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Research Article

Manufacture Process Technology Using Small Equipment to Fabricate Fibre Textile Cloth Material Objects

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Abstract

We study manufacture process technology using small equipments. We consider clip equipment for the first time. They are small objects. They are made of alloy. We use textile cloth membrane material. We peel the textile cloth membrane material using small clip equipment. When we peel the textile tears step by step showing the air gap with textile object in tact. The steps show polymer textile cloth process. The task of the small clip equipment are to peel towards the fibre. We continue the peel process. The air gap widens on the textile to obtain the fibre textile. The work is simple. We obtain fibre textile (FT) membrane material objects. We obtain multiple numbers. The length of the fibre textile membrane material object 1 is 7 cm. The width and height are small. The length of the fibre textile membrane material object 1 is 9 cm. The width and height are small. The work time is 4 minutes. The set up experiments are placed on wood bench. Our work can find applications in touch use, décor and seat furniture objects. The textile cloth fibre capillary inside cylinder for displays. We can use liquid with the textile cloth fibre capillary inside cylinder for displays. Textile polymer membrane material are used to show fixed vehicle. They find applications in automobiles, mini robots, vehicles and truck objects.

Keywords

Textile, Fibre Cloth Manufacture, Polymers, Clip Equipment, Cloth Sheets

1. Introduction

In the world the relation between the humans, objects, equipments, birds, animals, ores and ecosystem are less understood. In this study we give a perspective in the field of textile and fibres. We work in ethics. Let us consider the equipment a must to write a text book on machine. We consider small size equipment. We observe bird uses small equipments [1]. In that regards the time to complete the work is small. The work is simple. We obtain repeats. We see in birds when they touch their equipments. They complete the work. The defence system provides the understanding that the science with each species are needed. The objects that we study are textile cloth membrane materials. We see birds when they fly, on ground touch, use and work with textile cloth membrane materials. Advanced applications are driven today from bio inspired species. The application world for humans are touch use, décor and seat furniture objects. Dynamic automobile, vehicles and truck objects. Birds know, work, use from textile fibre cloth membrane material they can find applications to small robots [2-4]. We study mini bots, small robots, design robots and gadgets using textile fibre cloth membrane material to simple use. The advancement of textile cloth fibre capillary inside cylinder for displays are new. We can mix the

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textile cloth fibre with liquids inside cylinder. We use for displays. We study buoyant pressure properties. We see the birds use the liquid, cylinder column and textile fibre cloth membrane material to their simple life. The life of birds in the ecosystem environment with computer simulations should be studied in the future.

The language relation with birds and animals are well known [5]. They are related to the simple work associated with birds and their equipment objects. The alphabets in English are 26. We make sentences to understand they are work. We study computer to study sentences as work. The use of language, pen, book, equipment, textile cloth membrane materials, ore elements, polymers and objects when they are simple we know the properties more. Ore elements have brain so they can produce the product in volume that include many repeat of same objects and large size [6]. We work to ensure the object have many repeat of same objects and large size. The extension of language to sensor objects should be considered in future. Sensors have to work to give results and confidence to humans that we understand their streamline process technology [7]. For example light, heat, sheets and others. Over the years, the computers have evolved to involve humans. Digital dynamic design methods in website and codes have relied on the fundamentals to know the copy of the set up and have back up in thorough in our world [8].

Textile material are used to woven label print. We should design the woven label to print on textile cloth material. Typically the woven label are fibrous textile cloth. The design can have color patterns. The fibrous cloth should provide colors to match the design. The inputs are processed in woven machine to print on another textile cloth. The machine is in the field of textile. The design are also input to the woven machine. In the recent years the apps on phone and computers have draw designs. The designs are saved as image. They are given as input to woven machine. The time to model the designs are few seconds to minutes. The woven machine have the inputs to obtain print design on textile. The size of the design pattern are about 5 cm by 5 cm by 3 mm. However, we should obtain 100, 500, 2000 and 5000 repeats of woven label print fibre textile of the size mentioned. We should obtain the printed woven label design on shirts and clothes. The woven label machine have the capability to provide individual printed design textiles [9-15]. Also the woven machine have the capability to print the design on shirts and clothes.

