

CAD Modern Technology System

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Abstract: The papers fixate on paramount of role of computer aided design (CAD), Computer aided design is an independent part of today's carpet and Textile industry. Which modern technology is used in the present scenario, computer aided design has been dramatically shifted to the mode of "computer-aided thinking" The paper outlines and discussed the professional skills and compulsory technological skills needed for professional and designers. Design creations through design software, so the skill is very important to development in the scenario of modern technology system.

Keywords: carpet design, system designs, colour creation, design setting, capabilities, simultaneous. Pantone shade card number, colour communication, high resolution.

1. Introduction

In Computer Aided Designing Technology the designer's skill lies in the manipulation of shades, figures, motifs, layout, colour schemes and the built in aesthetic sense. The designer gets the facility to perform a wide variety of functions necessary for creating textile designs for carpet through computer hardware and software. The hardware of the computer may function as a stand-alone system or work station.

The total colour graphics computer system for textile designing application may have the system contains:

- 1) Hardware and
- 2) Software

The latest hardware system configuration required for Computer Aided Designing of carpet application as

Specification of latest Computer

- OS Windows 7 / 8 / 10
- Bit 32 Bit
- Processor i3 / i5 / i7
- Ram 8 GB
- Storage 1 TB or above
- Graphics 1GB Display graphic card
- RWDVD Drive

The peripherals are as:

- Keyboard
- Digital Mouse / Digitizer
- 24" Display TFT / LED Monitor
- Input Device – Colour Scanner
- Projector with Display Screen
- HD Camera
- A3 Colour Printer
- 42" Colour Plotter
- Colour Shades / Pumps of ARS / SRI / Pantone / Chromo tone

2. Colour Graphics Terminal

The colour graphics computer system for seeing the design consists of a colour graphics terminal with 24" screen for

display with resolution 1280 x 1024 along with 24" colour monitor with SVGA card.

To stimulate carpet design it requires high resolution system designs consisting of free hand drawing. The curve boundaries of patterns should be smooth enough to bring the natural effect when seen as final finished product.

Colour creation and colour selection is an important aspect of any textile design. This requires the capability of the system to produce large number of simultaneous colours out of the total palette of the system.

The system should have at least 4096 simultaneous colours out of total of 16 million colours. The colour can be changed by varying Red, Green, Blue components or by changing values of Chroma, hue, saturation and brightness.

3. Design Software

Software part of the Computer Aided Designing System is of two types:

- 1) System Software
- 2) Application software for Carpet Designing

The system software is required to run the Programme and take care of the basic operating system. The facility for converting into executive system. The system further requires the library of various modules which can be used as tool while executive the application software.

To begin in 1982 the operating system was in DOS Version 2. This was further upgraded to DOS5 and today in 2000 DOS 7. The disadvantage of this operating system was that we had to write separate programs "Drivers" to run the colour Scanner, Colour Printer and Digitizer. The driver becomes absolute with the new versions of the hardware of scanner, printer and digitizer. With the introduction of Windows 95 and Windows 98, XP, Windows Vista, Windows 7, Windows 8 of the operating system the compatibility of the peripherals is just the plugging in with the latest Pentium III, IV series of the Computers. Hence the latest versions available for the with Windows 10 operating system.

4. Application Software

The application software for carpet designing is prepared with the following modules:–

1) Design Creation - Module 1

a) PAINT

'Paint' module provides the facility to create your own design using draw, paint, fill colours, zoom & edit, cut & paste, rotate & resize, mirroring, etc. The design may be for the artwork for border, body or central portion of the carpet. Even a quarter or half repeat or single: repeat of the carpet is possible. This is most basic tools. In the same module facility for scanning the design' or artwork is provided. After scanning the design any change or modification can be done using 'paint' module.

2) Carpet Weaving - Module 2

The artwork of the sketching is converted into a carpet of the specific size in length and breadth and in specific knottage in warp and weft.

Using the various motifs for border, body and central portion of the carpet design can be prepared by the arrangement of various motifs recalling from the library and arranging these in order to make the carpet with $\frac{1}{4}$ repeat, $\frac{1}{2}$ repeat or single repeat. The full carpet is visualized using 'Mirror Image' facility on colour monitor.

