Craft: Design Development of Jute and Leather Multi-Utility Bags

*Reference: Nava Women Empowerment Centre, Bhadrachalam District,
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Abstract

In the heart of Palwancha and nearby villages like Jagganadhapuram, Gandhinagar, Vanamacolony, and Yanambile, women artisans are shaping a greener tomorrow one jute bag at a time. These creative minds transform natural fibers into beautiful, functional designs that replace plastic and protect the environment. Through training initiatives by the Nava Women Empowerment Centre, rural women gain not only skills in cutting, stitching, and design but also confidence, independence, and financial security. Each handcrafted jute and leather product tells a story of sustainability, innovation, and community spirit. From sketch to stitch, their artistry blends tradition with technology, proving that craftsmanship is more than work it's empowerment. This initiative celebrates the harmony of design and purpose, where every bag made carries the touch of creativity, care, and a vision for an eco-friendly, empowered India.

My paper focuses on the native craft traditions of the Telangana regions Bhadradi, Kothagudem, Palvanacha, Khammam, and Hyderabad through a detailed field study. By combining traditional skills with modern sensibilities, jute and leather creations from these regions reflect aesthetic excellence, environmental consciousness, and cultural preservation, showcasing design as a catalyst for positive social transformation.

Key words: Craftsmanship's, Leather, Jute, Women empowerment, CAD design,

Abbreviations:

CLO3D: It is widely used for 3D garment design, virtual prototyping, and pattern visualization in fashion, textile, and accessories industries.			
DWCRA= (Development of Women and Children in Rural Areas)	Self-Help Groups = (SHGs)	CAD=(Computer-Aided Design)	Clo3d= Computerized 3D Clothing Visualization and Simulation Software
Nava Bharat Ventures (NBV)	Corporate Social Responsibility (CSR)	Nava Bharat Eye Centre (NBEC)	LV Prasad Eye Institute (LVPEI).

Table-1 : Abbreviations chart.²⁶

Introduction:

In the pilot study palvanacha nava limited women empowerment last 10 to 15 years In the process of making jute bags from to ten years, here women's training have to make real products that are harmful to the environment.

Surrounding villages Palakoyyathanda, Sekharambanjar, Erragunta, Ramaswamy gumpu, Karakavagu, Punukula, Pusugudem, Mulakalapally, Somulagudem, Laxmi devipalli etc. Here, these women have studied 8th grade and are providing them with free training for a month and are providing them with teaching opportunities. The idea is that if they make twin-strand bags fairly, they will do a lot of good. Since 2015, they have already provided financial security to approximately 1000+ above women, which is a great relief to the suffering in the village.

History: CSR Initiative of Nava Limited: Since its inception in 1975, Nava Bharat Ventures (NBV) has upheld its commitment to social responsibility through CSR programs focusing on Health, Education, Livelihood, and other community initiatives. The company promotes holistic development in rural and tribal areas near its facilities. Under its women empowerment initiatives, NBV conducts training in jute bag making, palm leaf baskets, embroidery, computer, and design courses across Bhadradi, Bhadrachalam, Palvanha, and Kothagudem divisions, offering free vocational education, certifications, and placements to enhance livelihoods. In 2011, NBV established the Nava Bharat Eye Centre (NBEC) at Paloncha in partnership with the LV Prasad Eye Institute (LVPEI) to provide equitable and affordable eye care. With advanced facilities and 10 rural Vision Centres, NBEC serves nearly one million underprivileged and tribal people, offering free diagnostic, surgical, and rehabilitation services strengthening both community health and social well-being.

Environment and Women Empowerment through Jute Bag Making Units

In addition to protecting the environment from plastic pollution, jute bag making units are successfully providing employment opportunities for the rural poor. Across India, many DWCRA and Self-Help Groups (SHGs) have come together to start new small-scale jute bag industries, encouraging women's participation and self-reliance. These SHGs have become strong pillars of women's empowerment at the village level. Many women have received hands-on training in jute bag production under the guidance of these groups.

In 2025, the Nava Group Institute, with the support of expert faculty, conducted specialized training programs at Kothagudem and Palvanha. After completing the training, participants established small jute bag units with financial assistance and loans of around ₹30,000. What began as small units with four to five members has gradually grown into sustainable enterprises. With continued government support in the form of raw materials, machinery, and subsidies, these units have expanded steadily, contributing to both environmental protection and rural women's economic empowerment.