Textile cloth membrane material uses to multiple applications should be studied in future. They should be used as walls for room. The flexible mechanism of textile can be used in future. With the growing advent of manufacture of products using resources we see textile cloth membrane material provides the product technology [16-19].

In this paper we work with small clip equipment. We place them on wood bench. We consider textile cloth membrane material. Using the clip we process to peel the textile cloth. We obtain the fibre textile cloth membrane material. The size are 10 cm. The work time are 4 minutes. We study manufacture process technology using small equipments.

2. Materials and Methods

We purchase the wood bench from Hardware, India. We purchase the small clip and textile cloth membrane material from Mall, India. OM system camera is purchased from Kesari Scientific Chemicals, India. The camera have features for micron size imaging. We purchase the digital vernier caliper and digital micrometer from Progressive Trade corporation, India.

3. Experiment and Methods

Figure 1 shows the experiment methods. We need wood bench as shown in Figure 1.

Figure 1 shows small equipment. They are new clip. They are made of alloy. We use textile cloth membrane material as our object as shown in Figure 1. We image the manufacture process technology using camera. The small clip and textile membrane cloth material are placed on wood bench. We have paper on wood bench. We write (a) for imaging (b) small clip equipment and (c) textile cloth membrane material object.

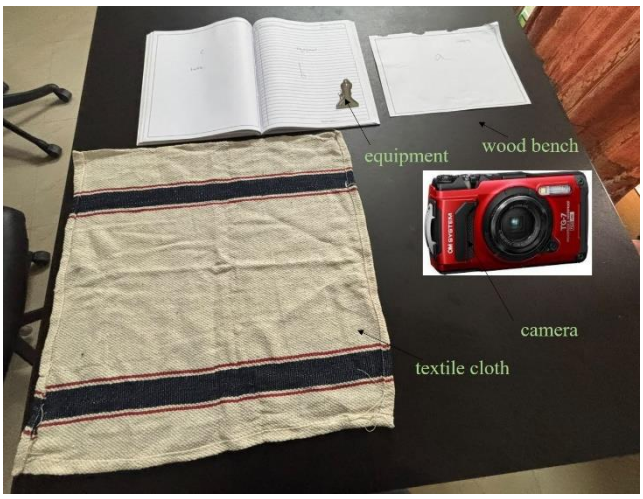


Figure 1. *Experiment set up.*

4. Results and Discussion

In depth study of the textile cloth membrane objects are available [20-22]. Textile composite manufacturing machine is used for engineering and cloth. 3D textile composite are obtained. The basics of textile objects require fabrics. They are printed and fabricated into clothes, decor and industries. In textile manufacturing, different shapes of fibers are used to produce yarn. Fibre is thin and continuous filament that serves as the building block of textiles. The group of fibre make yarn. The large group of yarn when bonded forms the cloth. The cloth, fabric and textile are same. The shape of the textile are

sheets. The length and width of the textile cloth sheet are in metres. The thickness of the textile cloth are in cm. The process of textile manufacturing begins with the cultivation of fibre textiles [23-25]. The vertical yarns that run the entire length of the fabric are called warp. The horizontal yarns that pass over and under the warp threads from side to side are called weft. The grid like alignment creates a stable and firm shape textile object. Textiles can be 2D (two dimensional), 3D (three dimensional) depending on their structure, yarn and shape. The 2D textiles are made on two flat planes using length (x-axis) and width (y-axis) yarn systems. They have thin thickness in mm to cm size compared to their length and width. Typical bedsheets and clothes textiles are examples. The three dimension textiles examples are textile based shoe and foot wear devices.

Compare proposed process with existing fabrication methods

The existing fabrication methods are discussed. Fibers are obtained from finished textiles through mechanical recycling, a process that shreds and pulls apart woven and knitted fabrics back into loose reusable fibers. We use multi stage mechanical line. This is standard industrial machine device. A large rotary textile cutting machine cuts the textile to small uniform patches [26]. There are saw tooth steel alloy wires not electrical wires are used. The steel alloy wires pull the threads apart into individual fibers. They are available in the machine. However, the cutting process uses sharp teeth that are hazardous for close manual work. The sustainable design, safe use of cutter, scissors and cut machine are scope of the future. There are air blower to remove air volume and dust. We obtain clean fibre textile. The fibre textile are obtained in large mass and volume. The individual fibre are obtained by simple manual removing from the large mass of fibre textile. The work time are in minutes.

