

UNDERGRADUATE FINAL YEAR PROJECT REPORT



Faculty of Engineering Department of Textile Engineering

Design of Denim Jacket for Mannequin of Apparel Lab

Submitted By

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**This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Textile Engineering**

Advance in Apparel Manufacturing Technology

Spring – 2024

Author's Declaration

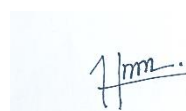
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Statement of Contributions

Shameen Yaser Al Mahin & Khalid Hasan carried out the project. Khalid Hasan create the design & sketch of the jacket. Khalid Hasan took the measurement of the mannequin. Shameen Yaser Al Mahin develop the jacket and take the lead to write the project report. Khalid Hasan helps with the information from different resources. All authors provided critical feedback and helped shape the research, analysis, and manuscript. Shameen Yaser Al Mahin and Khalid Hasan conceived the original idea. Mr. Abdullah Al Mamun sir, Associate Professor, Department of Textile Engineering, Daffodil International University supervised the project.

Executive Summary

In the Final Year Design Project, we develop a jacket for the mannequin of our apparel manufacturing lab. To develop the jacket first of all we design the jacket by studying the jacket design of different brand around the world. Then we made a draft design. To make the design we face different difficulties like- we are not professional designer, so we took help from a professional designer to create pattern of the draft design. Then we choose fabric, trimmings & accessories. After that we source the fabric, trimmings & accessories. To source the fabric, trimmings & accessories we took help of our senior brothers from different supplier. After that we did the sewing in the factory in which I am working. Then we also wash and finished the fabric in the factory. We found different difficulties in developing the jacket but by the grace of almighty and with the help of different industrialist person & our supervisor we have managed to overcome all the problems. At the end we managed to develop a jacket of mannequin.

Acknowledgments

We want to dedicate this project work for our parents and all the faculty member of Textile Engineering Department of Daffodil International University.

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List of Abbreviation

- BGMEA = Bangladesh Garment Manufacturers & Exporters Association
- PO = Purchase Order

United Nations Sustainable Development Goals

The Sustainable Development Goals (SDGs) are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including poverty, inequality, climate change, environmental degradation, peace and justice. There is a total of 17 SDGs as mentioned below. Check the appropriate SDGs related to the project.

- No Poverty
- Zero Hunger
- Good Health and Well being
- Quality Education
- Gender Equality
- Clean Water and Sanitation
- Affordable and Clean Energy
- Decent Work and Economic Growth
- Industry, Innovation and Infrastructure
- Reduced Inequalities
- Sustainable Cities and Communities
- Responsible Consumption and Production
- Climate Action
- Life Below Water
- Life on Land
- Peace and Justice and Strong Institutions
- Partnerships to Achieve the Goals

1. Chapter-1: Introduction

1.1 Background Information

The history of denim begins in the 17th Century. The cotton twill fabric known as serge de Nîmes originated in Nimes, France. Later it was referred as denim. Today's denim originated in 1860 by Levi Strauss & Co. Denim firstly made for coal worker to heavy use. But in 1950 when blue jeans were discovered it flooded the fashion industry. Denim became famous because of the different types of washing technology.

Bangladesh is exporting Readymade Garments of denim in USA, Europe etc. The quantity is increasing day by day. Among the Readymade Garments jeans pant, jacket, romper, dungaree, shirt, skirt, bermuda are most.

In the final year design project of our bachelor's degree, we decided to make a project based on denim. By the instruction of our supervisor, we decided to make a denim jacket for the mannequin of our Apparel Manufacturing Lab.

1.2 Significance and Motivation

The importance of this project work is very severe in the learning of denim jacket production. By doing this project we can learn about the denim fabric, fabric types suitable for jacket, production procedure, design, wash process, trimmings & accessories. As a result, in future when we go to the industry, we can easily learn the whole process.

1.3 Aims & Objective

- Learn about the denim fabric
- Learn about the Jacket production process
- Learn about the washing technology of denim
- Learn about the trimmings and accessories
- Learn about the sourcing of fabric, trimmings & accessories
- Learn about taking the measurement of mannequin

1.4 Methodology

In the project work we completed all the process of jacket production from design development to the end product Jacket. The processes are given below sequence wise.

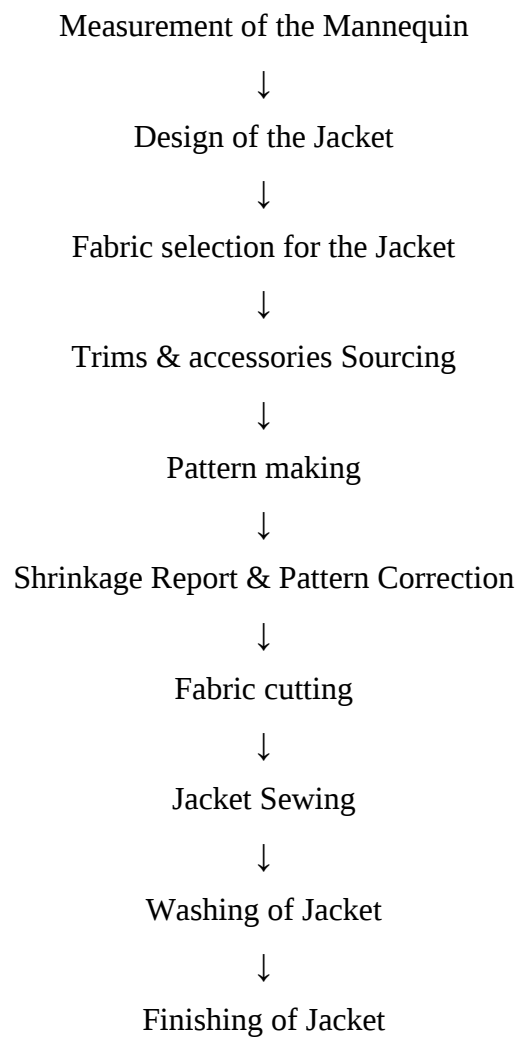


Table 1.1 Production Process

2. Chapter-2: Literature Review

Denim Jacket is very popular to the young generation. In fashion industry denim Jacket has huge impact for its variety types of wash. With the same fabric same design but because of wash the end product can appear in fully different ways. In this project we develop a denim jacket of mid wash. We will discuss about the full wash process in the next section.