Industry Great women support: Bhadradi, kothagudem district give to support to set up industry training required Nava Group Institute support. The

women in the unit will get training full-time and 3 to 6 month training. The women are happy that they are financially self-reliant and supporting their families. Nova group institute encouragement and receives us very well. Here, we do all the work ourselves, from cutting to stitching to finishing and printing. This is something that people are talking about.

Objective:

- To explore craftsmanship through the design and development of leather and jute bags.
- To study, innovate, and promote handcrafted leather and jute products, developing a design collection that reflects market trends.
- To support women empowerment in India by providing skill development, training, and opportunities in sustainable craftsmanship.

Methodology: This study primarily involves the collection of both primary and secondary data. Field research includes interviews with skilled craftsmen and artisans, alongside detailed documentation of their work in creating jute and leather utility products. Observations focus on traditional techniques, material usage, design processes, and the aesthetic and functional qualities of handcrafted items.

Review of literature: Swapna Akter: highlights that Bangladesh, known as the land of “Golden Fiber,” relies heavily on jute-based industries for economic growth. The article emphasizes that natural fiber products, particularly jute fabrics and designs, contribute significantly to revenue generation. Most industries in Bangladesh focus on the production, processing, and design of jute products, which play a crucial role in both the country’s economy and global jute markets. The study also discusses challenges in modernization, technology adoption, and value addition that need to be addressed to strengthen the jute sector further.¹

Alok Nath Roy: highlights that India primarily produces two types of jute fiber: Corchorus and Capsularis Linn, both important as economic crops. Jute fibers are widely used for packaging materials and various utility products such as laptop bags, shopping bags, and valets, providing convenience and durability. These fibers are lightweight, easy to carry, and simple to stitch, making them highly suitable for handicrafts and industrial applications. Their versatility and eco-friendly nature make jute an essential material in India’s fiber and crafts sector.²

Sweety Shahinur: focuses on the development of jute fibers and their polymer-based biocomposites, emphasizing improvements in physical, mechanical, and thermal properties. The study highlights how microcrystalline cellulose derived from jute enhances polymer composites, reducing carbon footprints and promoting eco-sustainability. Jute's natural strength, biodegradability, and adaptability make it ideal for multidimensional product development, especially in biocomposite and advanced material applications, where it offers both environmental and industrial advantages.³

Rewat Suksikarn: emphasizes the development of traditional banana fiber craft products through community-based design collaboration. The study highlights how traditional weaving techniques were used to create unique marketable products, including table accessories and home décor items. The research demonstrates how banana fiber, similar to jute fiber in texture and technology, can be effectively utilized for sustainable product design. This collaboration between designers and local artisans promotes innovation, cultural preservation, and rural economic growth through eco-friendly materials and traditional craftsmanship.⁴

Peu: The market prospect and export potential of diversified jute products in Bangladesh are growing steadily. Rising domestic consumption, coupled with global demand for eco-friendly products, has increased the value of jute-based goods. Government initiatives to improve infrastructure and provide financial support are encouraging investment in the sector. With strategic marketing and collaboration among industry players, Bangladesh can enhance competitiveness in international markets. Export opportunities, especially in environmentally conscious regions like China and Europe, are significant. Strengthening production capabilities and supporting local artisans will boost revenue generation, positioning Bangladesh as a leading supplier of sustainable jute products globally.⁵

Interviews:

Mr. M. Ramesh, Master Trainer, Nava Women Empowerment Centre said: It is a great pleasure to provide training at the Nava Women Empowerment Centre. Teaching new techniques, guiding women in jute bag making, and developing market-oriented designs gives me immense satisfaction. The trainees here work with dedication and care, maintaining high quality in their products. Our program includes 14 days of basic training, 21 days of advanced training, and 7 days of professional design training. After completing the course, participants are offered placement opportunities in cities like Hyderabad and Khammam. Those interested in entrepreneurship can avail bank loans to start their own ventures. During the training period, we provide all necessary materials and food allowances. Many women from nearby villages actively participate and benefit from these programs.⁶

Mrs. Saritha devi , Jute bag Trainer, Nava Women Empowerment Centre

said: We are manufacturing jute bags to meet market demand and are introducing new models. A shop has been set up in Vanama Colony, Palvancha town, and we are receiving orders from outside areas. Efforts are being made to reduce reliance on plastic. This initiative has generated more orders, ensured quality work, and created employment opportunities for many people.⁷