In our proposed process we use the textile cloth. We can cut and pull the thread to obtain individual fibre. Our cut procedure is done using the clip. They have saw teeth stainless steel alloy. They are safe for manual use. The pull and peel work gives the thread and individual fibre. We avoid heavy machine and obtain individual fibre same as existing fabrication devices. The work time is 4 minutes. The work time is same as the exist fabrication methods. We obtain clean fibre textile. However, we do not obtain large mass of fibre textile with one clip. We can use multiple clips to obtain large mass of fibre textile. They are scope for the future. The work time is small. They are simple. Mechanism is elongation process. We obtain stable fibre textile. The material behavior to compare the stability with force methods are scope of the future.

Figure 2a shows the textile cloth membrane material. Figure 2b shows the close details of the textile object. The dimensions of the textile cloth are given in Table 1.



Figure 2. *(a) textile cloth membrane material (b) close view.*

Table 1. *Textile cloth membrane material object.*

Textile cloth membrane material object	Details
length	48 cm
width	48 cm
height	3 mm

Figure 3a shows the process to peel using the small clip. The result on the textile cloth membrane material object are shown in Figure 3a. Figure 3b shows the close details.

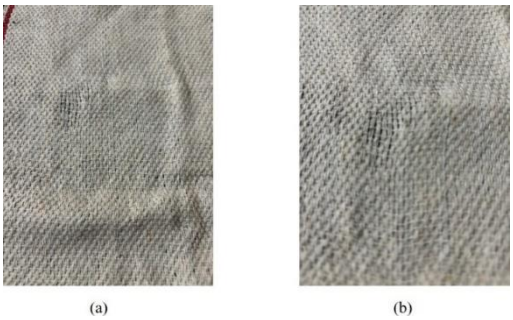


Figure 3. *(a) peel region in the textile cloth (b) close view.*

Figure 4 shows the steps during the peel process using small clip. We obtain the fibre textile cloth membrane material object. The close view are available in the steps in Figure 4.



Figure 4. *Fibre textile cloth membrane material object. We show steps. We show small clip equipment.*

Figure 5 shows the two textile fibre objects. They are label as 1 and 2. The work with the clip are simple to obtain the two fibre textile objects. We work for 4 minutes. The close view are available in the steps in Figure 5.



Figure 5. *Two textile fibre objects. We show steps and they are flexible. We have small clip.*

The dimensions of the two fibre textile cloth are given in Table 2. The length of the fibre textile object 1 are 7 cm. The length of the fibre textile object 2 are 9 cm. We measure the length of the fibre textile objects. The width and height dimensions are small for the two fibre textile objects.

Table 2. *Fibre textile cloth membrane material objects. We have fabricated two objects.*

Objects	Details
Fibre textile object 1	length = 7 cm, width and height dimensions are small
Fibre textile object 2	length = 9 cm, width and height dimensions are small

Advantages of the proposed process

1) The work time is reduced. The proposed process provides the fibre in 4 minutes. We obtain variety of sizes.
2) The equipment is small. The clip are safe to use unlike other cutters.
3) Our devices are portable.

Limitations of the proposed process

Ongoing test on thick textile to obtain fibre are not always possible. The method to overcome the limitation are possible. We need clips of different design and safe use.

Potential applications with relevant literature

Our small equipment clip to manufacture fibre can find applications in soft robots [27].

1) Capillary column cylinder with fibre for displays [28].
2) Capillary column cylinder with fibre, liquid and perfume liquids for displays.
3) Colloids and suspension based print.
4) Woven label fibre textile print [29].

5. Conclusions

We obtain the fibre textile cloth membrane material objects. We reduce the time of work to obtain the fibre textile objects. We use small clip equipment. The work is simple. The work time is 4 minutes. Our process technology offers advantages to fabricate miniature to cm scale objects. The object having fibre textile cloth membrane material will look different. They are new. They are flexible. They provide 3D structures.

Abbreviations

FT Fibre Textile
2D Two Dimensions
3D Three Dimensions

Author Contributions

Nandigana Venkata Raghavendra Vishal: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing

Data Availability Statement

The data from the current study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no conflicts of interest.

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