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DESIGN AND DEVELOPMENT OF SHADES USING COLOUR AND WEAVE EFFECT IN MINI ELECTRONIC JACQUARD

A PROJECT REPORT

Submitted by

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ANNA UNIVERSITY: CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report **"DESIGN AND DEVELOPMENT OF SHADES USING COLOUR AND WEAVE EFFECT IN MINI ELECTRONIC JACQUARD"** is the bonafide work of **PRATHIBA SUBRAMANIAN,I.R.SHARAVAN,V.RAJKUMARandC.P.VINOTHKUMAR** who carried out project work under my supervision

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HAD DONE THE PROJECT "DEVELOPMENT OF SHADE DESIGN USING COLOUR AND WEAVE EFFECT IN MINI ELECTRONIC JACQUARD " IN OUR INDUSTRY AND ASSISTED US IN DEVELOPING THE SOFTWARE.

For JAMBU ASSOCIATES

Proprietor

ACKNOWLEDGEMENT

We like to express our gratitude by thanking the persons who have helped us in completing the project.

We wish to express our sincere thanks to **Dr. B. K. Krishnaraja Vanavarayar**, Co Chairman and **Dr. S.Ramachandran**, Principal, Kumaraguru College of technology for providing necessary facilities to do the project.

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ABSTRACT

From the 19th century onwards colour and weave effect has been in practice for producing various patterns or designs in a fabric. For this they have used only standard weaves like Plain weave, Twill weave and its derivatives.

This project is mainly based on colour and weave effect. But here it implies in bringing out various shades instead of patterns with the minimal use of warp colour threads say for example 4 and single coloured weft. This can be brought out by changing the weave alone and not necessary to change colours of warp or weft threads.

For example a standard 2/2 twill weave itself gives about 46 shades from 256 possible patterns for same 4 colours of warp and mono colour weft. This is achieved by extra float shifting arrangement in weave patterns.

With the above concept we have assisted the experts to develop an user friendly software which can be used in all Electronic jacquard machines.

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CHAPTER 1

INTRODUCTION

1. INTRODUCTION

1.1PHYSICAL BASIS OF COLOUR:

The simple experiment of Sir Isaac Newton determines the composition of white light and demonstrates that light is the source of colour. In the experiment a narrow beam of sunlight is intercepted by a glass prism which refracts the beam and splits it into its constituent elements, with the result that it forms a band of different colours, which may be displayed on a screen. This band is called the solar spectrum and the colours, which are arranged in the same order as those in the rainbow, are known as spectral colours. For convenience the colours are classified in six divisions, i.e., red, orange, yellow, green, blue and violet: but every gradation of colour is shown in the spectrum, the change form one to another being imperceptible. The brightest part of the solar spectrum is in the yellow and green regions, but at the two extremes red and violet contribute very littler by way of illumination.

1.2COLOURS IN COMBINATION:

1.2.1Colour contrast:

There are two heads under which colour combinations are classed – i.e. monochromatic contrasts, and polychromatic contrasts. Monochromatic contrasts are those in which different tones of the same colour are combined; as for instance, two shades of red, or three tints of blue, etc. softly graded contrasts result which are specially suitable for such fabrics as over coatings, of two or more different colours which may be alike or different in tone –e.g., light green and light blue, and light green and dark red. A style partakes of both classes of contrast when a ground pattern, consisting of different tones of the same colour, has bright threads of another colour introduced upon it at intervals for the purpose of improving the effect.

CONTRAST OF HUE – In contrast of hue each colour influences its neighbour, since each appears to be tinged with the complementary hue of its neighbour. Thus, in a cloth consisting of red and blue stripes the red appears tinged with yellow – the complementary of the blue, and the blue with bluish green the complementary of the red.

CONTRAST OF TONE – This comes into play when tow tones of the same colour are in juxtaposition – e.g., dark blue and light blue – and when dark and light colour are placed together – e.g., dark blue and light green. The dark colour, by contrast, makes the light colour appear lighter than it actually is, while similarly, the light colour makes the dark colour appear darker than it is. On a white ground colours appear deeper and darker; on a grey ground they appear about normal; whereas on a black ground they look brighter and lighter.

1.3 COLOUR HARMONY:

Harmony of colour is not governed by fixed principle's and any combination of hues that is pleasing and gives full satisfaction to the observer may be said to constitute harmony. The colour sense in different persons, however, varies – being more highly developed in some than in others – and what may appear harmonious to one may be more or less inharmonious to others.

1.4 APPLICATION OF COLOUR:

1.4.1 Mixed colour effects:

The following methods of producing mixed colour effects a re employed:

1. By blending differently coloured fibres which have been dyed in the raw or the sliver condition producing 'mixture yarns'.
2. By introducing small tufts of dyed fibres into the slivers at the later stages of the processes preceding spinning; a thread spotted with the colour being produced.
3. By spinning from differently colured roving, producing 'marl' yarns.
4. By printing the spun thread in bands of different colours.
5. By twisting together differently colours threads producing various kinds of fancy twist yarns.

6. By employing differently dyed threads, arranged one, or at most two, threads at a place, and using weaves of crepe or broken character.

n selecting the colours to be mixed the following rules are of general application; a) In a mixture of two tones of the same colour there should be a distinct between he two. (b) The colours should harmonies when laid side by side before mixing. (c) The proportionate quantities should be in accordance with the relative intensities of the hues, subdued colours, and black and white being chiefly employed, with bright colours introduced only in small quantities.

1.5 COMBINATIONS OF DIFFERENTLY COLOURED THREADS:

Effects are produced by combining differently coloured threads as follows: (a) With the warp in one colour and the weft in another colour. (b) With the warp in different colours and the weft in one colour. (c) With the warp in one colour and the weft in different colours, producing a cross-over effect. (d) With both the warp and the weft in different colours.

A colour and weave effect is the form or pattern in two or more colours produced by colour and weave in combination. It is frequently quite different in appearance form either the order of coloruing or the weave, because (a) the weave tends to break the continuity of the colours of warp and weft; and (b) a colour shows on the face of the fabric, whether it is brought up in warp float, or in weft float.

1.6 CLASSIFICATION OF COLOUR AND WEAVE EFFECTS:

A convenient classification of the orders of colouring the threads is as follows: (a) simple warping and simple wefting, (b) Compound warping and simple wefting, (c) Simple warping and compound wefting, (d) Compound warping and compound wefting. In (a) and (d) the order of warping may be the same, or different from the order of wefting. To each order of colouring, simple, stripe, and check weaves may be applied. The style of pattern which is produced by the combination of each order of colouring with each type of weave, is given in Table 1.

ORDER OF COLOURING	SIMPLE WEAVE	STRIPE WEAVE	CHECK WEAVE
Simple warping and simple wefting	Simple pattern	Stripe pattern	Check pattern
Compound warping and simple wefting	Stripe pattern	Stripe pattern	Check pattern
Simple warping and compound wefting	Cross-over pattern	Check pattern	Check pattern
Compound warping and compound wefting	Check pattern	Check pattern	Check pattern

Table 1: CLASSIFICATION OF COLOUR AND WEAVE EFFECTS

1.7 AIM & SCOPE:

Generally all the colours and shades can be obtained by CMYK principle and various effects can be produced in LED sensor board. In the same way through arrangement of various colour and weave patterning system we can develop various shades or design.

Also to develop user friendly software which works on the above principle, this helps in reducing the work load of weavers and designers to produce different shades by single click in mouse.

Thus it is possible to produce all kinds of shades with minimal colours of warp and weft threads or either using basic colours like red, blue, yellow, green, cyan, magenta, black which are the universal donor of all colours.

CHAPTER 2

LITERATURE REVIEW

2. LITERATURE REVIEW

According to Olsner the influence of colour and weave pattern on the colour effect may be divided into 3 classes:

1. Color patterns: A smooth, uniform weave with the pattern produced by an arrangement of threads of contrasting colors in either warp or filling or both.
2. Weave patterns: Warp and filling of the same colour, the pattern being produced entirely by the weave.
3. Weave and colour patterns: These are produced by combining weave and colour patterns in the same cloth.

Varied and interesting effects are obtained by combination of colour and weave patterns .Such combination often change the appearance of cloth completely so that the resulting pattern does not resemble in the slightest degree either the weave pattern or the colour pattern which have been combined.

In sketching colour effects the weave is drafted in the usual way. Then all warp raises on the dark threads are colored black .If for example, the warp is dressed 1 dark 1 light, the rises on the first or black warp thread or coloured black. The risers on the second or light warp thread are either left uncoloured or coloured a shade other than black, say red. The filling colours are next indicated by painting black the blank squares on the black picks. The blank squares on the light colored picks are painted red.

The effect depends upon the position and order of the differently coloured threads .Frequently it is possible to obtain an entirely different pattern simply by changing the position of filling colours so that the dark pick will come in the shed previously occupied by the light colour. This enables may different patterns to be produced by simply changing the position of colour in the weave pattern.