3) Colour Alternatives - Module 3

Change in colour is provided by setting the RGB & HVS values by referring the 'Atlas'. A palette is prepared for the carpet as per the customer choice. The yarn colours are matched visually on colour monitor. These may be readily converged to the manufacturer as the complete design and colour communication. Also colour are referred to the manufacturer through pantone shade card number. We can pantone shades is CD, we can be installed.

4) Conversion of the Design in Graph Paper - Module 4

For preparing the carpet on loom, the design of the carpet is to be converted on graph paper. Depending on the knottage in warp and weft per inch or per cm, the design finalized can be seen on the colour monitor and is converted as a graph paper design called as 'Naksha'.

5) Print Design - Module 5

The print of the design finalized on coloured monitor is obtained on paper or transparency using colour printer of A4 (8" width x 11" length) size. Also the print can be obtained for graph paper presentation of carpet on AO (36" width length in roll any size paper C).

6) Texture - Module 6

The carpet is simulated as cut pile effect or loop pile effect and also by brightening effect and fussing effect. A different combination of yarn and colour makes carpet attractive

7) Other Facilities - Module 7

1) Library of motifs - save facility

Library of designs: The motifs/designs can be saved as library and can be used when required.

2) Import / Export facility

Import / Export of files: The packages provides the facility for importing the designs in BMP, Tiff, PCX, JPG, TGA, macpaint, WPG, formats and also export the design in these formats.

3) Zoom facility:

Any part of the design can be zoomed upto 32 times and is useful while editing correction, alteration in the design.

4) Colour information:

Colour information provides information about the number of colours present in the design and percentage of colours present in the design. Using this data and adding further number of knots in warp & weft, count of, the yarn, pile height the total colour-wise yarn requirement is calculated. This is confirmed with the yarn stock and the instructions are given to dye new yarn.

5. Design Setting

Once the design is created, it is to be saved by using the module provided for saving & loading of files. This module helps to create a library of designs which can be recalled as and when required for further processing.

Now, when a carpet design is required in a knottage form or with actual weaving details. Then a separate 'Carpet' module is provided which of following facilities.

- a) **Input:** You can load the design already created & saved in library with this module either by defining 'screen' or 'file' option.
- b) **Select Art Work:** With this module you have to define the exact area of design to be converted in carpet by defining a 'box input' on the screen.
- c) **Unit:** Now while selecting the art work you can define the unit in which you want to create a carpet i.e. either inches or ems or pixels or ends.
- d) **Art Work size:** This module gives you the exact size of the design selected.
- e) **Zoom factor:** This is to show you the percent of image distortion that may take place while converting a design in actual carpet.
- f) **Design Size:** This module gives you the exact size of the output i.e. carpet design either on screen or in the form of a coloured printout.
- g) **Repeat:** This module decides whether the selected art work should be treated as a single full carpet or quarter repeat of the full image or either half warp or half weft image of the full design.
- h) **Mirroring:** Mirroring helps you in viewing the full image in case if a quarter repeat is selected.
- i) **Carpet size:** Here you have to define the size of an actual carpet to be woven by the weaver.
- j) **Set Symbols:** This module is to help the weaver while actually doing knotting in the carpet. In this you can

define the colours present in the design by simply giving numbers to them & you get the whole design converted in a map of 1,2,3, etc.

- k) **Colour info:** This is provided to help you in knowing the exact no. of hues present in a design loaded on screen by the designer from the library.
- l) **Texture:** In this module, you can apply texture effect to a carpet & visualize how motifs may change after the conversion of design in actual carpet.
- m) **File:** Finally you can save the design in a carpet form by saving all the technical details of the design & create a library of readymade carpet designs which can be loaded as & when required.
- n) **Show:** This module provides you the options for visualizing your design in different forms i.e. carpet design, original screen, carpet & grid image. Once the carpet design is created & saved in the library, you can get the output as soft copy i.e. either on floppies or on screen or hard copy as a photograph or a printout of the image in different forms i.e. either grid image or carpet design, with the option provided as 'print.' Besides, software, skills like sketching excellent communication are important.

6. Conclusions

Design CAD carpet and textile design compromise both surface design and structural design. The art and craft aspects of textile and carpet design through carpet software to remind primary CAD elements. Modern Technology system potential for textile and carpet product there is a wide range of carrier option in this field.

CAD can intervene to in hence the efficiency and effectiveness of artistic appeal craftsmanship. Design – review, triangle-an-important aspect need to constantly interface amongst.

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