Mrs. Sk.Naseema, Jute bag Trainer, Kothagudem, Nava Women Empowerment Centre said: The Nava Women Empowerment Centre in company's employees are using the uniforms of their for family needs. We also receive special orders on the occasion. We are getting orders for uniforms in large quantities. We are getting them in the warehouse.⁸

Manager, Nava Women Empowerment Centre said:, Palvancha: Here women empowerment wonderfull wok done meny of new designs they creating jute products usefull for society have been engaged in jute bag making and creating bags since 2015. There is meny product creating and designing various design jute bags , laptopbags , shopping bags etc. they have made. Them products wonderfull aesthetic and various country and abroad. They are making and sending local market awearness created Save enviornment no use plastic bags use jute ags in these words in them modernate in the society them products.⁹

Mrs.Padama, Trainee, Palvancha, Nava Women Empowerment Centre said: It has nothing to do with education. If you want to learn this job, you have to be interested, focused and diligent. All you need to do is get trained for it. I am very interested in training on jute bags at the Women's Empowerment Center. Many families are helping them in making products. Where is my pain? Women are not wasting their free time and are creatively designing things like home decorations, duke bags, baskets made of palm leaves, etc. I am preparing many people for self-help and family maintenance. It is very good to see you working and you are becoming financially strong.¹⁰

Mrs. Venkata Ramana, Trainee, Nava Women Empowerment Centre, Palvancha, said: After completing my household work, I decided to use my free time productively by learning jute bag making. During training, I learned to create various types of bags and successfully implemented those skills. Now, I am working towards becoming self-reliant by securing orders and supporting my family both financially and emotionally.¹¹

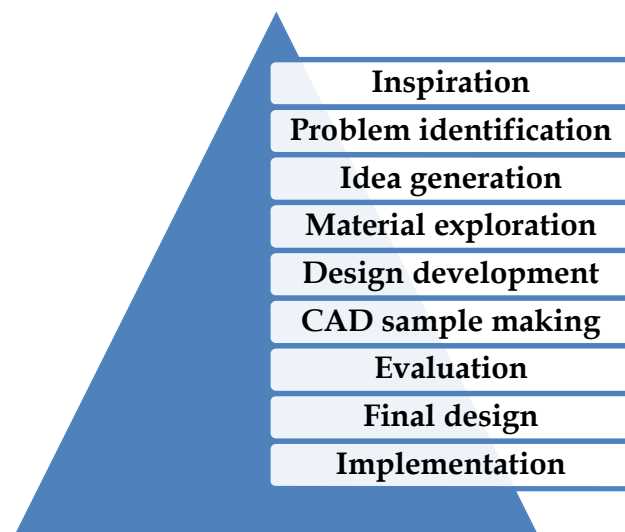
Mrs. B. Aruna, Assistant Trainer, Nava Women Empowerment Centre, Palvancha,said: Educated women often move to cities for work, but many rural women wish to stay in their villages and earn a living. Through our training programs, we aim to empower them with skills for self-employment. I am confident that the knowledge I have gained here will help me create jobs for others. My goal is to produce and market jute bags locally, promoting both

economic independence and community development.¹²

Jute Bag Making Process: The jute bag-making process begins with selecting good-quality jute fabric. The material is sometimes laminated for strength and waterproofing. Using CAD software, designs and patterns are created for accuracy. The fabric is then cut according to measurements, followed by eco-friendly printing with logos or designs. Next, pieces are stitched together, and handles are attached. After stitching, each bag undergoes finishing, trimming, and quality checking to ensure durability. Finally, the bags are pressed, packed, and dispatched for sale. This eco-friendly process supports environmental conservation and provides employment opportunities, especially for women in rural areas.

Design development process: Invention of Design – Product Sketch Illustrations, Rendering, and CAD Design: The design development process resulted in innovative product concepts through detailed sketch illustrations, digital renderings, and CAD design applications. Initial hand-drawn sketches helped visualize form and function, while digital rendering enhanced material texture, color, and surface detailing. The integration of CAD technology provided technical precision in pattern development, structure, and production planning. This combined approach not only improved accuracy and creativity but also reduced material wastage and enhanced design presentation. The outcome demonstrates the effective use of technology in transforming traditional craftsmanship into modern, sustainable product design solutions.

Creative Design process:

Flow chart -1: Creative Design Process.²¹

Jute product rendering process: (Sample-1) jute Scissors case holder **Pencil Sketch and Rendering Process:** A jute ear pad case of $12 \times 2.5 \times 6$ cm was first drawn using a pencil sketch to outline its shape and structure. After detailing, poster colors were applied for texture and natural jute tones. The rendering highlighted shadows, stitches, and zipper details, enhancing the realistic appearance.