By studying the measurement chart of jacket of different buyer- Carrefour, Zara, Adler, we make a measurement point & then take measurement of the mannequin according to the measurement point.

For design we also studied buyer H&M, ZARA & Adler's website for design selection. Then we make a draft design.

For pattern we took the help of pattern master of Mahmud Jeans ltd, where I have done my internship.

For wash we discuss with the wash technician and make a chart of washing we want in our developed jacket.

3. Chapter-3: Methodology

3.1 Introduction

In this section we will discuss about the jacket development in detail. Here you will find all the details from taking measurement, making design to the finishing of the jacket. The development processes are given below in stagewise

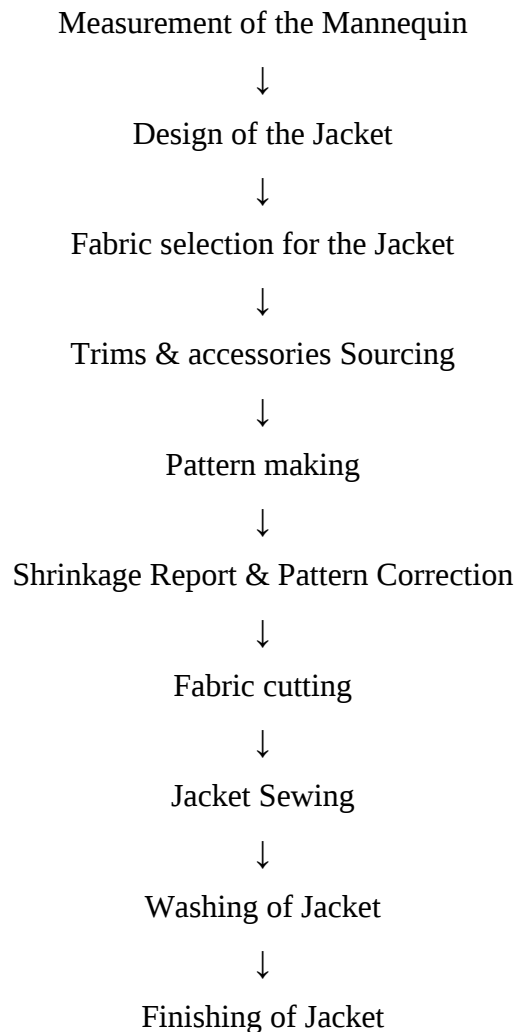


Table 3.1 Jacket Development Process

3.2 Measurement of the Mannequin

After taking the decision of developing jacket as our Final Year Design Project, firstly we took the measurement of the mannequin of the Apparel Manufacturing Lab of Daffodil International University. To take the measurement firstly we studied the measurement chart of jacket of different buyer- Carrefour, Adler etc. Then we note some point to take measurement of the mannequin. In this regard our supervisor advises us to study the measurement chart of buyer carrefour because their measurement chart

is most complete one.

Studied measurement chart of Carrefour & Adler:

I936512

Textile International

JACKET TRUKER DENIM

Measurement Specification 100% COTTON

Product/Folders Seasonal	64 Men	Buyer	PORTUGAL HIDALGO Rosa	Quality Manager	IGLESIAS Virginia
Season	Winter 2024	Pattern Maker	GONZALEZ Antonio	Technical Supervisor	GONZALEZ Antonio
Brand	TEX	Designer	MARTIN Veronica	Finishing	
Generation	V2 in progress	Colors	INDIGO		
Fabric Description	100% COTTON				

Product Type	22- Jacket	Size Class	64- men/2- Oversuit	Sample Size	3M	Size Range	64- men/2- Oversuit 1/XS to 12/XXL			
POM	Description	C	+Tol	-Tol	2/S	3/M	4/L	5/XL	6/XXL	7/3XL
N2	NECK WIDTH-STANDARD		0.50	-0.50	17	18	19	20	21	22
O2	NECK DROP-STANDARD		0.50	-0.50	8.50	9	9.50	10	10.50	11
P2	SHOULDER SEAM LENGTH-STANDARD		0.50	-0.50	14.50	15	16	17	17.50	18
Q2	SLEEVE LENGTH-LONG	1	-1		66	67	68	68.50	69	69.50
S2	ARMHOLE		0.50	-0.50	20	21.50	22.50	23.50	25	26.50
R2	1/2 GIRTH TOP OF SLEEVE-STANDARD		0.50	-0.50	19	20.50	21.50	22.50	24	25.50
R9	1/2 ELBOW		0.50	-0.50	15	16.50	17.50	18.50	20	21.50
T2	1/2 BOTTOM SLEEVE WIDTH-STANDARD		0.50	-0.50	11.50	12	12.50	13	13.50	14
Q3	CUFF HEIGHT		0.20	-0.20	5	5	5	5	5	5
U2	FRONT BREADTH-STANDARD	1	-1		35.50	38.50	41	43.50	46.50	49
W2	1/2 CHEST-STANDARD	1	-1		53	55.50	59	62.50	66	69.50
X9	POSITION FRONT WAIST AT HSP		0.50	-0.50	48.50	49	49.50	50	50.50	51
X2	1/2 WAIST-STANDARD	1	-1		50	52.50	56	59.50	63	66.50
Y2	1/2 BOTTOM-STANDARD	1	-1		50.50	53	56.50	60	63.50	67
A3	CENTER FRONT HEIGHT-STANDARD	1	-1		58.50	59.50	60.50	61.50	62.50	63.50
H3	FRONT LENGTH FROM SHOULDER/PLEATED SHOULDER-STANDARD	1	-1		67	68.50	70	71.50	73	74.50
D3	CENTER BACK LENGTH-STANDARD	1	-1		63	64.50	66	67.50	69	70.50
H8	BACK LENGTH FROM SHOULDER/PLEATED SHOULDER-STANDARD	1	-1		65	66.50	68	69.50	71	72.50
V2	BACK BREADTH-STANDARD	0.75	-0.75		42	45	47.50	50	53	55.50
Q0	WAISTBAND HEIGHT-STANDARD		0.20	-0.20	5	5	5	5	5	5

