



## SMART KNITWEAR AND ITS TRENDS IN FASHION

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**Abstract:** Knitwear garments are one of the most famous rising style patterns in Fashion. In the current situation of attire industry knitwear are sought after because of its multifaceted properties like solidness, stretch-capacity, colourfastness, simple consideration and so on. Because of the adaptable idea of weaves, they are exceptionally used in ladies' wear, kids wear, prepared to wear, sportswear, undergarments and winter wear garments. As indicated by various assembling strategies, numerous assortments of weaved textures and pieces of clothing are planned and made which has exceptionally high acknowledgment in the most stylish trend patterns. Economically weaves were presented in fifteenth century, yet in the event that we think about the current present day knitwear style pattern, it isn't just a texture or article of clothing it is more than that. From high fashion to mass market by and by there is heaps of advancement with uniqueness in knitwear. Architects, engineers, merchandisers, scientists and specialists are continually presenting imaginative knitwear style patterns as keen knitwear. This paper centers around the cutting edge and shrewd knitwear textures and fabrics which are having nouveau style articulation in the dress and design industry.

**Index Terms** - — Knitwear, style, trends, clothing, innovation, fabrics.

### I. INTRODUCTION

Knitwear is one of the most trending clothing categories in current commercial trend. The growing demand of innovative and smart clothing is also rising simultaneously. Knitwear has changed the entire concept of garments in terms of usability and features. The traditional Knitwear has monotonous features as knitted fabrics are made up of different looping. The Knitting can be classified by Flat Knitting and Circular Knitting.

Shima Seiki knitting machines came up with the latest advanced technology which has changed the dimensions of smart clothing, for example smart fabric bellyband, whole garment 3D, seamless garment etc. Any garment must have aesthetic or decorative and functional value to meet the consumer expectations.

### II. SMART FABRIC BELLYBAND

The band is knitted in Shima Seiki flat bed knitting machine. Very thin radio frequency identification is interlaced in the knitted structure. The wireless sensors knitted in the belt help to monitor the activities of infant inside the womb. These belts are a revolution in fetal monitoring as the process is very simplified as compared to traditional monitoring systems. This technology is not only limited for pregnant women, it can be used for infant child as well as for any patient where monitoring is required.



Figure 1: Smart fabric bellyband

### III. WHOLE GARMENT 3D KNITTING TECHNOLOGY

Shima Seiki came with its unique capabilities in knitting and knitwear industry. One of the revolutionary in knitwear is Whole Garment 3D Knitting Technology. The entire concept of this technology is to produce seamless garments which will reduce wastage and save time and money. In the same direction comfort and consistency comes in priority for the consumers. The design of garment is configured Shima Seiki CAD and then the construction is done in Shima Seiki knitting machine with Whole Garment 3D Knitted garment.



*Figure 2: Garment made from whole Garment 3D Knitting Technology*

### IV. FULL FASHION KNITTING TECHNOLOGY

In full fashion knitting technology the panels of garment are separately knitted in flat bed knitted machine as per the design requirement and then the panels are attached with linking and inverse plaiting technique. The final product has no raw edges as the entire concept is to get fully fashion garment with comfort and zero wastage. As we all know wastage is one of the major areas which need special attention for sustainable environment.



*Figure 3: Full Fashion Knitted Sweatshirt*

### V. THE SEAMLESS GARMENT TECHNOLOGY

The seamless garment technology focuses on seamless circular knitted garments with no linkage. The elimination of seams reduces chafing, improves range of motion, and allows the cotton fabric to conform to the shape of the body. Seamless technology also offers unique design capabilities to incorporate performance features like moisture wicking yarns and ventilation through construction.



**Figure 4: Bottom wear made from Seamless Garment Technology**

## VI. INDIGO SEAMLESS KNITWEAR

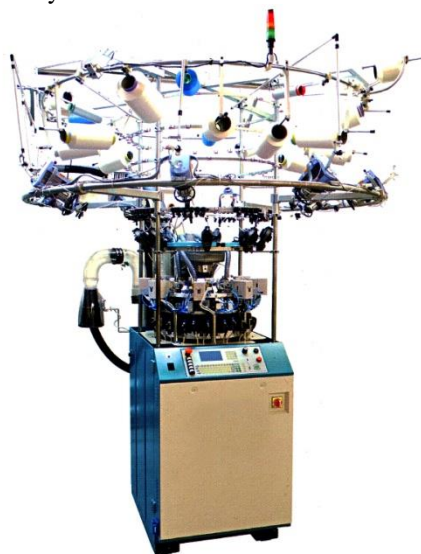
This knitwear collection and technology has unique seamless knitwear technology applicable to cotton indigo yarn to produce fabrics. The panels of garments are separately knitted with seamless technology. The indigo cotton yarns have its unique visual appearance due to the dyeing technique. This technology produces seamless indigo fabric with unique patterns, designs, structures, and stitching effects. The denims made from this technology got high appreciation in various trade fairs and exhibitions.



**Figure 5: Indigo Seamless Knitted Dress**

## VII. CIRCULAR GARMENT LENGTH MACHINES

This Circular knitting technology produces amazing body width under garments with no side seam. The knitwear construction has simple construction and the technology is vastly used in knitwear production of undergarments. The term circular implicates all weft knitting machines which have needle beds arranged in circular cylinders.



**Figure 6: Circular Knitting Machine**

## VIII. CONCLUSION

Knitwear fashion linked with various aspects like the design, construction, manufacturing technology, productivity, commercialization, etc. The key focus for the upcoming style trend will be varying according to the needs and utilities. The upcoming Trend and fashion will be definitely sustainable for our environment and biodiversity. Zero wastage, green fashion and organic trends will be the major priorities as a consumer for betterment of our environment. There will be multiple use of knitwear not only applicable to apparel but also in various areas and categories like home furnishing, product development, bio medical, and engineering. Shima Seiki is coming up with different unique and experimental knits structures and fabrics which are highly appreciated and accepted by consumers. Knitwear currently exist in fashion applicable in sportswear, Active sportswear, swimwear and other specialized clothing but the utilization will maximum in the upcoming years with latest technologies.

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