# Adaptation of Indian Monumental Designs on Apparels through CAD by Using Heat Transfer Printing Technique

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**Abstract:**
India has a diverse and rich tradition. It has a wide range of textiles of varied designs and is always known for its unique and inimitable motifs. In the current mélange of high-street labels and fast fashion, there is a great need for reviving the rich textile tradition of India by introducing innovative designs. Exploring new design elements from our rich heritage is a step in this direction. The present research was conducted to bring innovativeness in textile designing by introducing motifs of Indian monuments on saris and dress material. By adapting this culture of reviving the art and architecture of Indian monuments we can make our heritage richer and support this drive through translating these designs in to the fabrics. Moreover it can be a better way to preserve the Indian cultural heritage as well as to match up the ever changing consumer demands who are always looking for something new.

**Keywords:** Indian Monuments, Textile designs, CAD technology, Apparels, Heat transfer printing.

## I Introduction

India's textile tradition is an elegant legacy perfectly preserved over millennia. The extraordinary range of Indian textiles reflects the cultural richness and adaptability and reveals the creativity of Indian artists with their striking patterns and inventive motifs. The traditional Indian motifs which have provided inspiration to decorate Indian fabrics of different types were lotus, shrubs, tree of life, mango, peacock, birds, elephant, dancing figure, religious symbols and scenes from epics etc over the years, Indian textile designers have churned out thousands of designs based on various design elements. However the designs based on beautiful Indian monuments are very rare.

Monumental designs that depict Indian Architecture can convey the tradition of India. Most of these beautiful buildings have intricate structural designs that can be used to extract motifs for designing textiles for weaving as well as for printing. India 'the land of culture and heritage' is blessed with numerous historical monuments that reflect the breath taking architecture and intricate architectural work of India. Introducing these monumental designs in textiles can be a way to preserve the Indian culture and it will be an innovative mode of showcasing the uniqueness of Indian monumental art on textiles.

The modernization of textile industry through introduction of fast designing process, varied colour combinations using Computer-aided designing (CAD) is making the textiles more competitive to meet the rapid changing mood of the consumers. The use of CAD has not only helped in creating new and complex designs but has also reduced the time involved in the entire process. CAD makes it possible to visualize textile designs

ahead of its production and gives the ability to create new colour combinations at the click of the mouse. It has indeed increased the flexibility and reduced the time for realizing new designs.

The present study was an attempt to introduce these design elements for textile designing by incorporating CAD software. The monumental designs once adopted on textiles using CAD software can fulfill the desire of the modern customers who are looking for a change. These new designs on textiles can enhance their aesthetic appeal in a totally unique way.

## II Methodology

### 2.1 Motifs Used

The motifs were collected from the books, literature, internet, and by the photographs collected personally for the designing of saris and dress materials.

### 2.2 Development of designs for apparels

From the collected designs, suitable motifs and designs were taken for the development of new designs. The designs were developed with the help of computer software "Corel Draw". Corel Draw is a comprehensive vector based, also called object –oriented or draw images programme. The vector based images are resolution independent. The motifs taken from monuments were categorized as tombs and mosques, caves, doors and gates, forts and palaces, and religious monuments of India. A total of 10 design from each category i.e. saris and dress materials were developed. Designs for saris and dress materials were developed either using the entire motif (monumental design) or by applying components of the designs.

### 2.3 Evaluation of the developed designs

The developed designs were evaluated by a panel of 30 judges including weavers, shopkeepers/boutiques owners, and design students for the selection of two most preferred designs in each category of the developed designs to apply them on apparels. The attributes assigned for the evaluation of design were appropriateness of designs, design arrangement and colour combination. A five point ranking proforma was used for this purpose. The designs were scored as 1, 2, 3, 4 and 5 corresponding to poor, fair, good, very good and excellent respectively.