According to Watson in visual effects of various colours each colour creates a certain impression on the mind of the observer. Red appears as a brilliant and cheerful colour, and gives the impression of warmth. It is a

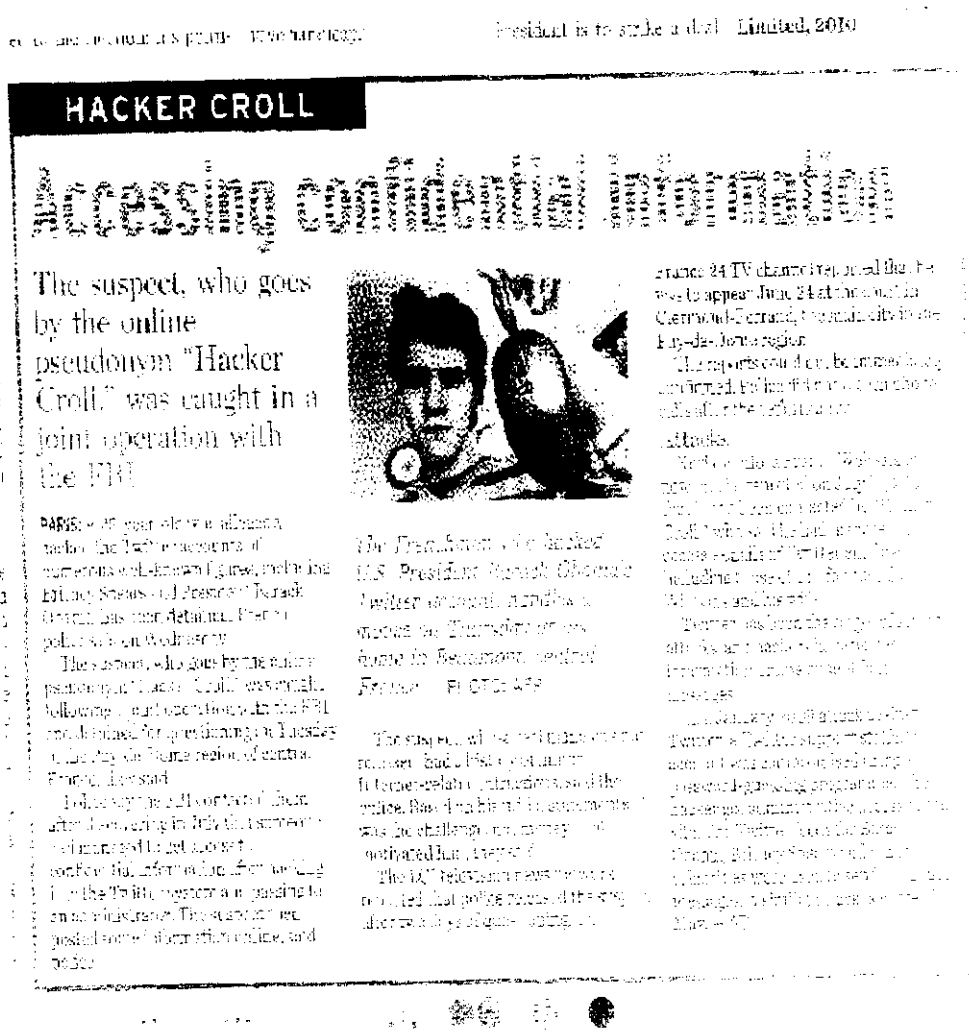
very powerful colour and appears to advance towards the observer. Blue is a cold colour and appears to recede from the eye. Yellow is a very luminous and vivid colour and conveys the idea of purity. The qualities of the secondary colours are some what intermediate between the primary colours of which they are composed. Thus orange is a very strong colour and possesses warmth and brightness, but it is not so intense as yellow. Green is a retiring and rather cold colour, but appears cheerful and fresh. Purple is a beautiful rich and deep colour, and for bloom and softness is unsurpassed. The primary and secondary colours are too strong and assertive to be used in large quantities in their pure form except for very special purposes. They are chiefly employed in comparatively small spaces for the purpose of imparting brightness and freshness to fabrics. Their strength is greatly reduced by mixing with black or white when they are used in large quantities as ground shades.

According to Posselt's 4th edition Textile designing application of one weave over a basic weave will produce diffused effects & in O'conner's book of weaving implies principle to produce double fabric with multi warp & weft which create stripe & check effects with different colours.

According to Ralph E.Griswold some patterns are weavable and some are not, because of float length involved in weave, higher the float length the groupism of thread will occur, in case of dark colours the groupism will more and highlighting of those threads occur resulting in stripe formation, but it is not actual stripe effect.

Light Emission Diode is the best example for colour & and shade effect. LED consist of three colour Red, Green & Blue where the arrangement can be seen as red/green alternatively in one row and red/blue in the other row. Once the LED is switched on according to the design respective colours will glow. When we come closer design cannot be seen clearly because perception of our eyes easily individualizes the light but it is not possible when we look from a distance so we are able to see prominent design.

In bottom of newspapers we could see four colours in dotted form as cyan, magenta, yellow & black, which implies that all the coloured photographs and printed material are executed by combination of above mentioned four colurs. In the same way our project focus on bringing out shades with above mentioned warp coloured thread and mono coloured weft.



HACKER CROLL

The suspect, who goes by the online pseudonym "Hacker Croll," was caught in a joint operation with the FBI

CHAPTER 3

METHODOLOGY

3.METHODOLOGY

3.1GENERAL:

Development of shade design using colour and weave effects in mini electronic jacquard machine involves the following procedure.

3.2 STANDARD WEAVE PATTERNS:

In order to weave a cloth/fabric we commonly use standard weaves like

- Plain weave and its derivatives
- Twill weave and its derivatives

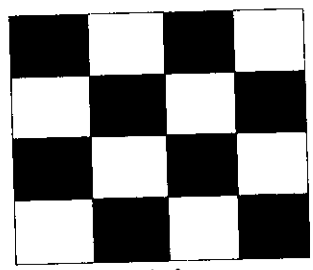


Fig 2: Plain weave

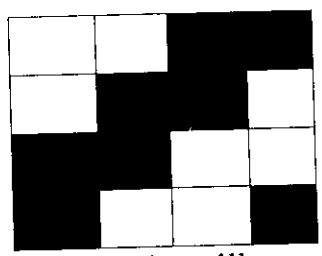


Fig 3: 2/2 twill weave

According to the end use of the fabric we choose the standard weave patterns.

3.3 SHIFTING ARRANGEMENTS IN STANDARD WEVE PATTERNS:

Standard weave pattern is not alone sufficient to obtain various shades for minimal warp colour threads and mono colour weft. Henceforth we arrived at the idea of adding one or two floats in warp way and shifting the same in others.

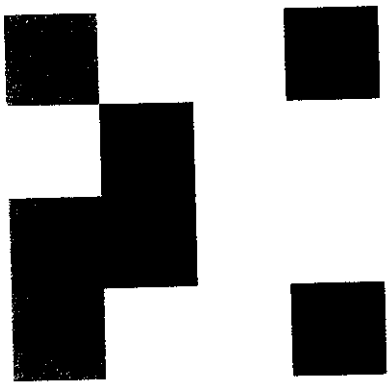


Fig:4

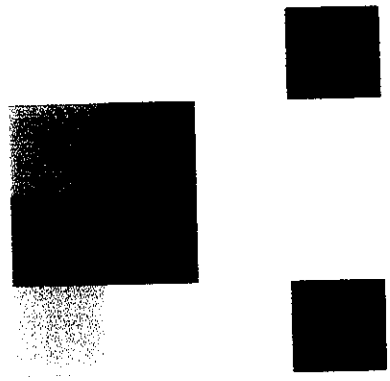


Fig:5

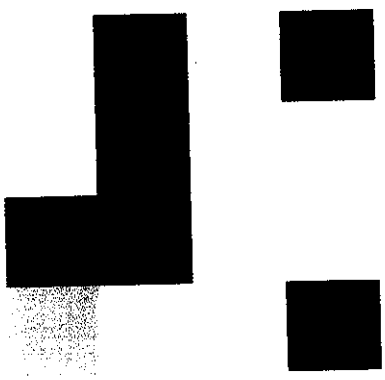


Fig:6

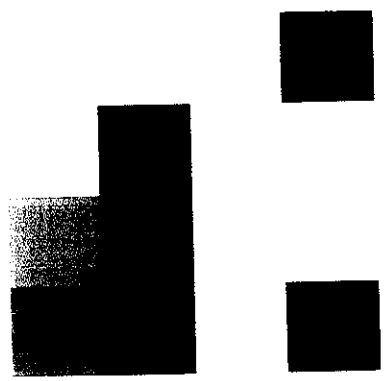


Fig:7

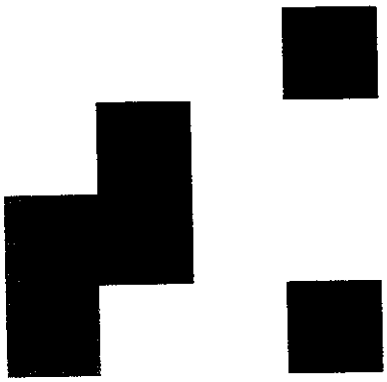


Fig:8

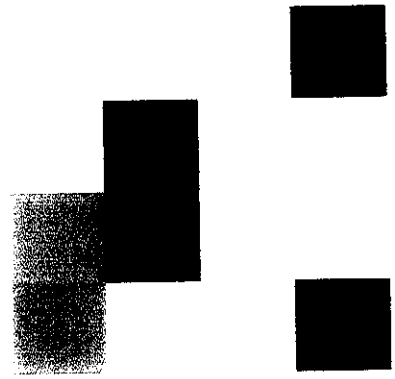


Fig:9

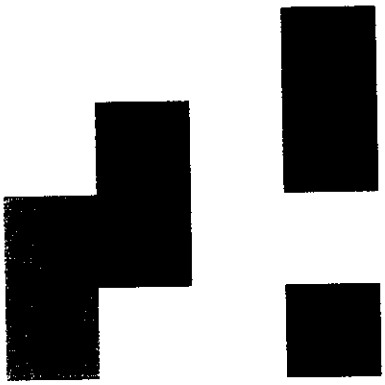


Fig:10

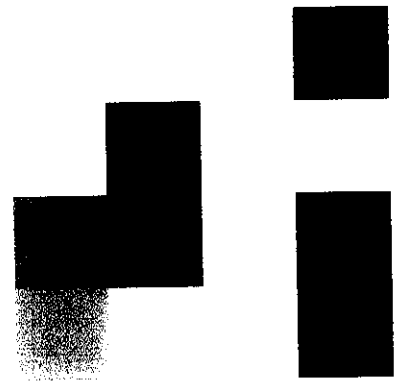


Fig:11

In the figure 4 we have used standard weave twill 2/2.But to obtain shade we have added 1 warp float in cyan colour thread. In the same way in the subsequent figures we have shifted the extra warp float either up or down in the same cyan colour as well as in subsequent magenta, yellow and white colour yarns. The addition of warp float can be increased from 1 to 3 floats depending on type of weave.

If we repeat the above process for standard 4/4 weave we can achieve about 256*256= 65536 weave patterns .But it is not possible to obtain shades from all weave patterns, as some weaves may form definite patterns and some may contain full warp and weft floats .If we isolate the above flaws we may finally end at $1/3^{rd}$ of the total pattern giving shades depending on the pattern type.