CHAQUETA N°p and b w15

Figure 3.1 Carrefour M/C

	Adler Model No.: 05-45384-20230523-001	Season: 85 / Fr/So24	Dept: 05	Supplier: (I) 301523/ Mahmud Jeans Limited (BANGLADESH)							
	Description: Denim Jacket		Suppl. style no.: Denim Jacket				Product Status: In development				
	Items:										
Ladies normal (1.03)			Page 1 of 1		Add. Info: BEXLEYS WOMEN						
COMMON			+/-	36	38	40	42	44	46	48	50
A	1/2 chest width		1	46.5	48.5	50.5	53	55.5	58.5	61.5	64.5
B	1/2 waist width		1	43	45	47	49.5	52	55.5	59	62.5
R	half hem width		1	46.5	48.5	50.5	53	55.5	58.5	61.5	64.5
D1	shoulder point to shoulder point		1	36.5	37.5	38.5	39.5	40.5	41.7	42.9	44.1
E	sleeve length 1/1		1	60	60	60	60	60	60	60	60
F	1/2 upper arm width		0.5	16.2	16.8	17.4	18	18.6	19.5	20.4	21.3
G	1/2 sleeve hem width 1/1		0.5	11.5	11.8	12.1	12.4	12.7	13	13.3	13.6
AT	armhole depth		0.5	19.3	20	20.7	21.4	22.1	23	23.9	24.8
L	overall length centre back		1	55	55	57	57	59	59	61	61



Figure 3.2 Adler M/C

Measurement chart of the developed Jacket:

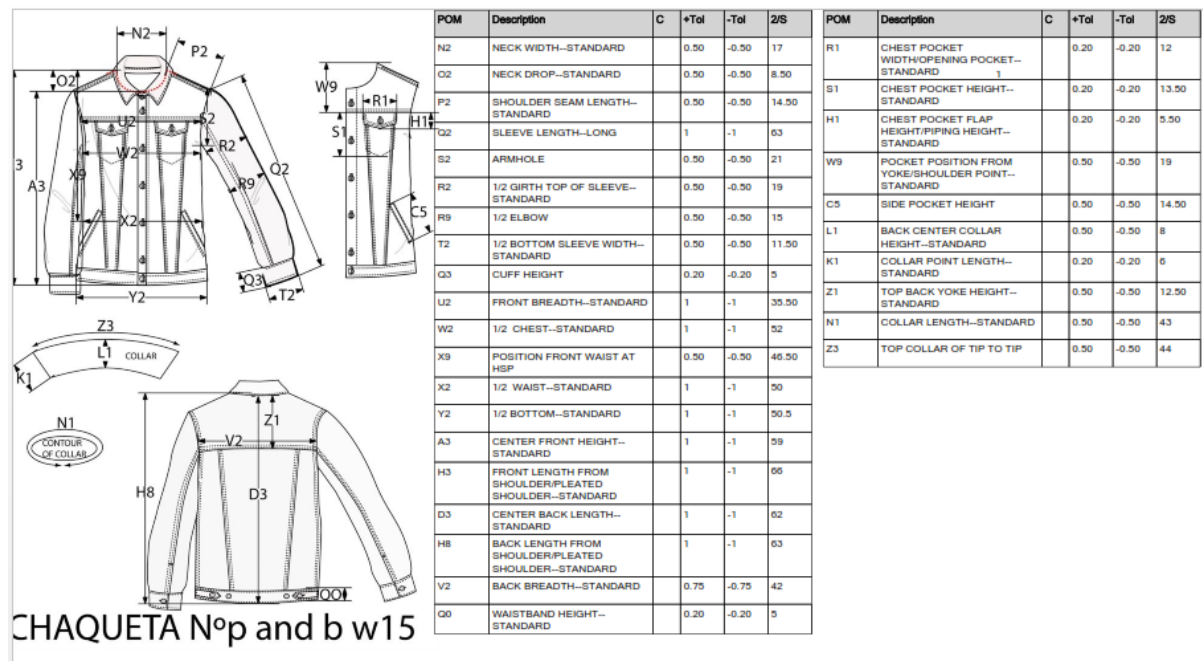


Figure 3.3 M/C of Developed Jacket

3.3 Design of the Jacket

We studied different buyer like- H&M, Zara, Adler etc. for developing the design of our jacket. After that we make draft design to develop the jacket. Then we make the final sketch of the design and proceed for the next process.

