

**INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH  
TECHNOLOGY****TRADITIONAL HAND EMBROIDERY AND SIMPLE HAND-WOVEN  
STRUCTURES FOR GARMENT MANUFACTURING USED IN SMALL SCALE  
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**ABSTRACT**

This study explores a field of textile craft, which incorporates the techniques of traditional hand embroidery design and a simple hand woven structure into construction processes of garment production to enhance the fortunes of the local fashion industry. The project was designed to have traditional and cultural significance, so as to provide a new dimension to local garment decorating processes. The results of the study revealed a wide possibility of creating and fashioning various simple hand woven structures of traditional significance into the production of garments. This provides innovative ways of actualizing new creative ideas for the progress of the local industry. The experiment revealed that with careful blending of yarns of various types, colors and sizes, very attractive and significant results can be achieved making it appropriate for use in garment decoration. The basic challenges encountered involved the variations in yarn sizes used, the long floats associated with some weave and embroidery styles and the limitations associated with the weave frame used for the project.

**Keywords:** Hand Embroidery, Weaving, Garments.**I. INTRODUCTION**

Embroidery was an important art in the Medieval Islamic world. The 17th-century Turkish traveler Evliya Celebi called it the "craft of the two hands". Because embroidery was a sign of high social status in Muslim societies, it became widely popular. In cities such as Damascus, Cairo and Istanbul, embroidery was visible on handkerchiefs, uniforms, flags, calligraphy, shoes, robes, tunics, horse trappings, slippers, sheaths, pouches, covers, and even on leather belts. Craftsmen embroidered items with gold and silver thread. Embroidery cottage industries, some employing over 800 people, grew to supply these items. In the 16th century, in the reign of the Mughal Emperor Akbar, his chronicler Abu al-Fazl ibn Mubarak wrote in the famous *Ain-i-Akbari*: "His majesty (Akbar) pays much attention to various stuffs; hence Irani, Ottoman, and Mongolian articles of wear are in much abundance especially textiles embroidered in the patterns of Nakshi, Saadi, Chikhan, Ari, Zardozi, Wastli, Gota and Kohra. The imperial workshops in the towns of Lahore, Agra, Fatehpur and Ahmedabad turn out many masterpieces of workmanship in fabrics, and the figures and patterns, knots and variety of fashions which now prevail astonish even the most experienced travelers. Taste for fine material has since become general, and the drapery of embroidered fabrics used at feasts surpasses every description.

The process used to tailor, patch, mend and reinforce cloth fostered the development of sewing techniques, and the decorative possibilities of sewing led to the art of embroidery. Indeed, the remarkable stability of basic embroidery stitches has been noted:

The art of embroidery has been found worldwide and several early examples have been found. Works in China have been dated to the Warring States period (5th–3rd century BC). In a garment from Migration period Sweden, roughly 300–700 AD, the edges of bands of trimming are reinforced with running stitch, back stitch, stem stitch, tailor's buttonhole stitch, and whip-stitching, but it is uncertain whether this work simply reinforced the seams or should be interpreted as decorative embroidery.



## II. LITERATURE REVIEW

In the year 2000, Pulse Microsystems introduced Stitchport, which is a server based embroidery engine for embroidery in a browser. This allowed for the factory automation of letter creation. Although they were not yet ready for it, this transformed the apparel industry by allowing manufacturers, stores, and end users, access to customized versions of the mass-produced garments and goods, they had been buying throughout their lives, with no margin of error.

In 2001, Tajima created heater-wire sewing machines, which were innovative, combination machines. In an environment that was finally read for the individuality that mass-customization allowed, the principles developed for Stitchport were adapted in 2008 for the creation of PulseID. PulseID allows for the automation of personalization, even on the largest of the industrial scale.

In 2013, Tajima released the TMAR-KC Series Multi-Head Embroidery Machine, equipped with a digitally controlled presser foot. The major embroidery machine companies, and software developers are continuing to adapt their commercial systems to market them for home use, for companies such as Janome, RNK, Floriani, Tacony Corporation, and many more. As costs have fallen for computers, software, and home market embroidery machines, the popularity for machine embroidery as a hobby has risen, and as such, many machine manufacturers sell their own lines of embroidery patterns. In addition, many individuals and independent companies also sell embroidery designs, and there are free designs available on the internet. History

Embroidery is the art or handicraft of decorating fabric or other materials with needle and thread or yarn. In this way, it has been practiced for decades.

The origin of embroidery can be dated back to Cro-Magnon days or 30,000 BC. During a recent archaeological find, fossilized remains of heavily hand-stitched and decorated clothing, boots and a hat were found.