### 2.4 Development of products

The selected designs from each category were used for preparation of various apparel articles. Heat transfer printing was used for making articles. Two saris and two dress materials were prepared to see the effect of design after weaving.

## III Results and Discussion

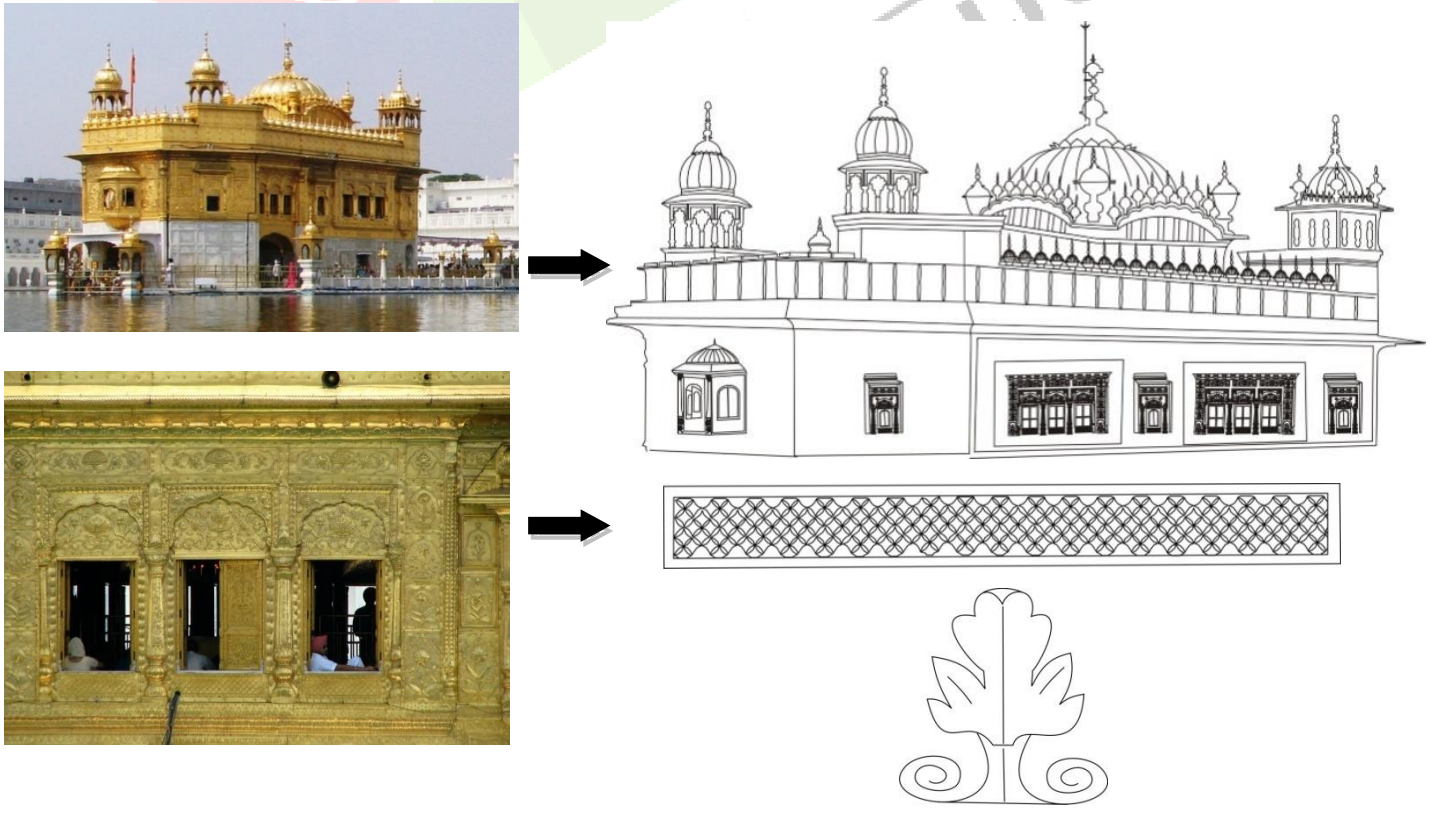
The developed designs were evaluated visually for the selection of two most preferred designs for weaving.