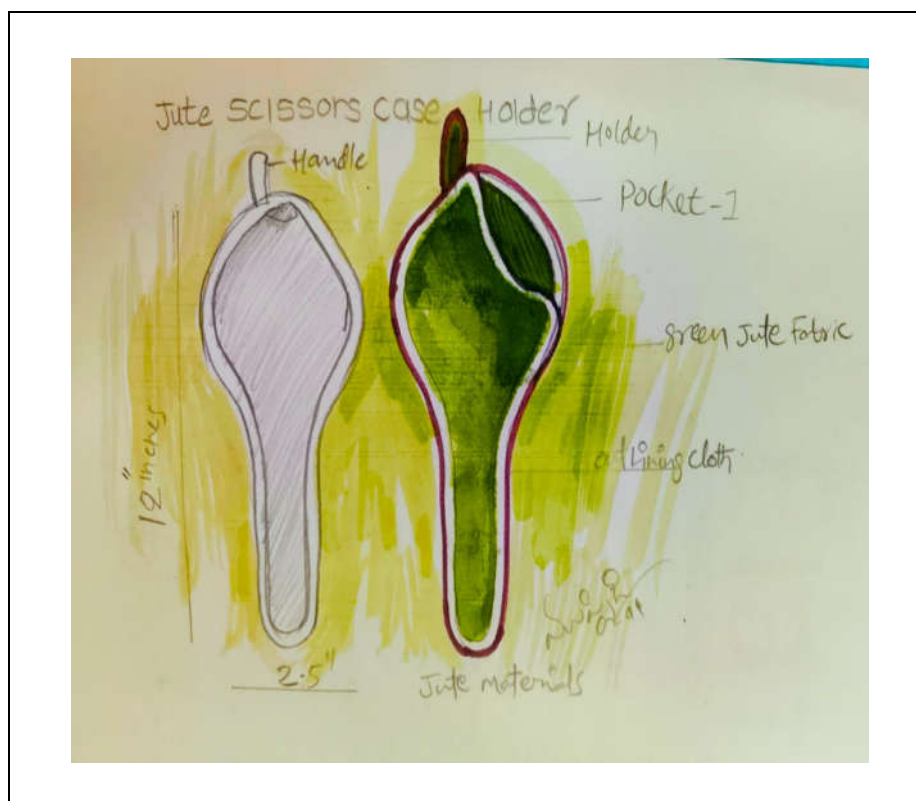


Image – 1 : Product Illustrations: Sketches, Renderings, and Detailed Development of Leather Goods and Accessories Design.¹³

CAD rendering in 3D Modeling: The jute ear pad case of $12 \times 2.5 \times 6$ cm was developed using CAD 3D modeling to visualize its form and texture. The model showcased material properties, stitching, and zipper placement. Rendering tools added realistic lighting, shadows, and surface finishes, giving a lifelike virtual prototype before production.

Design Process: (Sample 2)

Result: Invention of Design – CAD Design

The introduction of CAD (Computer-Aided Design) technology in jute bag making has revolutionized the design process. It allows for precise pattern creation, accurate measurements, and innovative product development. Designers can now visualize, modify, and finalize designs digitally before production, reducing material wastage and time. The use of CAD enhances creativity, improves efficiency, and ensures uniform quality in every bag. This technological advancement marks a significant step toward modernizing traditional craftsmanship and promoting sustainable, design-driven industries for women's empowerment and rural development.

Creative Process: Small Jute Products: The creative process begins with conceptual sketches inspired by form, function, and material. Ideas are refined through digital rendering and material exploration. Designers develop detailed patterns, experimenting with textures, shapes, and finishes. Each stage in sketching, modeling, and prototyping transforms imagination into functional and aesthetic jute accessories that balance craftsmanship and innovation. Before starting the product design, measurements of fabric, materials, threads, buttons, and accessories are carefully studied to enhance design understanding. After sketching, the CAD process based on digital color rendering helps visualize the product with technical accuracy. Various design views support material optimization, cost estimation, and efficient planning.