Design we studied:



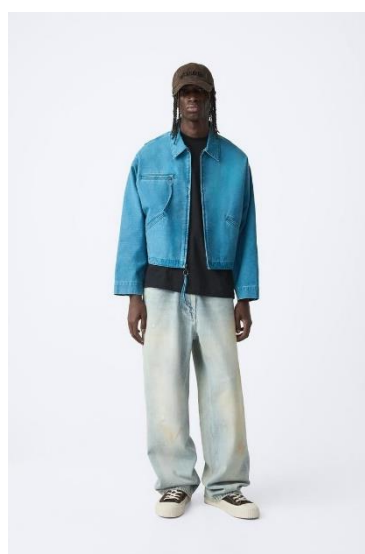


Figure 3.4 Studied Design

Design we made:

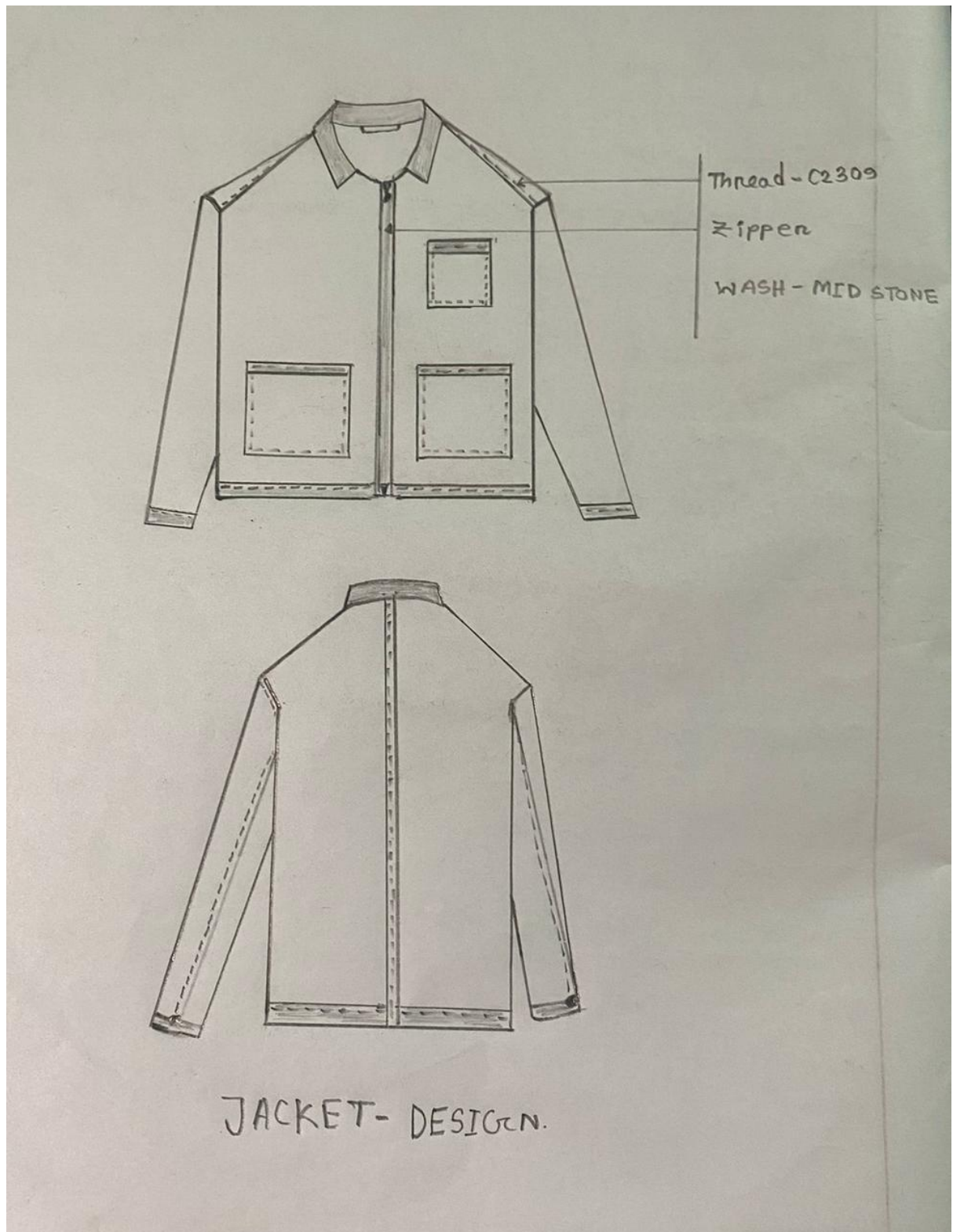


Figure 3.5 Design of Developed Jacket

3.4 Fabric Selection

Generally, Jacket need fabric of higher weight as their shell fabric. In general Jacket need fabric of 10-13 oz/yd². Besides, 100% cotton denim fabric are used as the shell fabric for men's jacket. To develop our jacket, we choose 100% cotton denim fabric of 10.75 oz/yd². The weight of fabric will be 10.40 oz/yd² after wash. We source the interlining from Rotex Bangladesh Ltd.