In Siberia, around 5000 and 6000 B.C. elaborately drilled shells stitched with decorative designs onto animal hides were discovered. Chinese thread embroidery dates back to 3500 B.C. where pictures depict embroidery of clothing with silk thread, precious stones and pearls. Examples of surviving Chinese chain stitch embroidery worked in silk thread have also been found and dated to the Warring States period (5<sup>th</sup>-3<sup>rd</sup> century BC).

Embroidery and most other fiber and needlework arts are believed to originate in the Orient and Middle East. Primitive humankind quickly found that the stitches used to join animal skins together could also be used for embellishment. Recorded history, sculptures, paintings and vases depicting inhabitants of various ancient civilizations show people wearing thread-embroidered clothing.

During the 1100's, smaller seed pearls were sewn on vellum to decorate religious items and from the 1200's through 1300's beads were embroidered onto clothing. By 1500 A.D., embroideries had become more lavish in Europe, as well as other areas of the world. From this period through the 1700's elaborate thread and bead embroidery gained popularity. Bead embroidery could be found on layette baskets, court dress, home furnishings and many other items.

Elaborately embroidered clothing, religious objects, and household items have been a mark of wealth and status in many cultures including ancient Persia, India, China, Japan, Byzantium, and medieval and Baroque Europe. Traditional folk techniques were passed from generation to generation in cultures as diverse as northern Vietnam, Mexico, and eastern Europe. Professional workshops and guilds arose in medieval England. The output of these workshops, called Opus Anglicanum or "English work," was famous throughout Europe. The manufacture of machine-made embroideries in St. Gallen in eastern Switzerland flourished in the latter half of the 19<sup>th</sup> century.

The process used to tailor, patch, mend and reinforce cloth later fostered the development of sewing techniques, and the decorative possibilities of sewing led to the art of embroidery. Elaborate freehand stitched thread embroidery began to dwindle with the machine age of the 1800's when Art needlework and Berlin wool-work appeared on the scene. Berlin wool-work, canvas thread embroidery, was popular through the 1870's only to be replaced in popularity by counted cross-stitch of the 1880's, using square meshed canvas with stitch-by-stitch thread designs. With the introduction of printed patterns in color, the need for counting each stitch was pass in

many instances. Although elaborate freehand thread embroidery was waning in popularity, bead embroidery was beginning its heyday along with the new needlework stitches of the 1800's.

The fabrics and yarns used in traditional embroidery vary from place to place. Wool, linen, and silk have been in use for thousands of years for both fabric and yarn. Today, embroidery thread is manufactured in cotton, rayon, and novelty yarns as well as in traditional wool, linen, and silk. Ribbon embroidery uses narrow ribbon in silk or silk/organza blend ribbon, most commonly to create floral motifs.

Surface embroidery techniques such as chain stitch and couching or laid-work are the most economical of expensive yarns; couching is generally used for gold work. Canvas work techniques, in which large amounts of yarn are buried on the back of the work, use more materials but provide a sturdier and more substantial finished textile. The hand embroidery machine. Nearly 20 years before the first sewing machine was patented by Isaac Singer in 1846, Frenchman Josue Heilmann invented a hand embroidery machine. The behemoth could do the work of up to four hand embroiderers. Jun The hand embroidery machine.

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### III. HAND HELD EMBROIDERY

Hand embroidery is a craft that is thousands of years old: Ancient Egyptians used it to decorate the hems of royal robes, it appeared during the Middle Ages in tapestries, and it was used during the Colonial and Victorian eras to create samplers. Today, hand embroidery is considered both a craft and an art form, and there are many people who still use hand embroidery in their homes on personal and home decorating items.



*Figure1:: Example of Hand-held decorative*

Wall hangings, table runners, and quilts are good examples of how hand embroidered items are used as displays in today's homes.



*Figure2: Tools required for Hand embroidery*

Hand embroidery is a technique that can be used to decorate many items, lending a personal touch to one's home. Whether it's the initials stitched on the edge of a pillowcase or a delicate floral theme on special towels for the bath, embroidery remains a very unique way of personalizing items and has a rich tradition of use throughout the world.

Because hand embroidery is a craft, the right tools will make all the difference in the outcome of a project. Many people wish to personalize something for display because they want it to look professional yet delicate. To avoid the frustration of having a hand embroidered project go wrong, one must be sure to get all the needed tools and supplies before beginning the project. Many of these things can be purchased online, and eBay features a broad selection of supplies to complete a beautiful piece of hand embroidery.