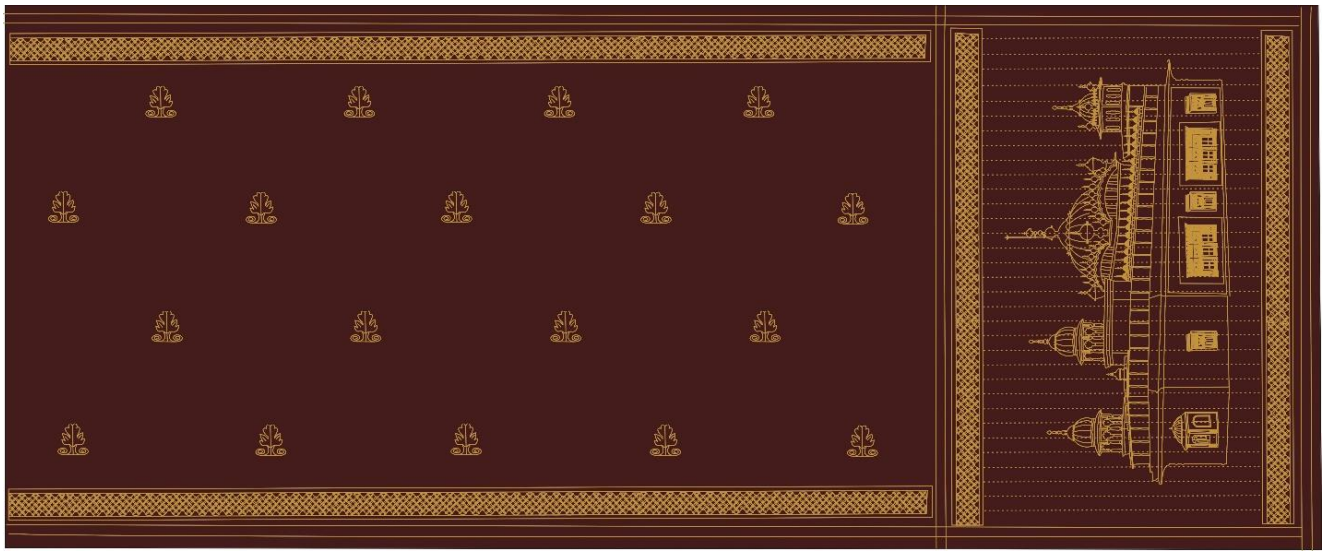
It was observed from the table-1 that among the developed designs for saris, sari I got highest score (22.6) due to the arrangement of motifs, appropriateness of design (representation of monuments) followed by Sari III In case of dress materials, design II scored highest marks followed by design I, hence these designs were used for the printing of apparels. The prepared articles are shown in Plates 1-4.