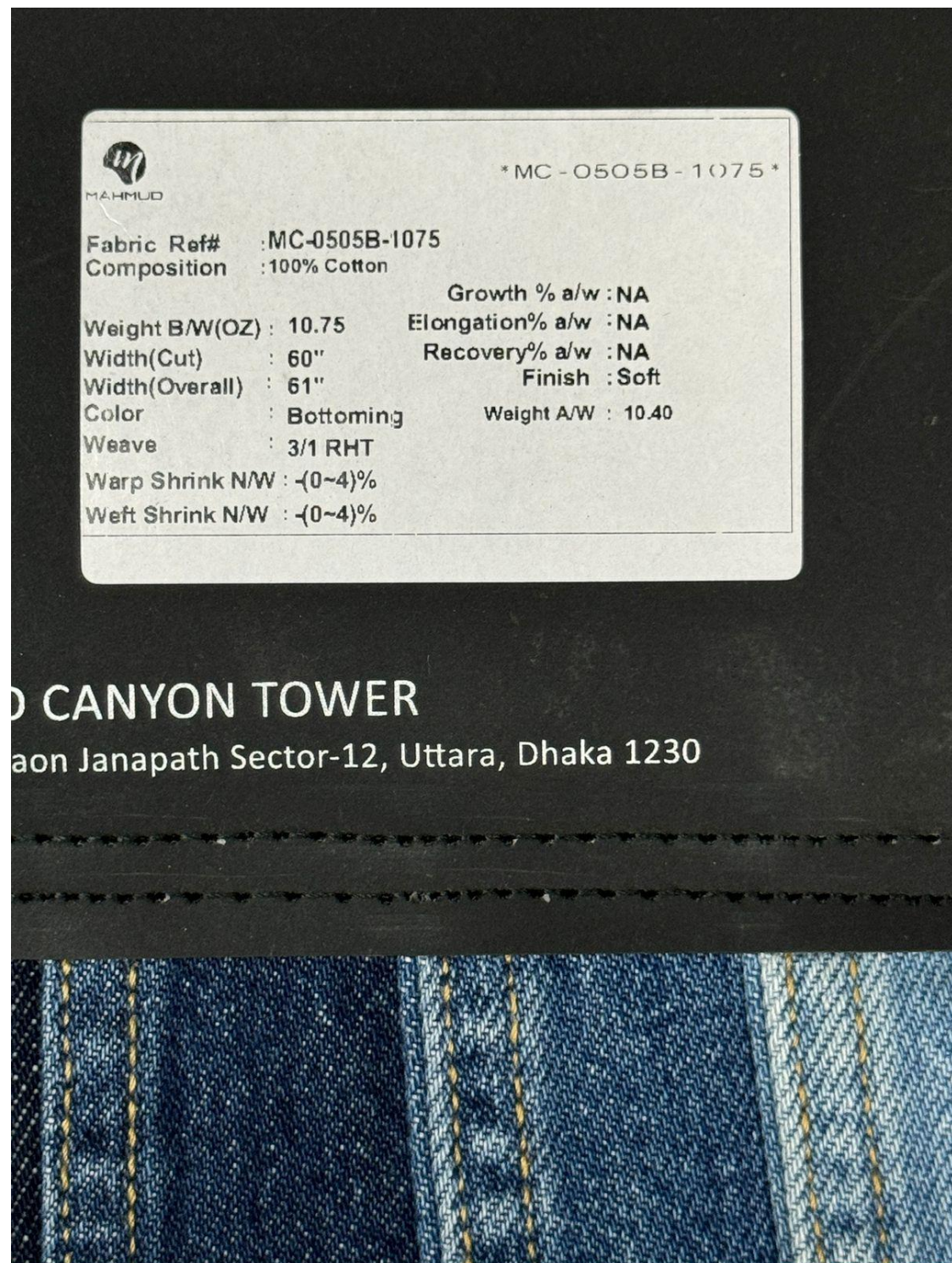




Figure 3.6 Fabric Hanger

3.5 Trims & accessories sourcing

After choosing the fabric, we also choose the trims & accessories. We decided to use the sewing thread C-2309, Zipper of navy tape color & shiny silver teeth & puller & Shank button of Shiny Silver. Then we took help of our senior brothers from different industries to source fabric, trims & accessories. We managed to source fabric from Mahmud denim ltd, Sewing thread from American & Efird Bangladesh Ltd, Zipper &

shank button from Shenzhen Metal Bangladesh Ltd. But unfortunately, we could not source zipper of navy tape color, instead we manage zipper of tape color light blue.

Trims & Accessories sourcing:

Sl. No.	Item	Source From
1.	Fabric	Mahmud Denim Ltd.
2.	Interlining	Rotex Bangladesh Ltd.
3.	Sewing Thread	American & Efird Bangladesh Ltd.
4.	Zipper	Shenzhen Metal Industries Ltd. (Bangladesh)
5.	Button	

Table 3.2 Trims & Accessories Sourcing

Sl. No.	ITEM	Chosen	Use
1	Fabric	100% Cotton, 10.75 oz/yds, Shrinkage 4*4% (warp*weft)	100% Cotton, 10.75 oz/yds, Shrinkage 4*4% (warp*weft)
2	Thread	C-2309	C-2309
3	Zipper	Navy tape, Shiny Silver metal	Light Blue, Shiny Silver metal
4	Shank Button	Shiny Silver	Shiny Silver

Table 3.3 Trims & Accessories Use

Thread details used in the development of the jacket:

Thread Code: C-2309	
Count	Use Area
20/3 (80 Tex)	Top Stitch
20/2 (60 Tex)	Bobbin & Looper
40/2 (27 Tex)	Over Lock & Bartack

Table 3.4 Thread Details

3.6 Pattern Making

After sourcing trims & accessories, we took the help of the pattern master for making pattern. We give him our design & size measurement chart and ask him to make us pattern. Pattern make the pattern by using Computer Aided Design software. Then the soft copy of the pattern prints on hard paper for cutting. As we use CAD software our

efficiency increases. Efficiency is 85% for the jacket. The fabric consumption of the developed jacket is 20.5 yds/dzn in ratio S: M: L: XL=1: 2: 3: 3: 2.