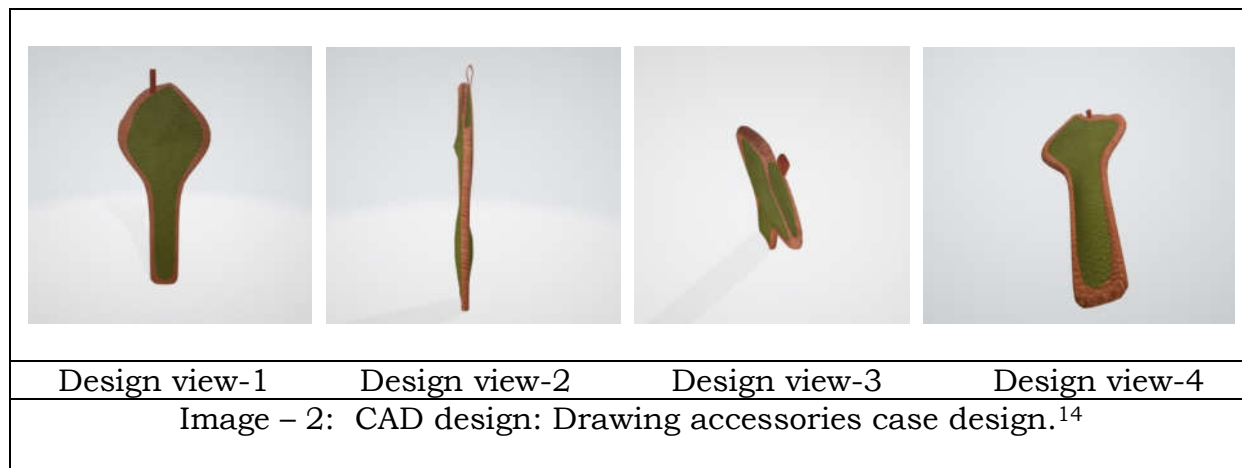
Uses: These illustrations and CAD designs improve the functionality, aesthetics, and feasibility of the product. They ensure proper budgeting, reduce material wastage, and provide a clear understanding of the overall design process, enhancing both creativity and production efficiency.

Creative Design Process:

In my research product design will implement in these aspect The creative design process for jute bags follows a systematic approach from concept to product. Product design laboratory in side construction and lab testing final

product side and CAD lab and It starts with research and idea development, exploring materials and creating prototypes. After testing and refinement, the final bag is produced with quality and sustainability, showcasing innovation, aesthetics, and functionality to meet user needs.

CAD design: Drawing accessories Jute scissors case holder design



Jute Bag Raw materials and tools:

SL.N	List of Material	Uses etc.
1.	Jute Fabric (hessian/burlap/jute canvas)	Used for the main body of the bag. Provides strength and structure. Can be plain, dyed, printed, or laminated.
2	Jute Fabric (hessian/burlap/jute canvas)	Used for handles, drawstrings, and decorative elements. Can be natural brown or dyed.
3	Jute Canvas / Rope	Specifically for handles, drawstrings, and decorative purposes. Natural brown gives a classic look.
4	Jute Rope	Used for the inner lining of the bag. Adds durability, prevents tearing, and gives a neat finish.
5	Lining Materials (cotton, polyester, non-woven)	Used as reinforcement to maintain bag structure.
6	Interfacing (cotton or polyester)	Used for reinforcing high-stress areas, such as the bottom corners of the bag.
7	Canvas Patches	Used for carrying the bag. Premium bags may use leather or faux leather straps.

8	Handles / Straps (jute ropes, braids, cotton webbing, canvas straps, leather/faux leather)	Used for bag closures to secure contents.
9	Zippers (nylon or metal)	Used as alternative closure mechanisms.
10	Buttons, toggles, magnetic snaps	Used for closing the bag or as decorative functionality.
11	Metal rings, D-rings, buckles –	Used for adjustable straps or attachments.
12	Fabric paint, block prints, screen printing supplies	Used for decorative designs on the bag surface.
13	Embroidery threads	Used for decorative stitching and patterns.
14	Beads, shells, fabric patches	Optional decorative embellishments for aesthetics.
15	Scissors / Rotary cutters	Used for cutting fabrics and threads.
16	Sewing machine / Hand stitching needles	Used for assembling the bag pieces.
17	Measuring tape / Rulers	Used for accurate measurement of fabric and components.
18	Tailor chalk / Fabric markers	Used for marking patterns or cutting lines.
19	Cutting mat	Used to protect surfaces while cutting fabric.
Table – 2: List of Jute Products, Raw Materials, and Tools.		