3.4 COMPUTER PIXELS:

In this we have transferred the weave patterns from point paper to the computer stimulation by using software like Adobe photoshop CS3. It is the beginning process for developing a software and moreover we have to check whether the shade obtained manually and in computer are the same.

By converting into computer stimulation it will be easier for one to isolate patterns from shades.

3.5 ISOLATING PATTERNS AND SHADES:

This is very important step in arriving at our final product because for a standard 4/4 weave we can arrive about 65536 weaves where it is not sure that all the patterns will form shades because some or more than half may form definite patterns or partial designs. Hence it is must to isolate patterns from shades before developing software.

3.6 DEVELOPMENT OF SOFTWARE:

By professionals software is developed using VRML, C++ and VISUAL BASIC 6.0.Though the fist step of this dream weaver software has already been developed by experts it does not focus on colour and weave effect. Hence to develop an user friendly software for colour and weave effect the existing dream weaver has been further extended through the idea of shifting additional floats in standard patterns.

3.6.1 Working procedure:

Step 1: Start.

Step 2: Open DreamWeaver.

Step 3: Click DESIGN in tool bar.

Step 4: Select colour and weave in design.

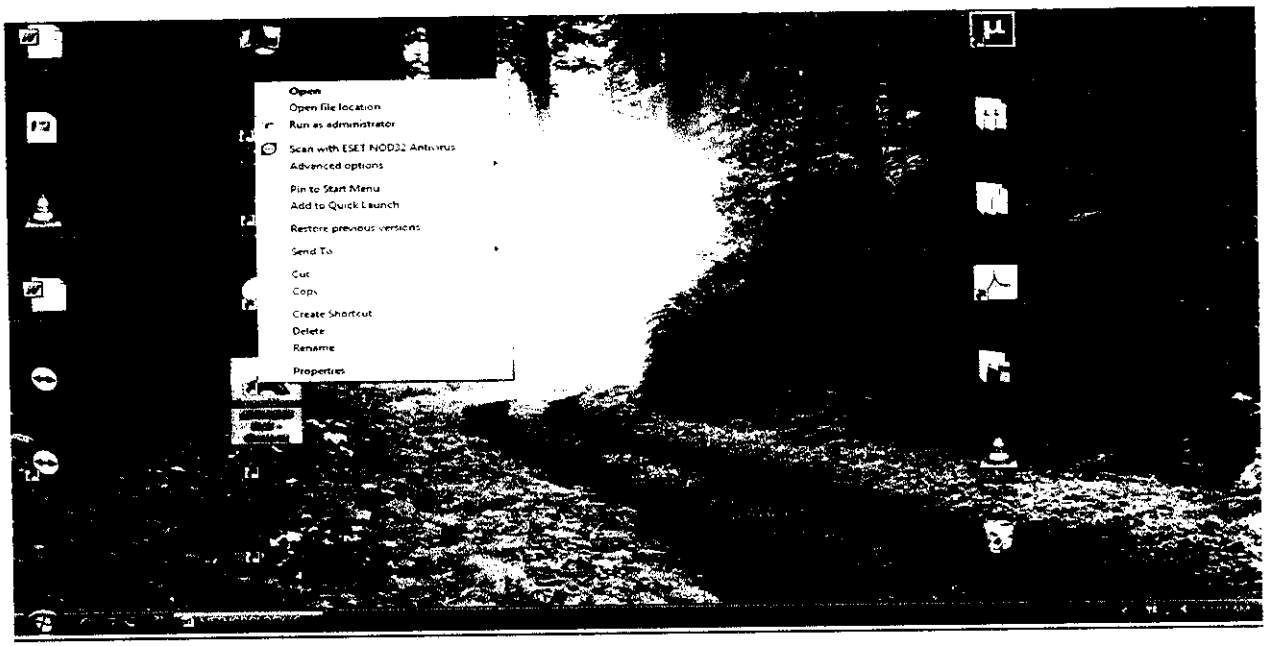
(New window colour & weave data opens).

Step 5: Choose warp & weft colours from colour order.

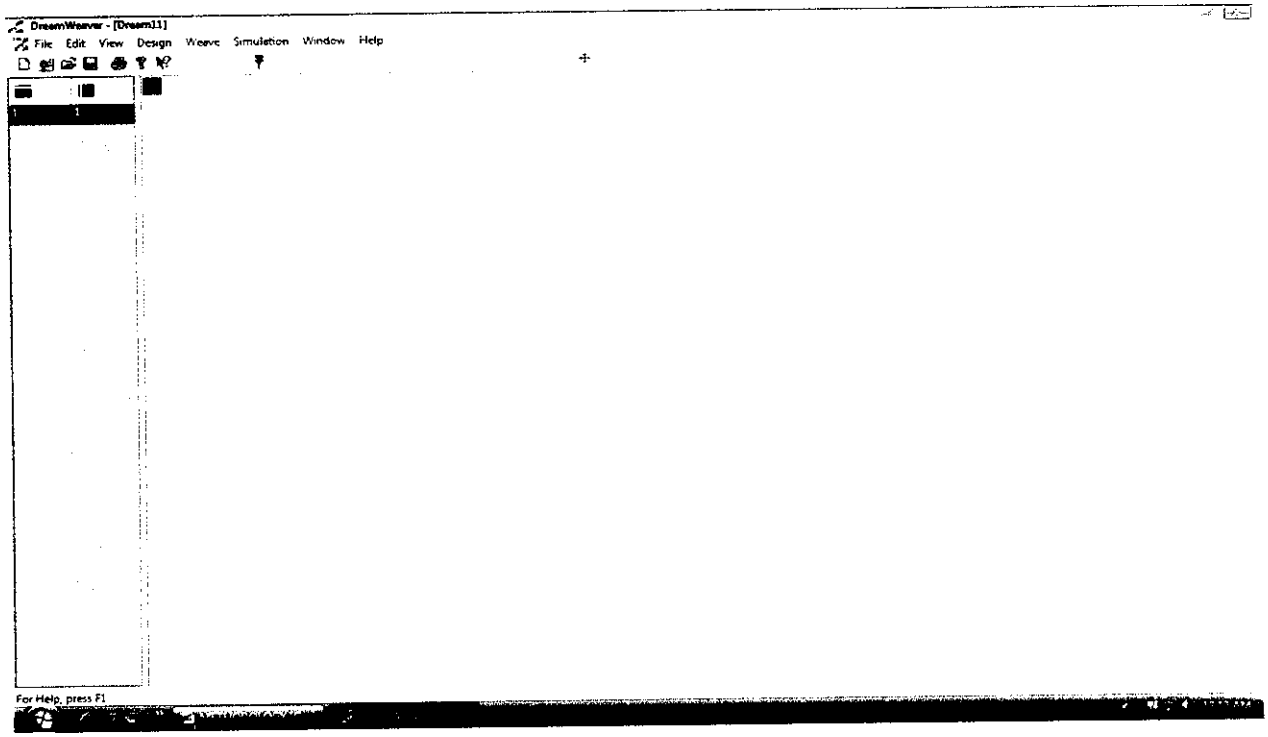
Step 6: Select the required weave from weave window.

Step 7: Next click patterns where list of pattern numbers are listed in generated weaves.

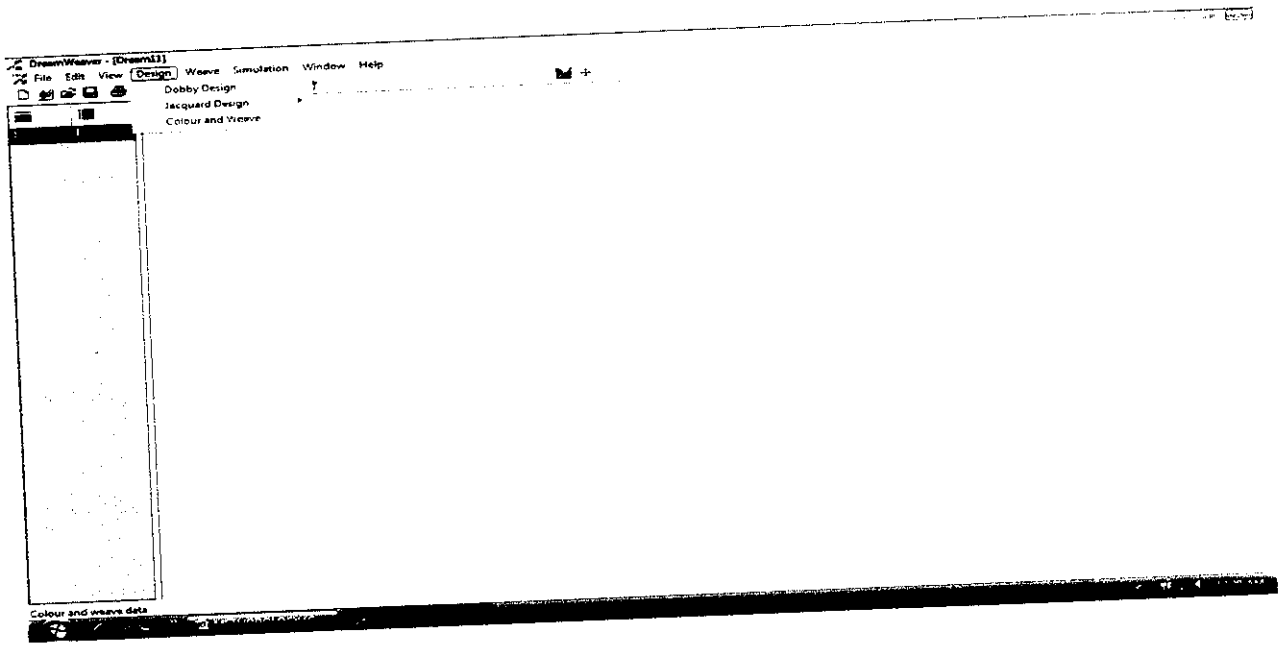
Step 8: Or if we click colour it directly displays the number of shades that can be obtained for the selected weave and given warp and weft colours.