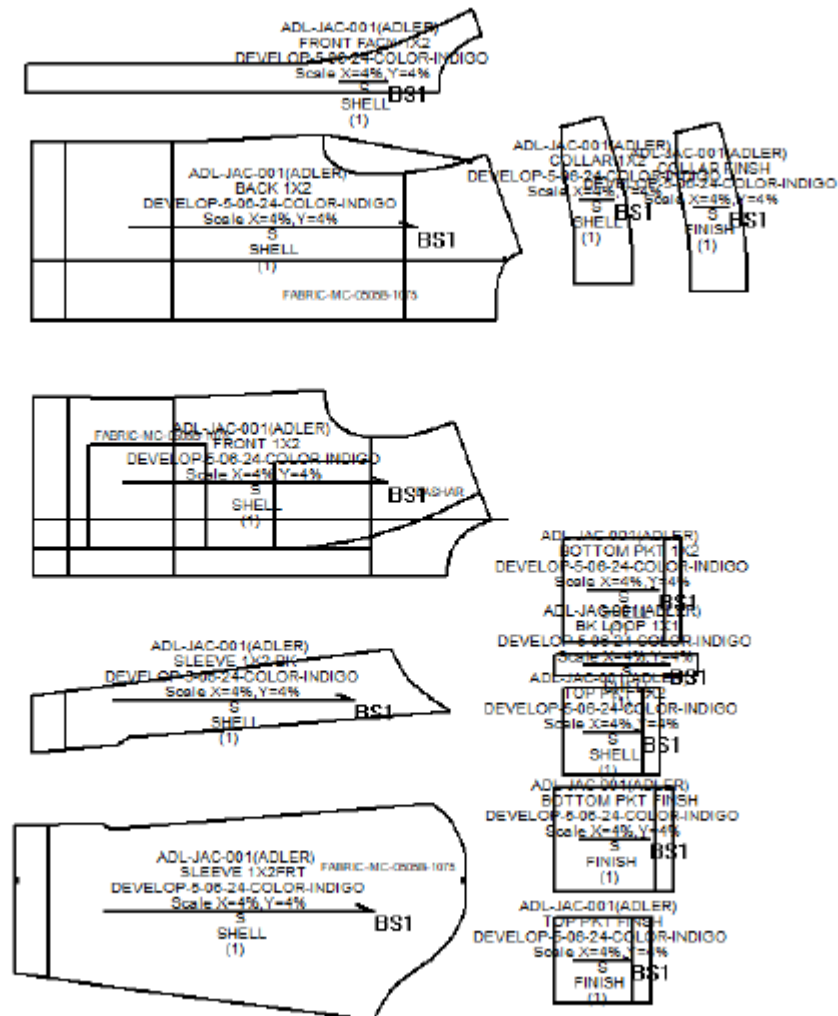


Figure 3.7 Pattern

3.7 Shrinkage Report & Pattern Correction

Shrinkage% is very important for the perfect fit of the garments. Shrinkage in denim fabric occurs for many reasons. Most common reason are-

- **Fiber Relaxation:** Cotton fibers are the main component of denim. When cotton fibres are subjected to heat and moisture, as they are during washing and drying, they naturally relax and straighten. The fabric shrinks as a result of this relaxation.
- **Construction:** The threads of denim are knitted diagonally, or in a twill weave. The fabric is tense as a result of this weaving. This strain can be alleviated through washing

and drying, which will cause the fabric to shrink, especially in the horizontal yarns, or weft direction.

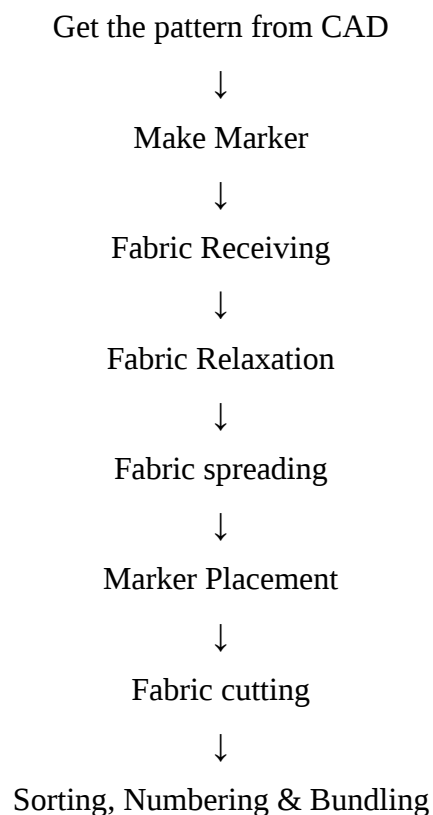
Shrinkage Test: Cut fabric swatch of 50*50 cm for doing shrinkage test. Then we do the required wash of the garments to the swatch. After washing, we measure the swatch and make shrinkage report.

$$\text{Shrinkage\%} = \{(\text{Before wash measurement} - \text{After wash measurement}) / \text{Before Wash measurement}\} * 100$$

We got the shrinkage report= Shrinkage to warp 3% & Shrinkage to weft 5%. Then the pattern master does correction in the pattern as per shrinkage.

3.8 Fabric Cutting

Cutting is very sensitive operation in the apparel industry. It is very important to cut the fabric according to the pattern & marker, because garments structure depends on sample cutting. After getting the hard pattern from CAD section we went to the sample cutting section of Mahmud Jeans Ltd to get cut the fabric. Process Flow chart of sample cutting-





Send to the Sewing department

Table 3.5 Cutting Flowchart

First of all, we collect the hard pattern from the cad section. The pattern is a working pattern because it has seam allowances & trimmings allowances. Then sample cutting master make marker. After that received fabric for sampling purpose. As we make sample so there is no need for fabric relaxation. Then fabric spread & marker placed on the fabric layout. In sample cutting straight knife cutting m/c is used to cut fabric. Special types of gloves are used by cutting master to avoid any type of accident. After finishing the cutting, cutting parts are sorted & bundled. Then bundled cutting parts send to the sewing department for sewing. As we are making sample so no need for numbering because all the parts are from same roll of fabric.