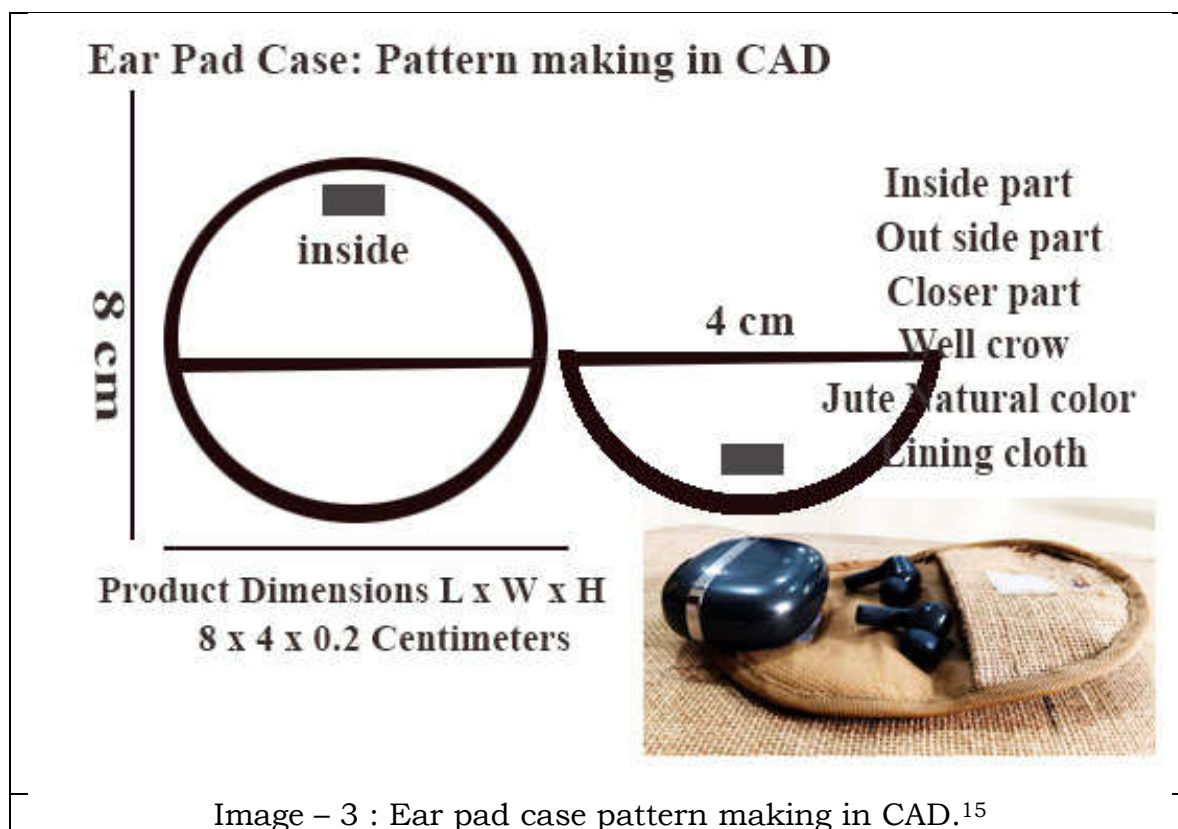
Making jute bag process:

The jute bag making process begins with raw material selection, choosing high-quality jute fabric for durability and eco-friendliness. The fabric is treated with a starch coating to enhance stiffness and finish. Next, design and pattern making define the bag's size, shape, and style. The fabric is then cut according to the pattern, ensuring accuracy and minimal wastage. Printing and designing follow, where logos, motifs, or decorative elements are added using eco-friendly inks. In the stitching and assembly stage, all parts—handles, zippers, and linings—are carefully sewn together. After assembly, finishing and quality checking are done to remove loose threads and inspect strength, stitching, and appearance. The bags are then ironed and pressed to achieve a neat and professional look. Finally, they undergo packing and dispatch, ready for distribution or sale, promoting sustainable and handmade craftsmanship.

Pattern making process:

The Ear Pad Case Pattern Design: The jute ear pad case pattern design focuses on creating a compact and protective cover for storing ear pads or earphones. The process begins with accurate measurement of ear pad size 8 x 4 x 0.2.cm and pattern drafting white paper board for the front, back, and side gusset. Material selection involves using soft yet durable fabrics like jute, leather, PU, or felt with lining for cushioning. The pieces are cut, stitched, and assembled neatly with a well crow, zipper or button closure. Decorative details lining cloth, outer lining patti, logos may be added for aesthetics. Finally, finishing and inspection ensure a stylish, functional, and durable ear pad case ready for daily use.