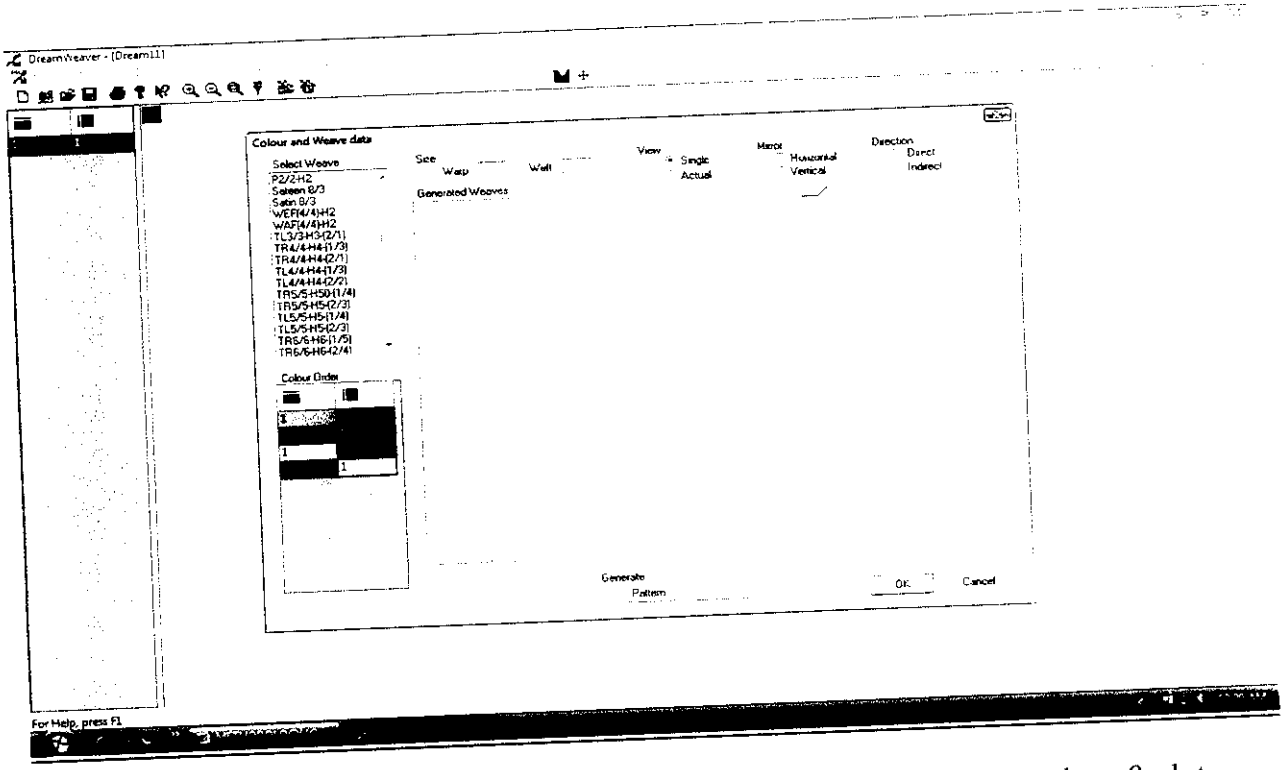
Step 1: Click dream weaver and allow it to Run as administrator.



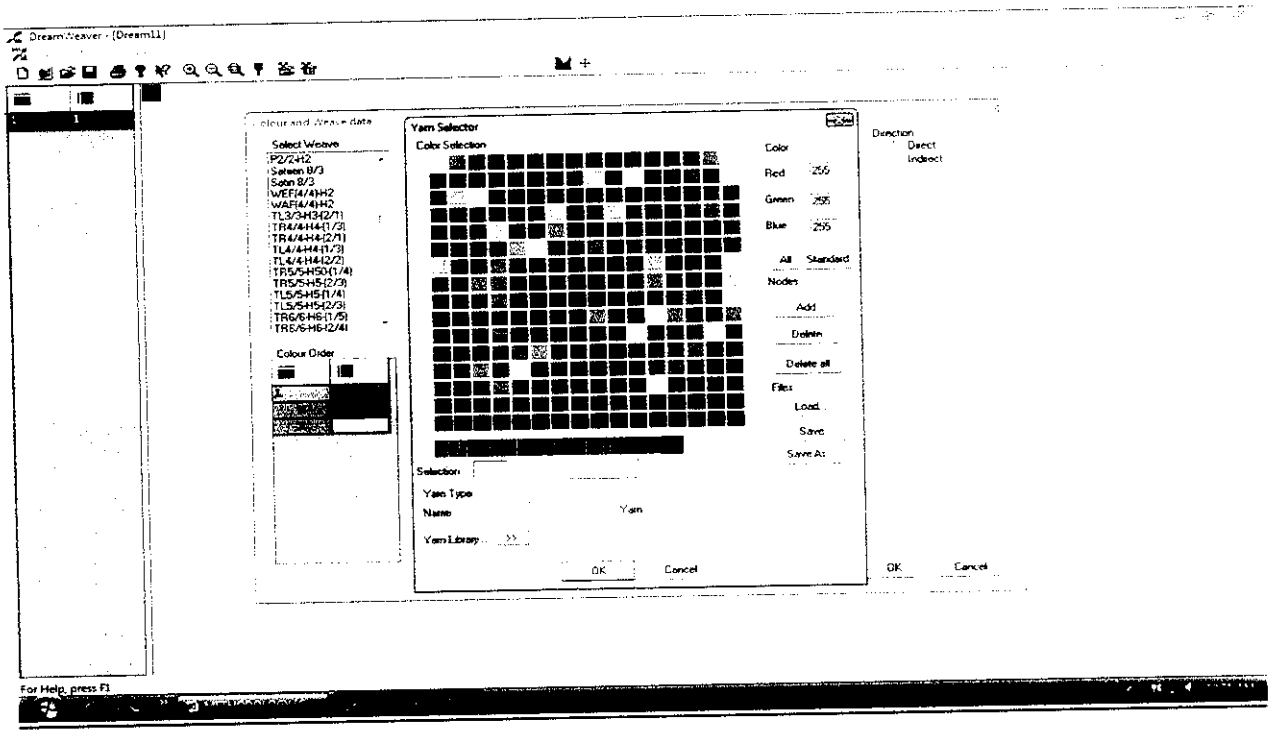
Step 2: Dream weaver is opened.



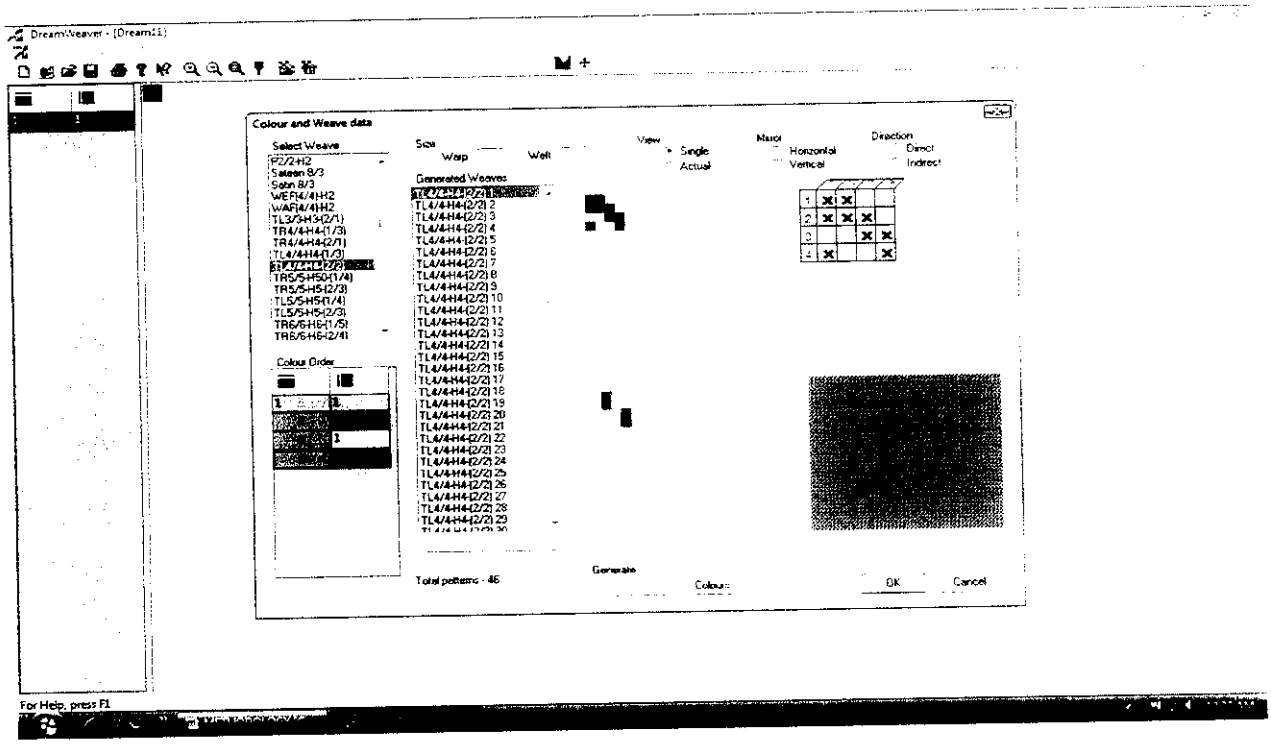
Step 3: Click DESIGN in tool bar.