**Table 1**
Visual Evaluation scores of developed designs for selection of designs

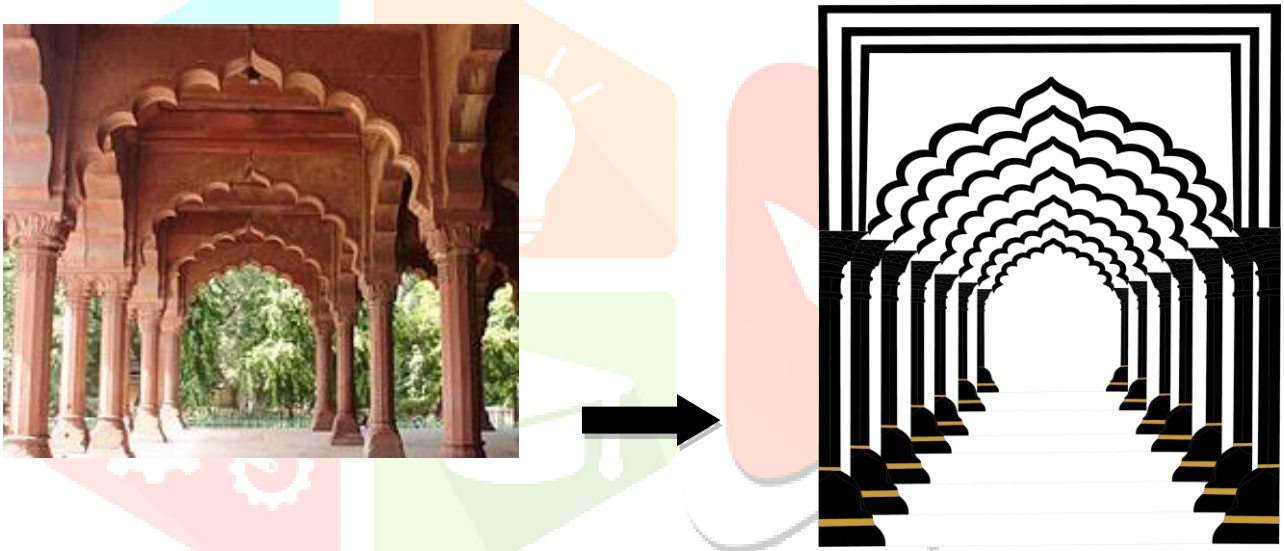
| Design No. | Arrangement of motifs | Appropriateness of design (representation of monuments) | Colour combination | Innovativeness of the design | Overall appearance | Total |
|---|---|---|---|---|---|---|
| **Saris** | | | | | | |
| Sari I | 4.5 | 4.6 | 4 | 5 | 4.5 | 22.6* |
| Sari II | 4 | 4.1 | 3.6 | 4.5 | 3.5 | 19.7 |
| Sari III | 4.2 | 4.2 | 3.9 | 4.5 | 4 | 20.8** |
| **Kurties** | | | | | | |
| Dress material I | 4.3 | 4.2 | 4 | 4.5 | 4.2 | 21.2** |
| Dress material II | 4.8 | 4.5 | 4.5 | 4.8 | 4.5 | 23.1* |
| Dress material III | 4.2 | 4 | 3.8 | 4.5 | 4 | 20.5*** |