Pattern Making Design in CAD:



Product Final outcome:

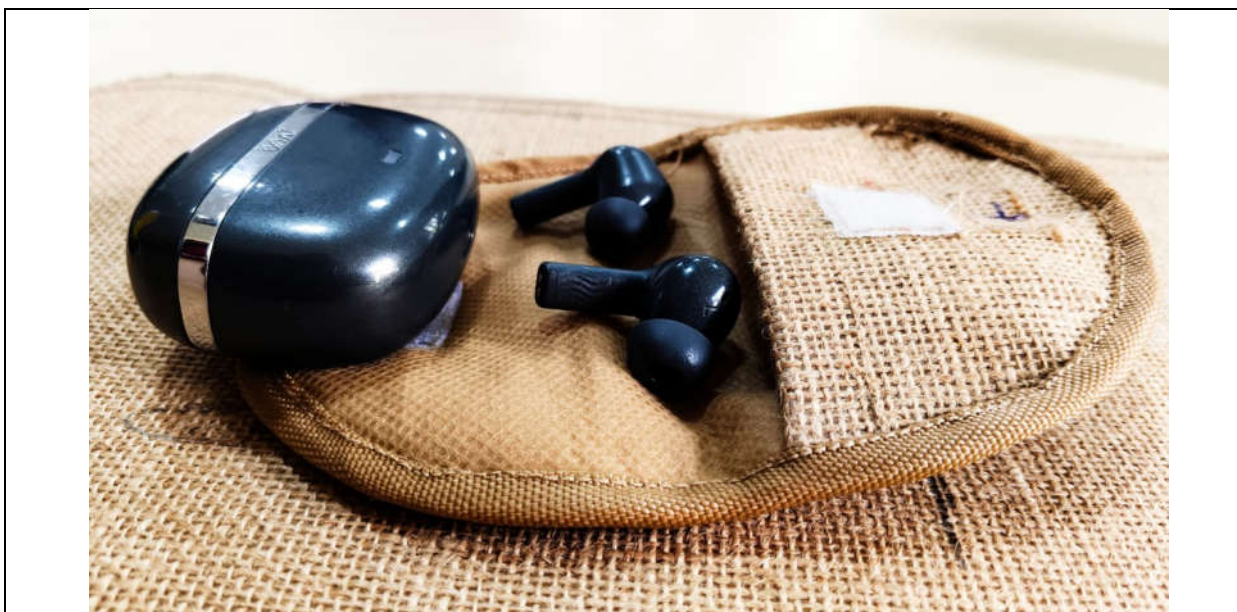
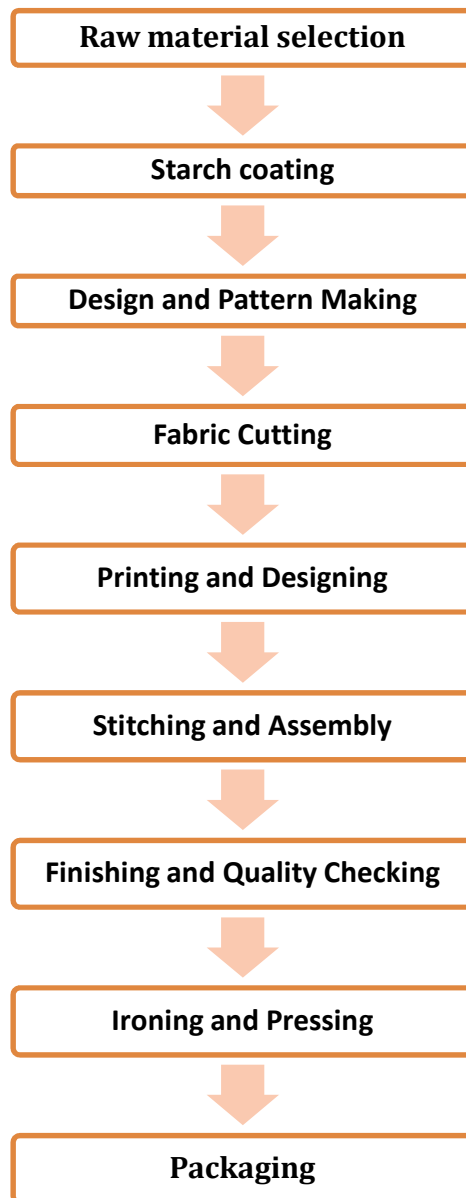