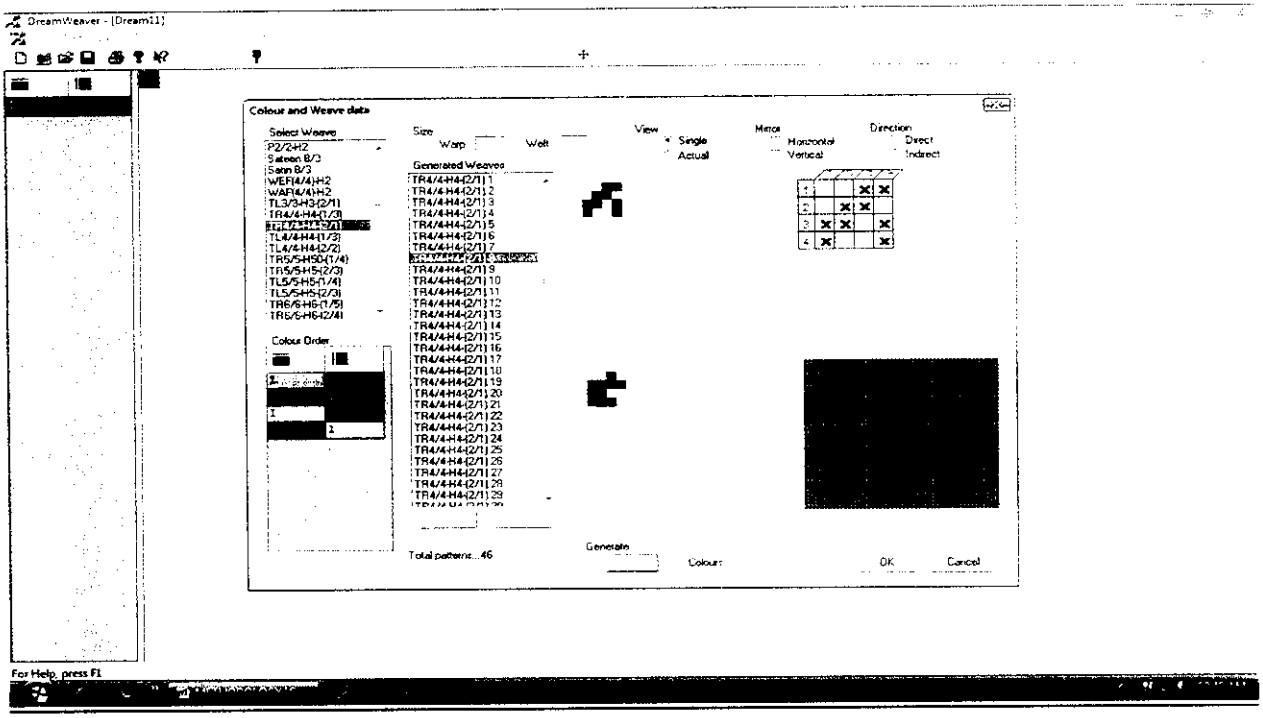
Step 4: Select colour & weave from DESIGN where new window colour& data opens.



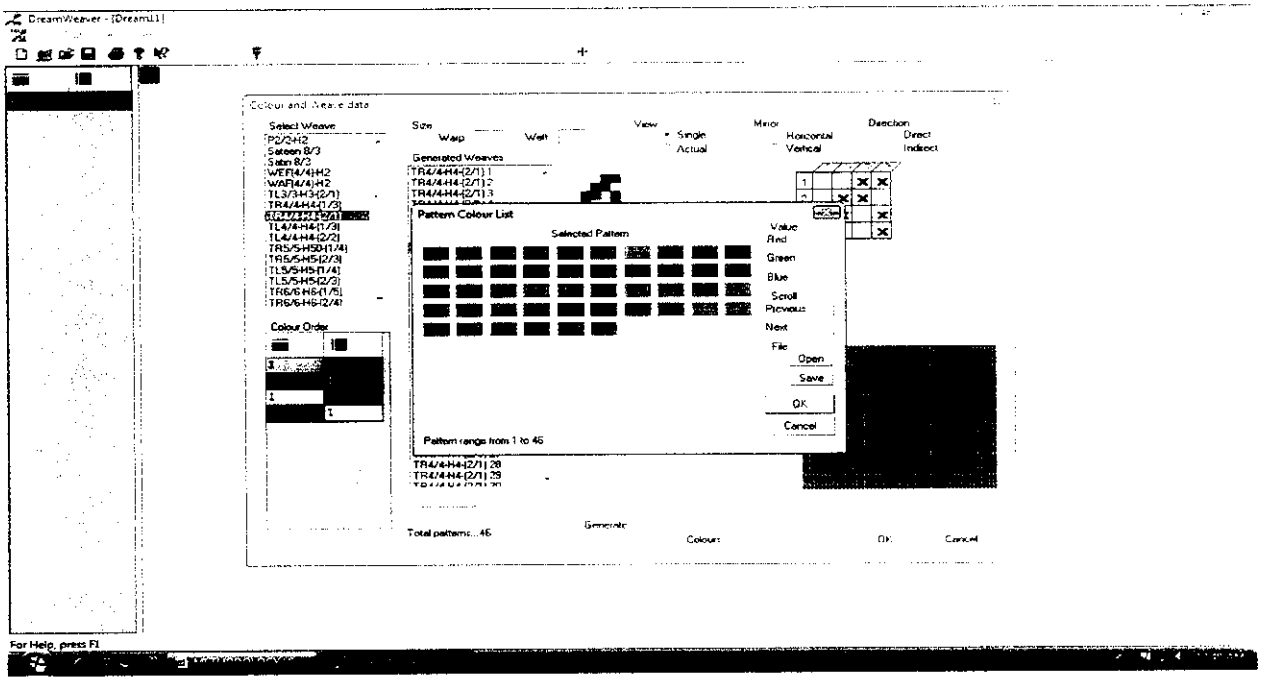
Step 5: Choose warp & weft colour from the colour order window.



Step 6: Select the required weave from the weave bank.



Step 7: Click pattern which gives no of possible patterns for a selected weave.



Step 8: If we click colours it will directly give the available shades for selected weave and colours.

3.6.2 Coding:

```
#VRML V1.0 ascii

Separator {
  Info { string "Produced by 3D Studio MAX VRML/VRßL exporter, Version 1,
Beta 2" }
  Info { string "MAX File: koshy.max, Date: Sun Mar 07 22:40:38 1999" }
  DEF Initial_View PerspectiveCamera {
    position 18.907 -17.425 63.654
    orientation 0.85805 0.27381 0.43449 1.267
    heightAngle 0.83314
  }
  DEF Camera01_target Separator {
    MatrixTransform { matrix
      1 0 0 0
      0 1 0 0
      0 0 1 0
      0.73193 8.1532 48.646 1
    }
    AimTarget_ktx_com {
      fields [ SFString aimer ]
      aimer "Camera02"
    }
  }
  DEF Camera02_TopLevel Separator {
    MatrixTransform { matrix
      0.81516 0.57924 0 0
      -0.24993 0.35173 0.90212 0
      0.52254 -0.73537 0.43149 0
      18.907 -17.425 63.654 1
    }
    DEF Camera02 PerspectiveCamera {
      position 0 0 0
      heightAngle 0.83314
    }
  }
  DEF M-SrtSrtUL Separator {
    MatrixTransform { matrix
      0.99756 8.687e-007 0.069757 0
      -0.0012181 0.99985 0.017408 0
      -0.069746 -0.01745 0.99741 0
      26.343 2.5796 50.253 1
    }
    Material {
      ambientColor 0 0 0
      diffuseColor 0.29412 0.23922 0.16471
      specularColor 0 0 0
      shininess 0
      transparency 0
    }
    Texture2 {
```

```
  filename "soapston.jpg"
}
Texture2Transform {
  scaleFactor 15 15
}
Coordinate3 { point [
  -18.429 2.3777 1.5471,
  -17.395 2.104 1.6164,
  -16.746 1.6826 1.6854,
  -16.567 1.0855 1.7219,
  -16.597 -0.79602 1.8904,
  -16.976 -1.7635 1.9889,
  -18.596 -2.5587 2.0171,
  -19.832 -2.2839 1.9457,
  -20.076 -0.90802 1.7384,
  -20.03 0.43484 1.616,
  -19.939 1.6613 1.5613,
  -19.467 2.1288 1.5241,
  -18.408 2.4533 2.4031,
  -17.41 2.1315 2.4721,
  -16.752 1.7049 2.546,
  -16.592 1.1298 2.581,
  -16.625 -0.75446 2.7413,
  -16.997 -1.7679 2.8449,
  -18.568 -2.5451 2.9398,
  -19.899 -2.1813 2.7974,
  -20.167 -0.77937 2.6636,
  -20.15 0.45236 2.5412,
  -19.998 1.7001 2.425,
  -19.483 2.1772 2.3875,
  -18.442 2.4271 3.2702,
  -17.441 2.1434 3.341,
  -16.814 1.6736 3.401,
  -16.645 1.1427 3.4425,
  -16.629 -0.66674 3.5878,
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  0.0602 0.9981 0.0083,
  0.9694 0.217 0.1144,
  -0.3289 0.5726 0.7509,
  -0.0285 0.9981 0.0544,
  -0.1693 0.3885 0.9057,
  -0.8645 0.4824 -0.1408,
  -0.6864 0.4652 -0.5588,
  0.896 -0.43 0.1101,
  -0.1984 -0.976 0.0889,
  -0.817 0.4776 -0.3227,
  -0.0319 0.2384 0.9706,
  0.9623 0.0422 0.2684,
  -0.9902 -0.1333 -0.0405,
  0.8144 -0.3994 0.4209,
  -0.8098 0.4661 -0.356,
  0.9766 -0.212 0.0337,
  -0.5974 0.3597 0.7166,
  0.9936 0.0058 0.1121,
  0.484 0.8613 0.1539,
  0.4885 0.8721 0.0247,
  0.5085 -0.7667 0.3917,
  -0.3563 0.2952 0.8864,
  -0.005 -0.0121 0.9999,
  0.8088 -0.5782 0.1068,
  -0.0487 0.7471 0.6629,
  0.7972 0.5991 0.0735,
  0.7197 0.5031 0.4782,
  -0.0159 -0.9993 0.0332,
  -0.0844 0.9933 0.0783,
  -0.0171 0.9817 0.1895,
  -0.0616 -0.7801 0.6225,
  -0.7978 0.0185 0.6026,
  -0.8023 -0.5899 0.09,
] }
```

```
NormalBinding { value PER_VERTEX_INDEXED }
TextureCoordinate2 { point [
  0.99756 0.049274,
  0.93081 0.051729,
  0.88218 0.054066,
  0.84472 0.052657,
  0.69991 0.056062,
  0.61979 0.060233,
  0.48991 0.061607,
  0.40632 0.059535,
  0.31368 0.04835,
  0.18668 0.045601,
  0.10554 0.04941,
  0.063951 0.0477,
  0.99489 0.14654,
  0.92947 0.14866,
  0.87962 0.15148,
  0.84369 0.15014,
  0.69813 0.15261,
  0.61647 0.15695,
  0.49356 0.16586,
  0.40257 0.1568,
  0.30648 0.1542,
  0.19417 0.15063,
  0.10845 0.14748,
  0.063956 0.14569,
  0.99545 0.24437,
  0.92849 0.24701,
  0.87734 0.24799,
  0.84192 0.24774,
  0.70051 0.24897,
  0.61608 0.254,
  0.49511 0.25704,
  0.40005 0.25409,
  0.3067 0.25196,
  0.1946 0.24809,
  0.10979 0.24549,
  0.062932 0.24353,
  0.99692 0.34205,
  0.92904 0.3441,
  0.87523 0.34575,
  0.83497 0.34374,
  0.70005 0.3457,
  0.6158 0.35135,
  0.49509 0.35351,
  0.39838 0.35375,
  0.31042 0.3501,
  0.20029 0.34621,
  0.10947 0.3435,
  0.059943 0.34141,
  0.0029222 0.43886,
  0.92848 0.43842,
  0.86922 0.44337,
```