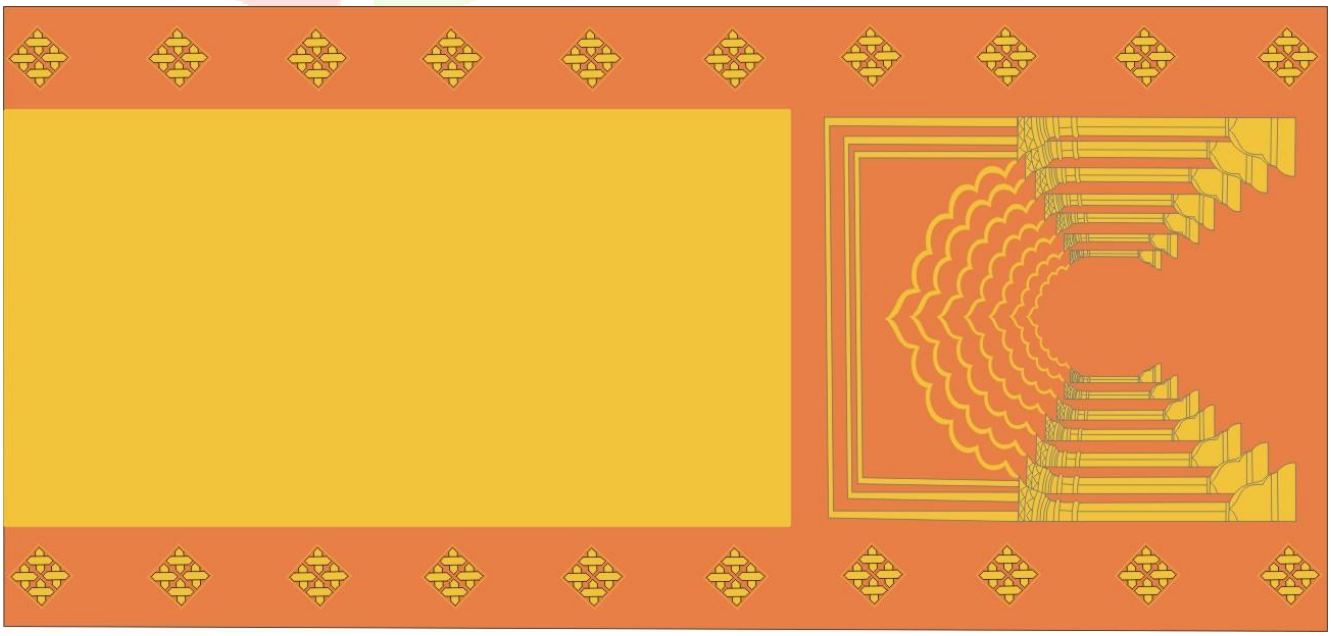
**3.1 Cost of the prepared products**: The cost of prepared apparels are shown in Table 2 – 3. Table shows that the cost of printed sari I was of (Rs.1,187.50/-). The actual cost of the sari was (Rs. 950/-) in which 25% of profit was added. The sale price was calculated Rs. (Rs.1,187.50/-).The same cost was incurred for every successive sari printed because for each sari a separate printed sheet is prepared which cannot be reused.





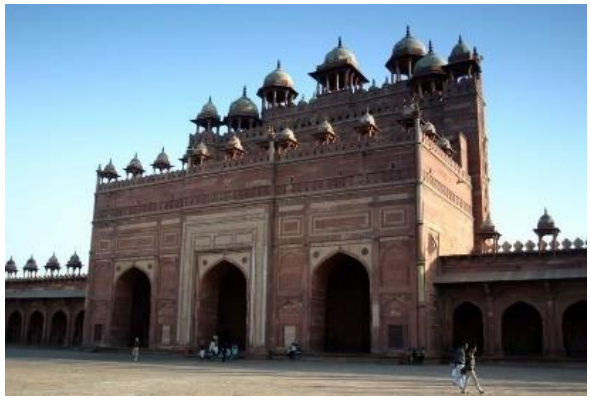
Sari 1: Developed design of sari using motifs of Golden Temple