Image - 4: Final Product – Ear Pad Case - Jute Accessories Design Training Outcomes in Rural Women Empowerment.¹⁶

Product design making process



Flow chart 2: Eco friendly jute bag products making process.⁵

Students outcome & Design collections :



Image -5: women empowerment students' outcome in the training time. Jute-cum-leather product designing.¹⁷



Image - 6 : Final class outcomes : Exhibited final products various jute bags trainees and designer.¹⁸

Jute Bags Design Collection: Dimensions and Tools:

SL N	Jute Product/ size	Raw materials used	Tools & Equipment
1	Shopping Bag (40 × 35 × 10 cm)	jute fabric, cotton lining, zipper, handle straps	Scissors, sewing machine, measuring tape, tailor chalk
2	File Folder (35 × 25 cm)	Jute sheet, cardboard, fabric lining, Velcro/button	Cutter, ruler, glue, stitching needle
3	Laptop Bag (42 x 32 x 10 cm)	Laminated jute, foam sheet, zipper, handle strap	Sewing machine, scissors, iron, measuring scale
4	Hand Purse (25 × 18 cm)	Jute canvas, lining cloth, zip, magnetic snap	Needle, thread, scissors, marking tools
5	Gift Pouch (20 × 15 cm)	Dyed jute fabric, drawstring cord, beads	Rotary cutter, thread, sewing machine
6	Bottle Bag (35 × 12 cm)	Jute fabric, cotton webbing handle, base reinforcement	Cutter, measuring tape, stitching machine
7	File Cover (35 × 25 cm)	Printed jute, cardboard sheet, Velcro/button	Scissors, glue gun, ruler
8	Decorative Wall Hanging (45 × 30 cm)	Colored jute, embroidery thread, beads, shells	Embroidery needle, scissors, glue
9	Storage Basket (30 × 25 × 20 cm)	Jute rope, adhesive, cardboard base	Cutter, glue, measuring tools
10	Utility Pouch (22 × 10 × 8 cm)	Laminated jute, zipper, lining fabric	Sewing machine, tailor chalk, cutter
Table 3: Jute bag training student's outcome Women Empowerment: Jute Bag Designs – Dimensions & Tools.			

Conclusion:

The women of Bhadradi Kothagudem district are at the forefront of Nava Women Empowerment Centre, Palvanha and jute bag making, creating eco-friendly and sustainable products for weddings, schools, hospitals, and various daily needs. They have successfully combined traditional craftsmanship with modern design technology through helpful design for tools like CLO3D, Rhino CAD, Adobe Photoshop, Illustrator, and Corel DRAW, leading to advancements in pattern development, design accuracy, and production efficiency. Their use of zero-wastage natural jute materials supports environmental conservation and sets an inspiring example for future generations. Providing training to 30–50 women in handmade crafts, jute, and leather bag making can further expand this initiative and create new livelihood opportunities. Their collective effort not only promotes plastic-free living but also strengthens social responsibility, women empowerment, and employment generation. These

initiatives reflect how design innovation and digital technology can transform rural communities, making women self-reliant leaders and change makers in sustainable development.

Appendix:



Image - 7: Jute bag design training conducted in the garment construction lab during design classes.¹⁹



Image -8 : The lab experiment jute laptop bag was designed and developed under the guidance of **Dr. Rambabu Muppidi**, Accessories designer ,

Hyderabad , along with the active participation of students and instructors during the design training sessions.²⁰

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7. **Mrs. Saritha devi** , Jute bag Trainer, Nava Women Empowerment Centre, Palvanha,telangana,india.
8. **Mrs. Sk.Naseema**, Jute bag Trainer, Kothagudem, Nava Women Empowerment Centre, Palvanha,telangana,india.
9. **Manager**, Nava Women Empowerment Centre,Palvanha,telangana,india.
10. **Mrs.Padama, Trainee**, Palvanha, Nava Women Empowerment Centre, Palvanha,telangana,india.
11. **Mrs. Venkata Ramana**, Trainee, Nava Women Empowerment Centre, Palvanha, Palvanha,telangana,india.
12. **Mrs. B. Aruna**, Assistant Trainer, Nava Women Empowerment Centre, Palvanha,telangana,india.

Image:

13. Image – 1 : Product Illustrations: Sketches, Renderings, and Detailed Development of Leather Goods and Accessories Design.
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19. Image - 7: Jute bag design training conducted in the garment construction lab during design classes.
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21. Flow chart -1: Creative Design Process
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