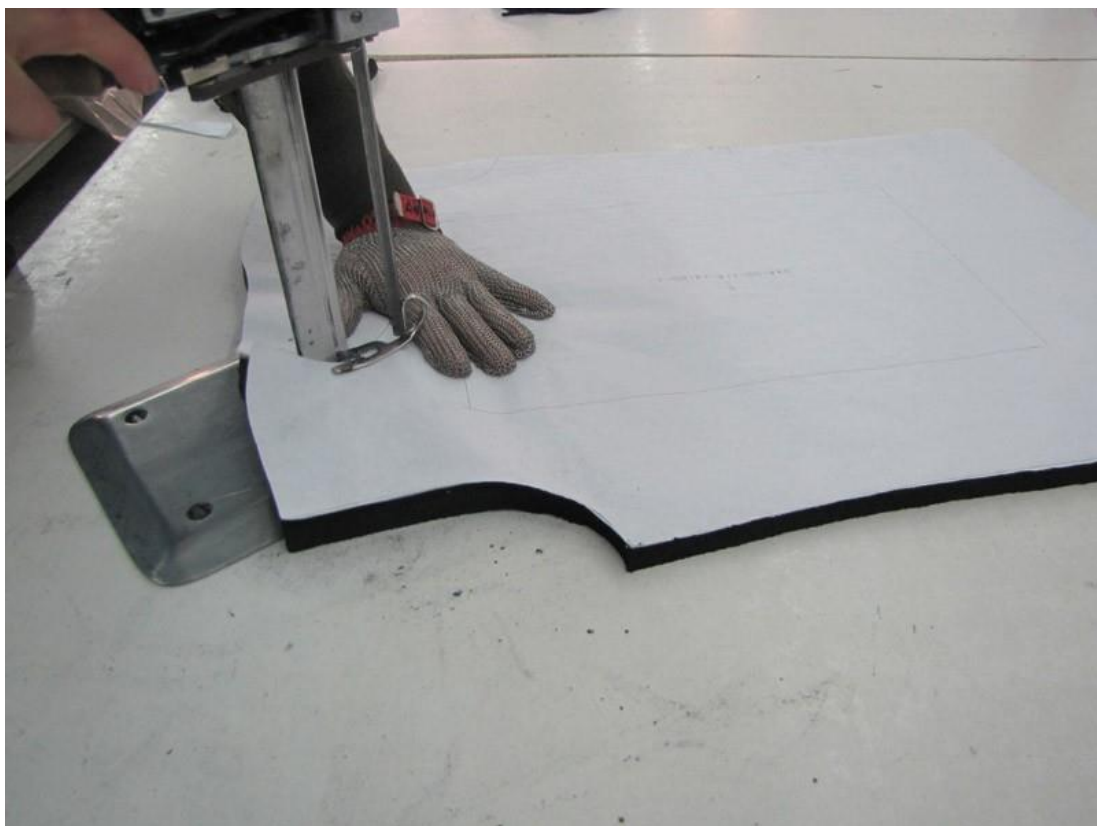


Figure 3.8 Sample Cutting

3.9 Jacket Sewing

Sewing is the most important operation of garments manufacturing. Sewing means joining of different parts of garments by creating seam line. After getting the cutting

parts from the sample cutting section sewing started in sample sewing section. The parts to be joined in sequence wise is given below-

Get the cutting parts from sample cutting section



Pocket rolling & ironed



Mark the pocket joining area on front part



Join the pocket by sewing



Two back parts join together



Shoulder Seam



Sleeve panel join



Sleeve join with armhole



Side Seam



Zipper joining



Collar & hook join



Cuff rolling & sewing



Hem rolling & sewing



Bartack



Measurement

Table 3.6 Sewing Sequence

First of all, we roll & sew the pocket opening. Then we mark the pocket joining area on the required cutting part. Then we join the pocket in fabric by sewing. Here plain sewing m/c used. Then two back panel joined with feed of the arm sewing m/c. Then back part & front part sewn together in shoulder seam. Then sleeve join together by over lock m/c. After that sleeve joined with armhole. Then side seam joined together by overlock sewing m/c. After that zipper panel & zipper joined together. Already collar is made. Sewing Interlining is used inside collar. After that collar & collar hook is joined together. Then cuff rolling is done & sewing done. After that hem rolling & sewing done. After that jacket is fully complete. Then bartack is done. Then measurement is completed. After that reinforcement given in the zipper to avoid abrasion of zipper with washing m/c.

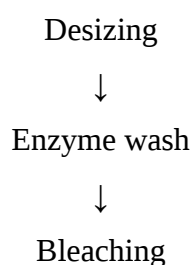
3.10 Washing of Jacket

Washing is very important for denim garments. Because washing can change the outlook of denim garments. Same two denim garments can look totally different by washing. Washing mainly done to change the outlook of garments.

Purpose of washing:

- Wash looks
- Faded effect
- New fashion
- Comfortability
- Size material remove
- No possibility of further shrinkage
- Specific fading
- Produce similar or different outlook.

We wash our jacket from the Mahmud Washing Plant Ltd. We did enzyme wash in our developed sample.



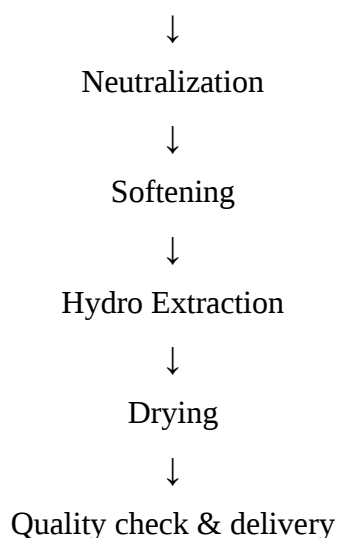


Table 3.7 Washing process

Desizing: Desizing is done to remove size materials from the garments. So, that it feels soft during use.

Enzyme Wash: To achieve abrasion on garment and seam abrasion in sewing area. Enzyme works chemically not mechanically. For this reason, fabric damage or wastage is low. Enzyme develop the bio polishing effect on garments, also improves the anti-pilling properties of garments.

Bleaching: Then bleaching is done to make the shade lighter.

Neutralization: Then Neutralization is done to neutralize the acid enzyme.

Softening: By using softener softening is done to soften the hand feel of the garment.

Hydro Extraction: Hydro extraction is done by hydro extractor machine to remove excess water from the garment.

Drying: Then in dryer drying is done to dry the wet garments.

Quality Check & Delivery: Then check the quality, if satisfied then delivery.

3.11 Finishing of Jacket

After washing the developed jacket, finishing is done on the jacket. In finishing, button is attached then ironing is done. After that folding and packing is also done.

4. Chapter-4: Result, Discussion & Project Demo

4.1 Introduction

In this chapter we will discuss about the Costing of the Garments, PO & demonstrate the developed sample by wearing the jacket to the mannequin. We also discuss about the problem we faced in developing the jacket.