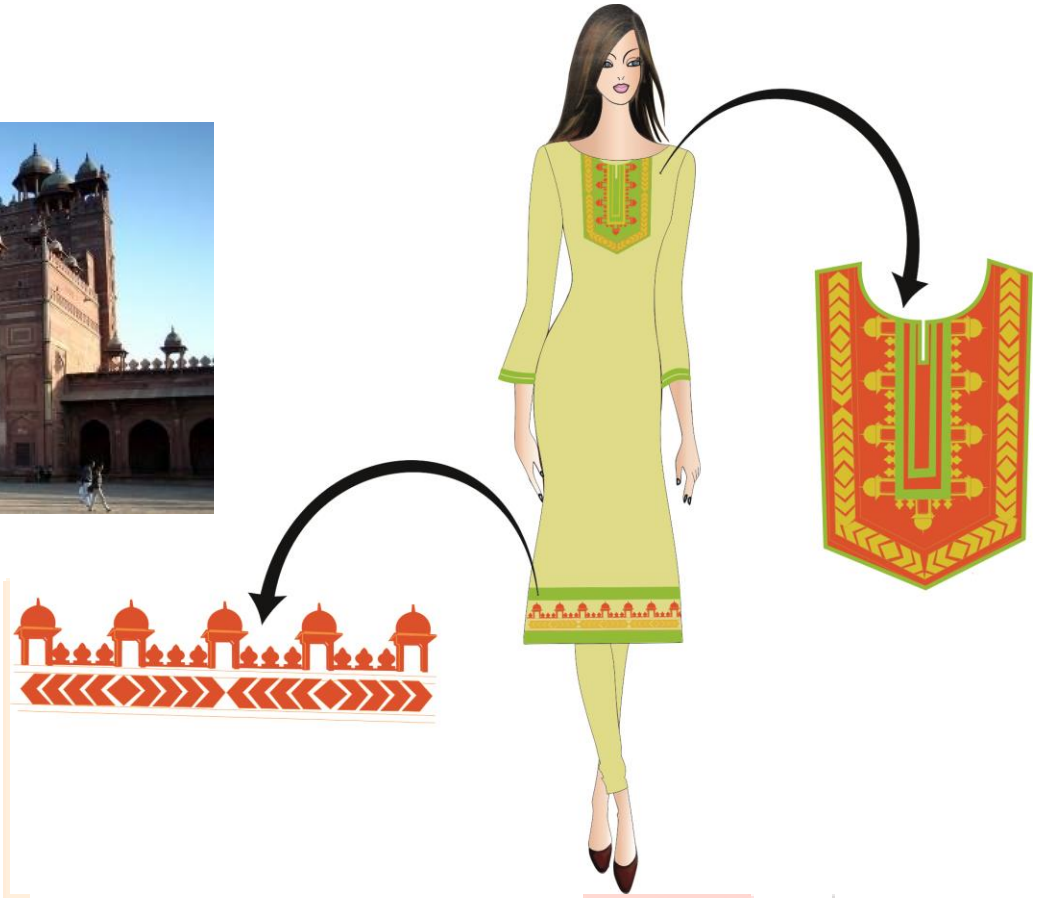




Sari 2: Developed design of sari using motifs of Red Fort

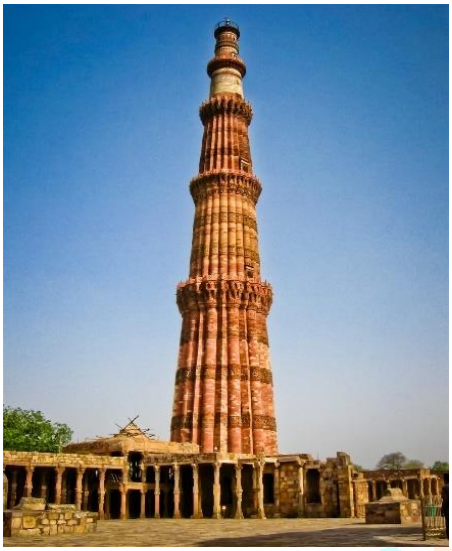

Sari 3: Developed design of sari using motifs of Basilica of Bom Jesus

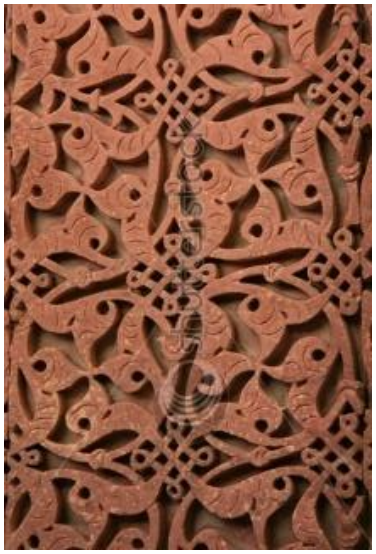




Dress Material 1: Developed design of dress material using motifs of Buland Darwaza

Dress Material 2: Developed design of dress material using motifs of Ajanta caves