0.82433 0.44326,
0.69246 0.44423,
0.611 0.44674,
0.49306 0.44414,
0.39983 0.44427,
0.31606 0.44825,
0.21279 0.44475,
0.1143 0.44171,
0.05854 0.44002,
0.0083773 0.48023,
0.93031 0.48183,
0.86451 0.48486,
0.81665 0.48499,
0.68433 0.48694,
0.60854 0.48693,
0.48834 0.49369,
0.3983 0.49173,
0.31888 0.49073,
0.22327 0.4873,
0.11797 0.4846,
0.061767 0.48257,
0.015996 0.52277,
0.93346 0.52257,
0.86438 0.52675,
0.80391 0.52762,
0.67232 0.52972,
0.60123 0.5302,
0.48459 0.5329,
0.39614 0.53319,
0.3216 0.53238,
0.23883 0.53058,
0.13055 0.52744,
0.070901 0.52477,
0.027483 0.5633,
0.93579 0.56344,
0.8623 0.5678,
0.78738 0.56932,
0.65875 0.56938,
0.59158 0.56919,
0.47988 0.57656,
0.38601 0.57335,
0.31986 0.57597,
0.24836 0.57448,
0.14935 0.56948,
0.086001 0.56563,
0.037434 0.60136,
0.93975 0.60441,
0.86138 0.6093,
0.76639 0.61189,
0.64487 0.61368,
0.57659 0.61445,
0.47244 0.61407,
0.38486 0.61211,

0.31389 0.61577,
0.24923 0.6134,
0.17307 0.61216,
0.10291 0.6062,
0.046653 0.6367,
0.94535 0.63661,
0.85988 0.64139,
0.75581 0.64293,
0.63906 0.64638,
0.56748 0.65348,
0.46674 0.64967,
0.38126 0.64489,
0.31417 0.64477,
0.25321 0.64312,
0.1803 0.64199,
0.11696 0.63849,
0.052371 0.66894,
0.95293 0.66882,
0.86072 0.67345,
0.74596 0.67689,
0.63536 0.6786,
0.55969 0.67974,
0.45956 0.6829,
0.37697 0.67743,
0.31257 0.67668,
0.25523 0.67421,
0.18819 0.67365,
0.12534 0.67098,
0.059095 0.7002,
0.95886 0.70178,
0.86164 0.70548,
0.74149 0.70908,
0.63112 0.71072,
0.5497 0.71472,
0.45507 0.71405,
0.37412 0.7105,
0.31362 0.70852,
0.25609 0.70552,
0.19026 0.70576,
0.1301 0.70313,
0.065163 0.73452,
0.96562 0.73293,
0.86128 0.73657,
0.73624 0.74083,
0.62461 0.74307,
0.54212 0.74593,
0.44744 0.74824,
0.37053 0.74349,
0.31304 0.74096,
0.25592 0.73751,
0.19365 0.73763,
0.13394 0.73525,
0.071573 0.7702,

```
    0.97568 0.76879,
    0.86386 0.77192,
    0.73686 0.77575,
    0.6125 0.77901,
    0.5339 0.78021,
    0.44141 0.78153,
    0.3688 0.77879,
    0.31212 0.77611,
    0.25524 0.77248,
    0.19601 0.77208,
    0.13539 0.77026,
    0.080149 0.80554,
    0.98521 0.80533,
    0.87245 0.80776,
    0.73677 0.81085,
    0.60408 0.81412,
    0.52021 0.81372,    ]
  }
}
DEF Camera03_TopLevel Separator {
  MatrixTransform { matrix
    0.99934 -0.036232 0 0
    -0.0063418 -0.17492 0.98456 0
    -0.035673 -0.98392 -0.17503 0
    -2.451 -37.366 44.172 1
  }
  DEF Camera03 PerspectiveCamera {
    position 0 0 0
    heightAngle 0.7854
  }
}
DEF Camera03_Target Separator {
  MatrixTransform { matrix
    1 0 0 0
    0 1 0 0
    0 0 1 0
    -1.1456 -1.3606 50.577 1
  }
  AimTarget_ktx_com {
    fields [ SFString aimer ]
    aimer "Camera03"
  }
}
DEF Camera04_TopLevel Separator {
  MatrixTransform { matrix
    -0.2446 -0.96962 0 0
    0.10905 -0.027509 0.99366 0
    -0.96347 0.24305 0.11246 0
    -23.308 14.068 54.092 1
  }
  DEF Camera04 PerspectiveCamera {
    position 0 0 0
    heightAngle 0.7854
```

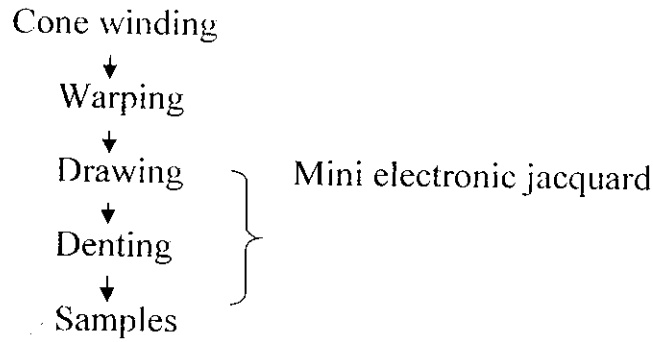
```
  }
}
DEF Camera04_Target Separator {
  MatrixTransform { matrix
    1 0 0 0
    0 1 0 0
    0 0 1 0
    -6.5742 9.8468 52.139 1
  }
  AimTarget_ktx_com {
    fields [ SFString aimer ]
    aimer "Camera04"
  }
}
DEF Camera05_TopLevel Separator {
  MatrixTransform { matrix
    -0.82017 0.57211 0 0
    -0.4439 -0.63636 0.63087 0
    0.36093 0.51742 0.77589 0
    10.545 14.501 76.861 1
  }
  DEF Camera05 PerspectiveCamera {
    position 0 0 0
    heightAngle 0.7854
  }
}
DEF Camera05_Target Separator {
  MatrixTransform { matrix
    1 0 0 0
    0 -8.4981e-008 1 0
    0 -1 -8.4981e-008 0
    0.42971 -2.4092e-006 55.115 1
  }
  AimTarget_ktx_com {
    fields [ SFString aimer ]
    aimer "Camera05"
  }
}
DEF Camera01_TopLevel Separator {
  MatrixTransform { matrix
    6.4388e-008 -1 0 0
    0.82736 5.3272e-008 0.56167 0
    -0.56167 -3.6165e-008 0.82736 0
    -17.216 -3.4552e-006 79.046 1
  }
  DEF Camera01 PerspectiveCamera {
    position 0 0 0
    heightAngle 0.7854
  }
}
DEF Camera01_Target Separator {
  MatrixTransform { matrix
    1 0 0 0
```

```
    0 -8.4981e-008 1 0
    0 -1 -8.4981e-008 0
    -0.9881 -2.4103e-006 55.142 1
  }
  AimTarget_ktx_com {
    fields [ SFString aimer ]
    aimer "Camera01"
  }
}
DEF Camera06_TopLevel Separator {
  MatrixTransform { matrix
    -4.0903e-009 1 0 0
    0.093167 3.8108e-010 0.99565 0
    0.99565 4.0725e-009 -0.093167 0
    29.099 -2.1207e-006 48.516 1
  }
  DEF Camera06 PerspectiveCamera {
    position 0 0 0
    heightAngle 0.7854
  }
}
DEF Camera06_Target Separator {
  MatrixTransform { matrix
    1 0 0 0
    0 -8.4981e-008 1 0
    0 -1 -8.4981e-008 0
    1.0107 -2.2356e-006 51.144 1
  }
  AimTarget_ktx_com {
    fields [ SFString aimer ]
    aimer "Camera06"
  }
}
DEF Camera07_TopLevel Separator {
  MatrixTransform { matrix
    0.93802 0.34659 0 0
    0.061379 -0.16612 0.98419 0
    0.34111 -0.92319 -0.1771 0
    11.338 -23.081 48.716 1
  }
  DEF Camera07 PerspectiveCamera {
    position 0 0 0
    heightAngle 0.7854
  }
}
DEF Camera07_Target Separator {
  MatrixTransform { matrix
    1 0 0 0
    0 -8.4981e-008 1 0
    0 -1 -8.4981e-008 0
    2.8096 -2.323e-006 53.143 1
  }
  AimTarget_ktx_com {
```

```
    fields [ SFString aimer ]
    aimer "Camera07"
  }
}
```

3.7 PRODUCING SAMPLES:

In order to produce samples we have chosen 128 hooks mini electronic jacquard .The procedure for producing samples are given below



3.7.1 Cone winding:

In order to match 128 hook mini electronic jacquard we have taken 4 warp colour threads each consisting of 32 ends.