#### IV. EMBROIDERY HOOP AND FRAMES

Embroidery hoops are used to secure the fabric that is to be embroidered in a taut position. These hoops come in many sizes, and they are available in wood, metal, and plastic. Many people choose to use frames instead of hoops to embroider items because they find them to be easier to handle. Ultimately, it's a personal choice, and one type is not necessarily better than the other. Whichever type is chosen, it's generally a good idea to loosen the fabric after finishing an embroidery session to ensure that an embroidered piece does not become misshapen by the hoop or frame; this is especially important to remember when doing projects that take a long time to complete.



*Figure3: Hoops and Frames*

It is absolutely essential to have a sharp pair of scissors before attempting a hand embroidery project. Scissors that do not have a sharp blade will only tear at embroidery thread, causing it to unravel. This should be avoided as it will ruin the work on a piece of hand embroidery and give it a ragged appearance. Ideally, scissors should

be small and extremely sharp for use with a hand embroidery project. There is an abundance of special scissors that are used specifically for this craft.

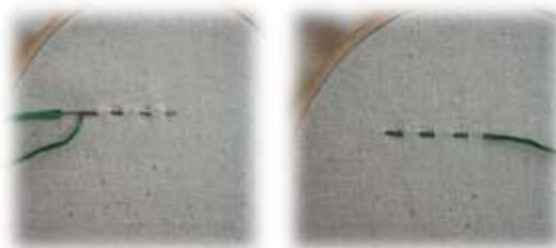
Many people relish the idea of keeping their hands busy while traveling. However, taking an embroidery project on a plane can be problematic because scissors are not allowed on an aircraft. While a thread cutting pendant is substantially more discreet than standard embroidery scissors, the item was recently added to the list of craft items banned by the TSA, so one should exercise caution when attempting to bring one aboard a plane.



*Figure4: Embroidery Scissors*

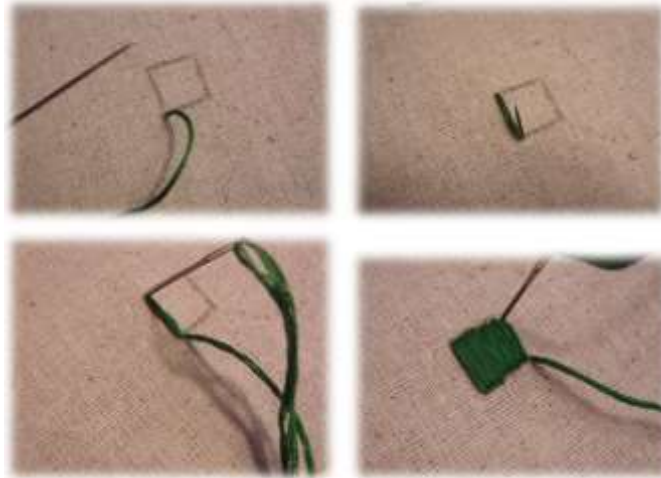
Quality embroidery thread should be used to get the best possible result from a hand embroidery project. There are many types available—from silks to cotton—and the type used depends on the desired look of the project. For instance, if the project is a monogram on a piece of linen, silk thread may be a more attractive option because of the sheen that is needed for such a project. A cotton thread that is hand dyed to a vibrant color, on the other hand, might be best suited for an intricate floral design. With so many choices, it is best to think about the desired look before shopping for thread types and colors.

### Running stitch



The running stitch is good for outlining an embroidery design and is a very quick stitch to do. There are two ways to do the running stitch: the first method is similar to hand sewing and can be completed by pushing the needle and floss in and over the fabric in one continuous motion; the second method can be literally pushing the needle through the fabric and pulling it back up.