Dress Material 3: Developed design of dress material using motifs of Kutub Minar

Plate 1: Developed sari inspired from Basilica of Bom Jesus

Plate 2: Developed sari inspired from Golden Temple

Plate 3: Developed dress material inspired from Buland Darwaza

Plate 4: Developed dress material inspired from Ajanta cave

**Table 2 Cost of prepared Sari 1 and Sari 3**

| S N | Particulars | Sari 1 Golden Temple | | | Sari 3 Basilica of Bom Jesus | | |
|---|---|---|---|---|---|---|---|
| | | Consumption | Rate₹ | Value₹ | Consumption | Rate₹ | Value₹ |
| 1 | Cut length of fabric | 5 meters | 50 Rs./m | 250/- | 5 meters | 50 Rs./m | 250/- |
| 2 | Printing charges | 5 meters | ___ | 600/- | 5 meters | | 600/- |
| 3 | Labour charges | | | 100/- | | | 100/- |
| | Actual cost | | | **950/-** | | | **950/-** |
| | 25% profit | | | 237.5/- | | | 237.5/- |
| | Sales price | | | 1,187.50/- | | | 1,187.5/- |

For Sari 3 calculated cost was same as for sari 1. The fabric cost, printing cost and labour charges were similar to the sari 1 so the actual cost of the sari was (Rs. 950/-) and after adding 25% profit the sales price was (Rs.1,187.50/- )

**Table 3 Cost of prepared Dress Material 1 and Dress Material 2**

| SN | Particulars | Dress Material 1 Buland Darwaza | | | Dress Material 2 Ajanta cave | | |
|---|---|---|---|---|---|---|---|
| | | Consumption | Rate ₹ | Value ₹ | Consumption | Rate ₹ | Value ₹ |
| 1 | Cut length of fabric | 1.5 meters | 50Rs./m | 75/- | 1.5 meters | 40Rs./m | 60/- |
| 2 | Printing charges | 1.5 meters | ___ | 435/- | 1.5 meters | | 450/- |
| 3 | Labour charges | | | 65/- | | | 65/- |
| | Actual cost | | | **575/-** | | | **575/-** |
| | 25% profit | | | 143.75/- | | | 143.75/- |
| | Sales price | | | 718.75/- | | | 718.75/- |

It is apparent from the table 3 that the actual cost of the dress material DM 1 was (Rs.575/-) and after adding the profit margin of 25% the cost was calculated (Rs. 718.75/-). Fabric cost, printing cost and labour charges were added to get the actual cost. For DM 2 calculated cost was same as DM 1. Other variables such as type of the fabric used, consumption of the fabric, printing charges and labour charges were same for both the dress materials.

**IV Conclusion:** Products fashioned with such inspiration have an imperative role in preserving the Indian cultural heritage as well as to maintain the value of inimitable Indian textiles. The monumental designs prepared by CAD were successfully applied on various apparels using heat transfer printing. All the prepared articles were highly appreciated and well accepted with regards to visual evaluation and cost effectiveness. The present study was an initial step in direction of creating monumental designs using CAD technology which can open the avenues for the designers to fulfill the ever changing demands of consumers who are looking for change and innovativeness in their attire. The adaptation of prepared designs on apparels using heat transfer printing technique further facilitates the faster production with high accuracy within less time span.

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**References:**

**Namrata, M. and Naik, S.D. (2008).** Contemporized traditional textile made ups – a mode for rural and urban linkage. Indian J. Tradit. Knowl., 7 (1) : 208-211.

**Sharma E, Paul S. (2015)** Adaptation of Indian Folk Paintings for Designing and Digital Printing of Apparels Using Computer Aided Designing. International Journal of Traditional Knowledge, 2015; 1 ( 9 ) : 9 8 9 - 9 9 5

**Kishore N. (2015)** Adaptation of Indian Monumental Designs on Saris and Dress Material by using CAD. Thesis Ph.D. Clothing & Textiles, SHUAT&S Allahabad, India