As this project is based on CMYK principle the warp colours chosen are light blue, rose, yellow and white and the same light blue for weft .Inorder to avoid wastage we have taken 80 denier polyester roto yarn for both warp and weft.

M/C PARAMETERS:

Name: Veejay Lakshmi

Drum Dia: 3.54"

Max Speed: 500 rpm

Motor Specification: 2 HP motor 1440 rpm

Each end is wound for 3 mins which yields 13 ½ gms of one end which outsources about 50 mts of fabric.

3.7.2 Warping:

M/C PARAMETERS:

Name: Fujima 60

Max Speed: 300 mts/min

Min Speed: 80 mts/min

Motor Specification: 2 HP

Motor Speed: 960 rpm

Two colours are warped in one beam of diameter (3.8") .Thus containing 64 ends in one beam.

3.7.3 Mini electronic jacquard m/c:

M/C PARAMETERS:

Name: GROSSE

Model: 2/151

Width: 2.5"

No of hooks: 128 (32 per colour)

Reed count: 25 (stockport system)

Speed: 560 ppm

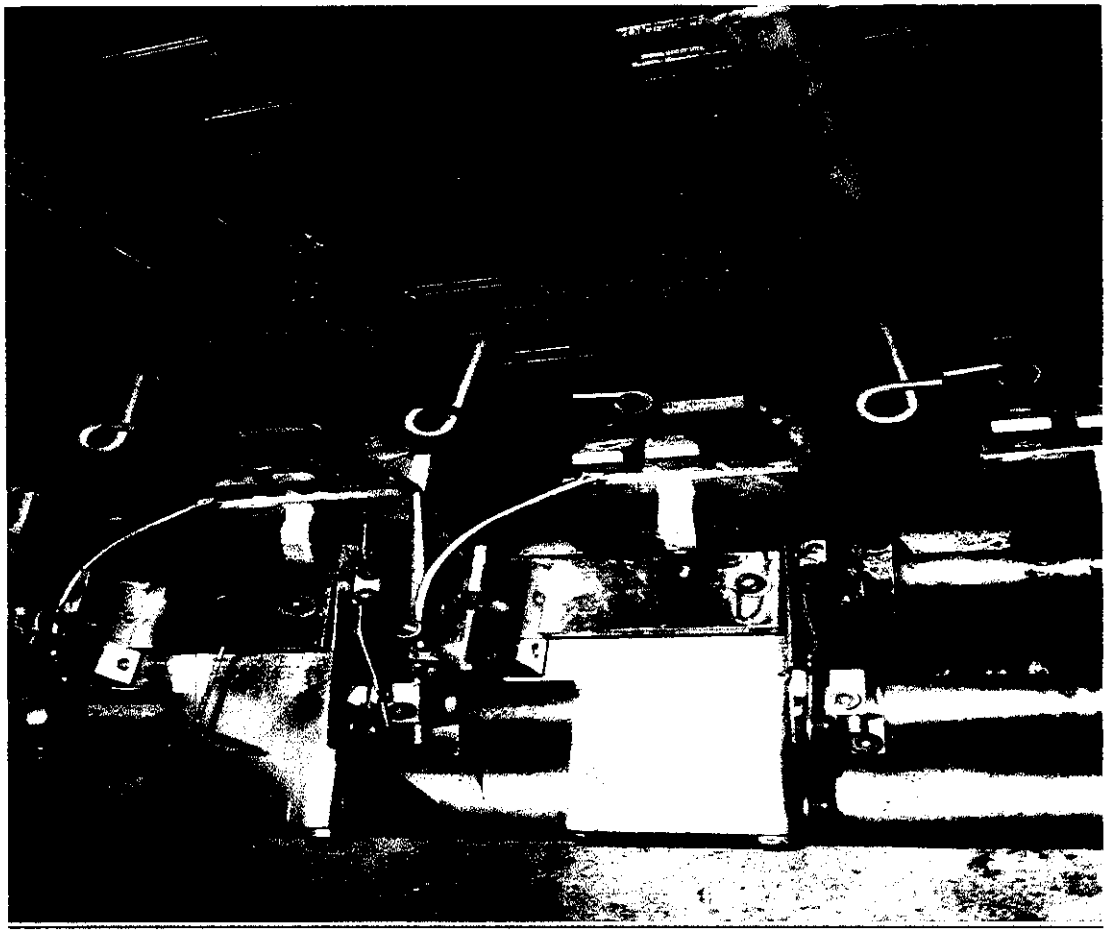


Fig 20: Weft insertion mechanism

There are two important process involved after warping within the machine .They are

- Drawing
- Denting

3.7.3.i Drawing & denting:

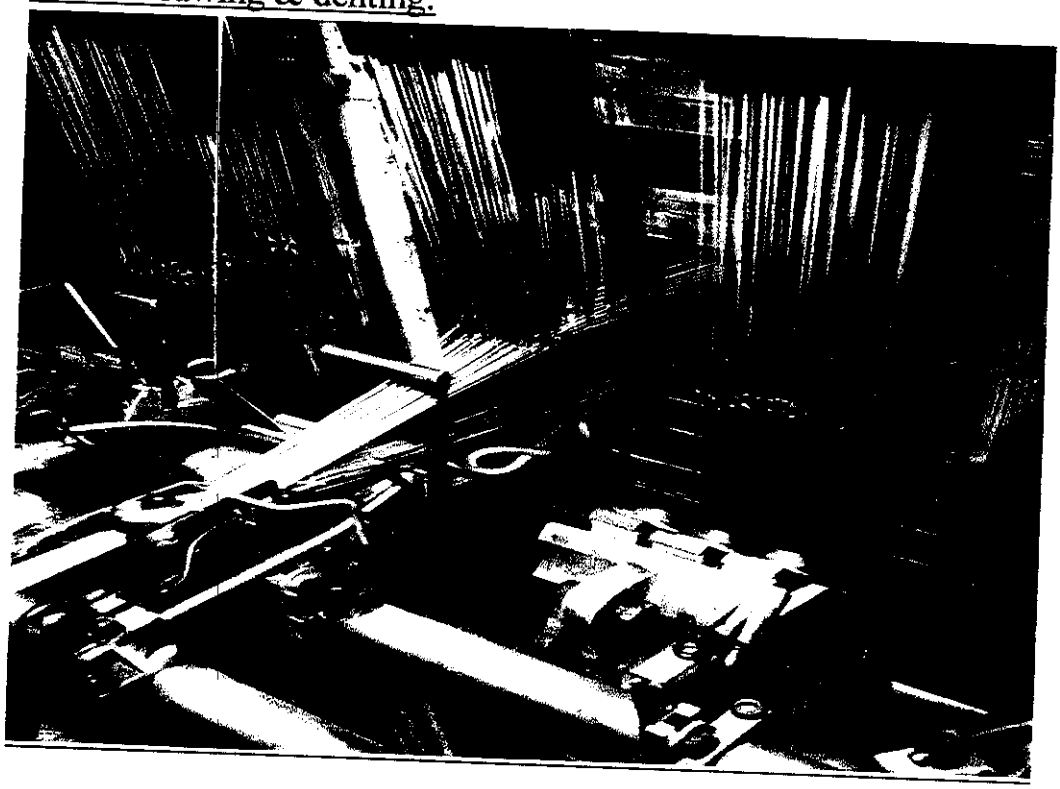


Fig 21: Drawing & Denting

This 128 hooks are divided into 8 hooks in 1 column thus consisting of 16 columns. The order of warp thread passing through each heald eye is white, blue, yellow, rose (i.e)

1,5,9,13$^{th.}$ .....hook consisting of white threads

2,6,10,14$^{th.}$ .....hook consisting of blue threads

3,7,11,15th ....hook consisting of yellow threads

4,8,12,16th ....hook consisting of rose threads

Two sets of 4 warp colours are passed through single dent in the reed.

3.7.4 Samples:

Here weft is inserted by means of latch needle therefore 1 shed contains 2 wefts. Predominance of weft floats can be seen in these woven samples.

The sample can be obtained in both plain tape and elastic tape depending on end use.

3.8 COMPARISON OF SAMPLE WITH FABRIC STIMULATION:

It is must to compare the produced sample with that of computer fabric stimulation because it is not necessary that both will be same in appearance. By using software one would have seen only 1or 2 repeats of fabric and in order to see the actual size of fabric we may have zoomed in or out depending on the requirement. By doing so computer will add or remove some datas.

Moreover intensities of colour play the major role for obtaining shades which varies manually and in computer.

3.9 CORRECTION:

If the manual shade obtained is different from computer pixel it is necessary to correct flaws.

This can be done only by trial & error method (i.e) either by changing certain parameter like speed, pick density, reed size, tightness, colour intensities in m/c or by changing the colour order or changing the weft colour the correction can be done.

3.10 FINAL SHADES:

Once the flaws are analyzed and eradicated it becomes easier to obtain dream shades with simple weave patterns .Thus final shades are produced.

But in some shades because of higher float length the groupism of thread will occur, in case of dark colours the groupism will be more and highlighting of those thread occur resulting in stripe formation, but it is not actual stripe effect.