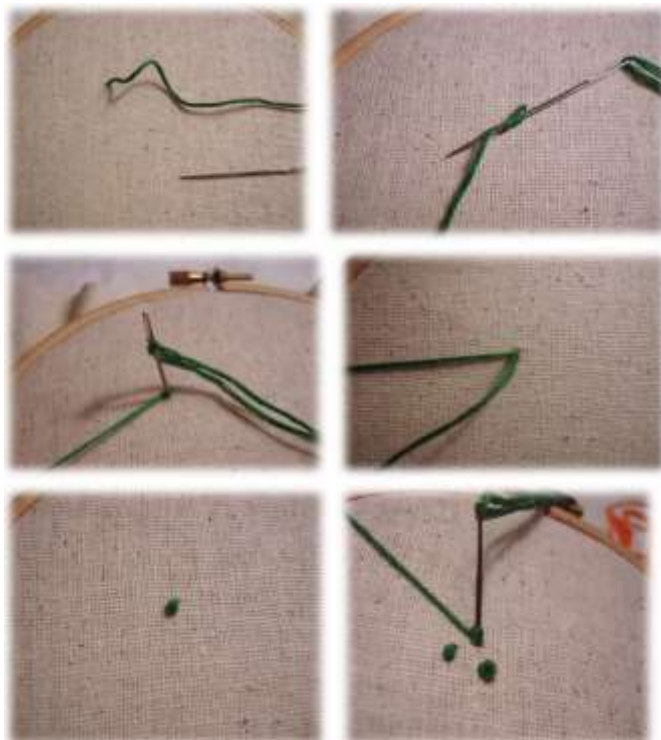


**Satin stitch**

A good filler stitch, the satin stitch creates a smooth appearance. I like to use this stitch to fill in hearts or the leaves of flowers. Take your needle and floss and create one stitch. Bring the needle up again just next to the opposite side of the initial stitch. Keep the stitches close to one another, as required to fill the pattern or design you are working with.

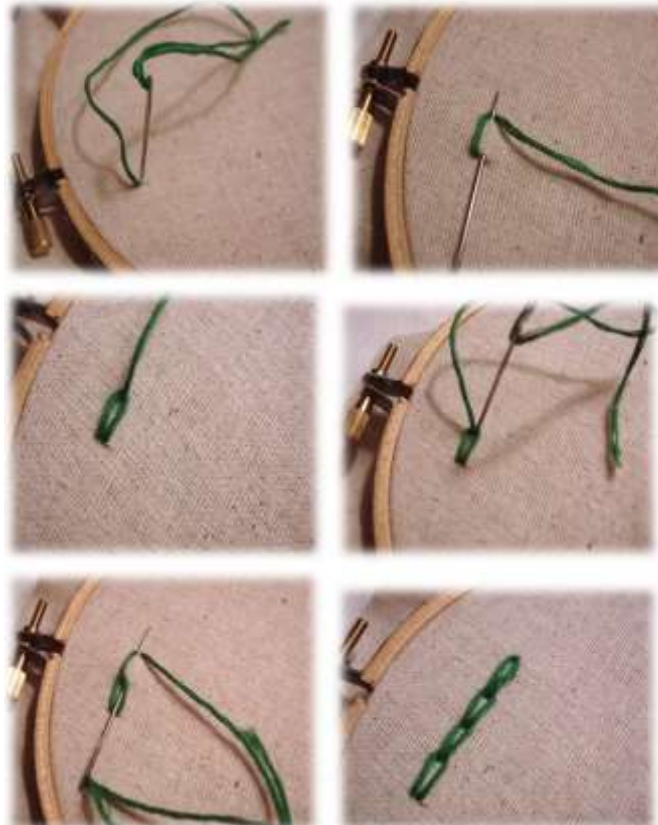
**French knot**

This is a favorite decorative stitch for almost everyone. French Knots can be used to accent designs or create fun fillers for most designs. You'll have to use two hands to create the French Knot by bringing the needle and floss up through the fabric and wrapping the floss around the needle twice. Hold the end of the floss taut and bring the needle down just next to the space where it came out through. Keep holding the floss taut as you pull the needle through. size of French knots can be varied by wrapping the floss around the needle anywhere between one and three times.



**Chain stitch**

Most of the craftsmen love using the chain stitch. It makes for a great outline stitch as well as a frame for a pattern or design. Take your needle and floss and create a stitch, but before you pull the floss all the way through the fabric, allow it to form a loop. Bring the needle up through that loop in order to tether it from being pulled all the way through the fabric and pull. Place the needle either directly in the hole you just stitched, or close to it, and pull through creating another loop by not pulling the floss completely through the fabric. Pull the needle up through the loop to tether it and pull. Repeat the steps to continue the chain. When you reach the end of the chain, simply create a small stitch over the loop.



These stitches in no way comprise the totality of gorgeous hand embroidery stitches that exist, but they are exactly what you need to get you started. If you are already a seasoned embroiderer, maybe these will remind you to revisit those old tried and true stitches you may not have used in a while.





## V. CONCLUSIONS

The study shows that the incorporating of various techniques of the textile craft into garment construction is possible and innovative in widening the scope of fashion designing. The research therefore realized that, there is the possibility of introducing all sources of pliable media, within and outside textile into the construction of garment to improve on the aesthetic apparel of garments produced in recent times. Some of the basic techniques or stitches of the earliest embroidery are chain stitch, buttonhole or blanket stitch, running stitch, satin stitch, cross stitch. Those stitches remain the fundamental techniques of hand embroidery.

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