CHAPTER 4

RESULTS & DISCUSSION

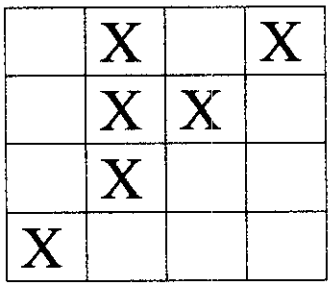
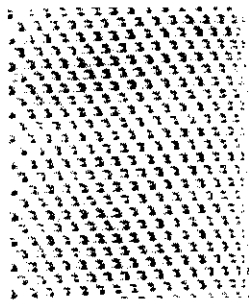
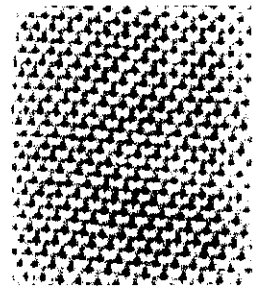
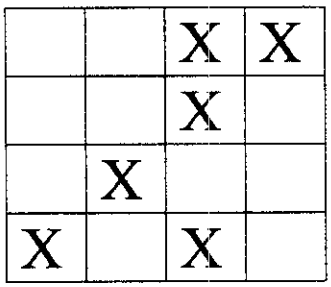
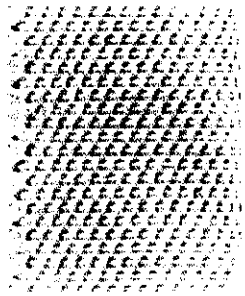
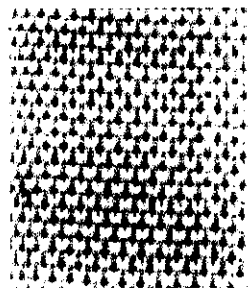
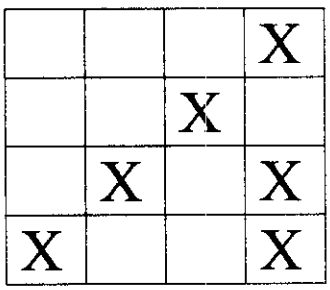
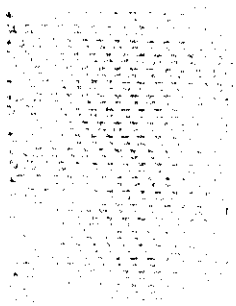
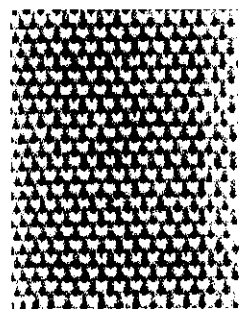
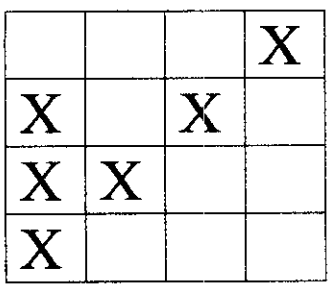
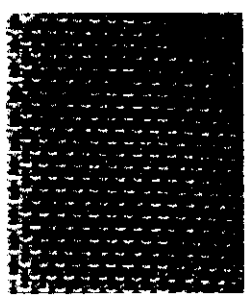
4. RESULTS AND DISCUSSIONS

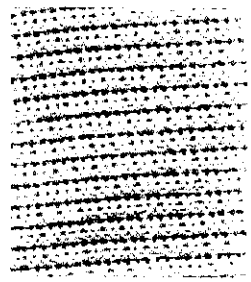
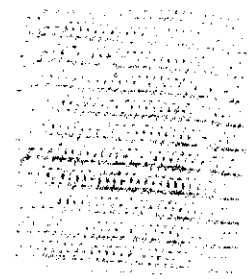
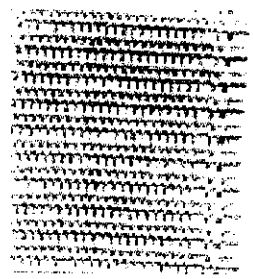
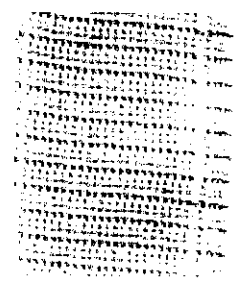
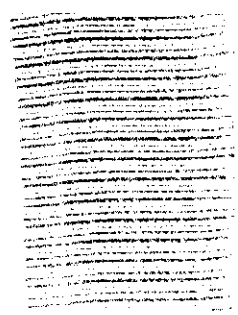
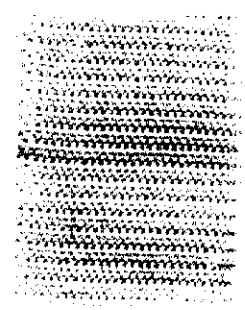
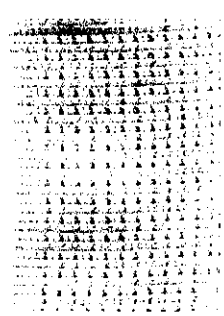
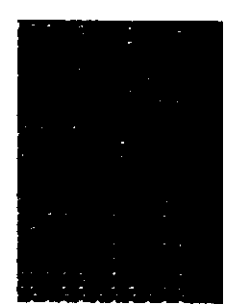
Thus in association with Jambu associates and software professionals we have developed an already existing user friendly software further from its initial stage of jacquard single layer cloth to colour and weave effect.

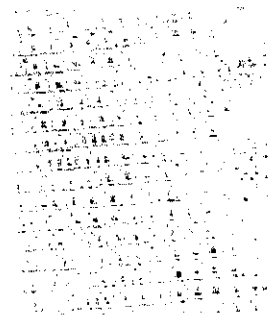
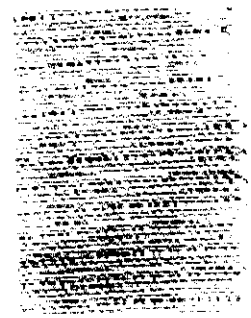
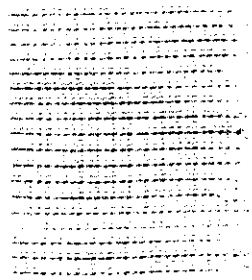
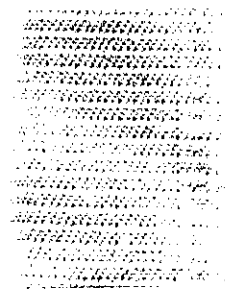
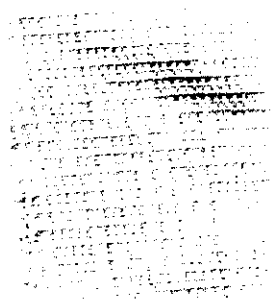
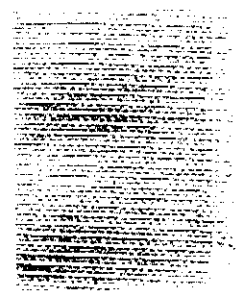
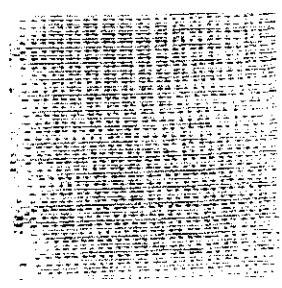
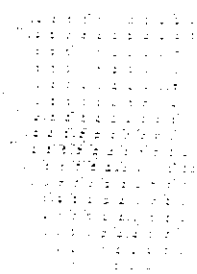
This software especially helps us in getting possible number of shades from the minimal use of warp and weft colour threads .Moreover we can see the interlacements of warp and weft float for more than one or more repeats. It also visualizes the final product through fabric stimulation.

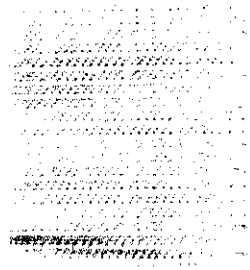
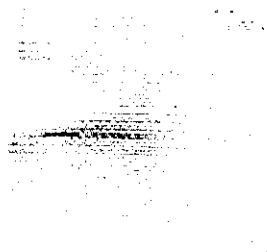
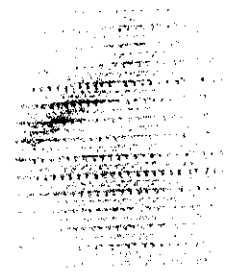
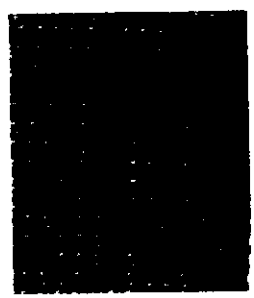
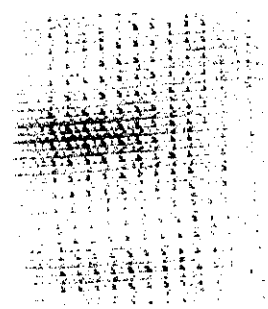
By using the above software we have produced around 50 samples from mini electronic jacquard machines where some of them has been displayed.

Table 2: Weave and shade effects

Weave	Face side	Back side
W1 		
W2 		
W3 		
W4 		

Weave	Face side	Back side
W5 X X X X X X X X X X X		
W6 X X X X X X X X X X		
W7 X X X X X X X X X		
W8 X X X X X X X X X X		

Weave	Face side	Back side
W9 <table><tr><td></td><td></td><td>X</td><td>X</td></tr><tr><td></td><td>X</td><td>X</td><td></td></tr><tr><td>X</td><td>X</td><td></td><td></td></tr><tr><td>X</td><td></td><td>X</td><td>X</td></tr></table>		
W10 <table><tr><td></td><td></td><td>X</td><td>X</td></tr><tr><td></td><td>X</td><td>X</td><td></td></tr><tr><td>X</td><td>X</td><td>X</td><td></td></tr><tr><td>X</td><td></td><td></td><td>X</td></tr></table>		
W11 <table><tr><td></td><td></td><td>X</td><td>X</td></tr><tr><td></td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td></td><td></td></tr><tr><td>X</td><td></td><td></td><td>X</td></tr></table>		
W12 <table><tr><td></td><td></td><td>X</td><td>X</td></tr><tr><td></td><td>X</td><td>X</td><td></td></tr><tr><td>X</td><td>X</td><td></td><td>X</td></tr><tr><td>X</td><td></td><td></td><td>X</td></tr></table>		

Weave	Face side	Back side
W13 X X X X X X X X X X X		
W14 X X X X X X X X X X X		
W15 X X X X X X X X X		

CHAPTER 5

CONCLUSION

5. CONCLUSION

By using this software we can able to produce desired shades but the following points has to be considered

1. Other than shade we can also improve the luster of the fabric.
2. Feel of the fabric can also be improved.
3. For future study this software can be used in multi-layer cloth where there is possibility of obtaining more clear shades.
4. It can also be tried in all kinds of fibres.
5. Rather than dyeing we can opt for this colour & weave concept in order to produce shades.

CHAPTER 6

REFERENCES

6.REFERENCES

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