4.2 Costing

SL.NO.	Item	Consumption/Dzn	Consumption/Pc	Price/yds	Price/Dzn	Price/Piece
1	Fabric- MC-0505B-1075 100% Cotton	20.5	1.708333333	\$ 2.50	\$ 51.25	\$ 4.27
2	Lining	6	0.5	\$ 1.25	\$ 7.50	\$ 0.63
3	Trims/Accessories				\$ 12.00	\$ 1.00
4	CM				\$ 27.00	\$ 2.25
5	Wash				\$ 6.50	\$ 0.54
6	Test charge					\$ 0.02
Sub Total-1						\$ 8.71
7	Bank & Commercial Cost		2%			\$ 0.17
Sub Total-2						\$ 8.88
8	Profit		10%			\$ 0.89
Price of a Jacket						\$ 9.77

Figure 4.1 Costing of the Jacket

4.3 Purchase Order

SEND TO
Mr. Mahin
California, USA

ORDER IIR JAC-001	DATE 13/06/2024	SUPPLIER DIU		
SEASON Fall 2024	BUYER Mahin Fashion Wear	PAYMENT TERMS L/C 90 DAYS (FROM SHIPPING DATE)*		
FROM BD-CHITTAGONG	HANDOVER DATE 14/08/2024	INCOTERM FOB	TRANSPORT MODE SHIP	PRESENTATION TYPE BOX

SUPPLIER REF ADL JAC	ARTICLE 001	DESCRIPTION Men's Jacket	MARKET OF ORIGIN BANGLADESH	PVP \$20
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HANGTAG LABEL

MAIN LABEL

EXTERNAL FABRIC

FOLDING

TOTAL ORDER

COLOUR	S	M	L	XL	XXL	Total
Mid Indigo	2000	4000	6000	6000	4000	22,000
TOTAL	2000	4000	6000	6000	4000	22,000

UNIT LOT 1	COST PRICE: 9.77 USD
------------	----------------------

Figure 4.2 PO

LABEL INSTRUCTIONS

- Main Label RFID
- Care Label
- Caution Label

CARE LABEL



Figure 4.3 Label Instruction

4.4 Project Demo

After finishing the jacket, we got our final developed jacket. Then we put the jacket on the mannequin and check the fittings of the jacket.



Figure 4.4 Front Part of Jacket



Figure 4.5 Back Part of Jacket



Figure 4.6 Front Left side of Jacket



Figure 4.7 Front Right side of Jacket

5. Chapter-5: Professional Responsibilities, Health, Safety, Socio-cultural and environmental consideration

5.1 Codes and standards used in design approach

Codes: A code is a set of laws, regulations, and norms that are issued by a recognized authority or government body. It is also known as a building code or safety code. The purpose of these codes is to guarantee the security, safety, and efficiency of structures, systems, and procedures.

Standards: A description or document created by an official body responsible for creating guidelines is called a standard. Standards are optional recommendations that provide a standardized and recognized method for handling systems, products, services, or processes. Standards adherence is often not legally required, unlike codes, but it is frequently recognized as a symbol of excellence, safety, and best practices.

Federal Laws:

- The Bangladesh Labor Act (2006) provides guidelines for minimum wage, overtime compensation, child labor, working hours, and other worker rights.
- The BNBC, or Bangladesh National Building Code, this code establishes electrical installations, fire safety, and structural integrity requirements for clothing companies.

Global Guidelines and Codes of Conduct (CoC):

- Conventions of the International Labor Organization (ILO): Bangladesh has accepted a number of ILO conventions pertaining to nondiscrimination, worker rights, and safety.

Private Initiatives: A number of private initiatives that tackle social responsibility and ethical principles in the clothing industry have produced Codes of Conduct. Among them are:

- The Fair Labor Association (FLA) is dedicated to improving working conditions and labor rights.
- Globally Accredited Responsible Production (WRAP): FLA-like, but with an added focus on environmental standards.

- The Ethical Trading Initiative (ETI): Encourages moral business conduct and accountable supply chains.

Moreover:

Bangladesh Garment Manufacturers & Exporters Association (BGMEA): Members of this industrial association are expected to abide by its own code of conduct. It promotes moral and sustainable behavior and is compliant with international standards.

5.2 Ethical principles and professional commitment involvement.

Ethical Principles:

- Worker rights
- Livable wages
- Reasonable working hours
- Environmental sustainability
- Transparency & accountability

Professional Commitment:

- Brand & Retailers: It is the duty of brands and retailers to guarantee that the factories they partner with follow ethical standards and to source clothing in an ethical manner. This may entail carrying out audits, lending support to organizations such as the Fair Labor Association, and encouraging supply chain transparency.
- Garment Manufacturers: It is their professional duty to adhere to all applicable national and international regulations, fund worker safety training, and give their staff members a safe and healthy work environment.
- Factory Organizations: The Bangladesh Garment Manufacturers and Exporters Association (BGMEA) advocates for changes in the sector and encourages ethical behavior among its members.
- Customers: They have the power to change the world by supporting firms that value ethical manufacturing and by seeking out certifications such as Fair Trade or organic cotton.

5.3 Impact of the project on societal, health, safety, legal and cultural issues

Societal Impact:

- **Economic Growth:** Bangladesh's garment industry is the main driver of the country's economy, employing millions of people, mostly women from rural areas and accounting for a sizable amount of export revenue. In addition to promoting financial independence, this lowers poverty.
- **Urbanization:** As a result of the sector, urban areas surrounding clothing manufacturers have grown, changing social dynamics and the requirements for infrastructure.
- **Women Empowerment:** Employment options in garment manufacturing give women a chance to become more financially independent and possibly challenge traditional gender stereotypes.

Health and Safety:

- **Working Conditions:** In certain factories, there are worries about hazardous working conditions, low pay, and extended work hours. Events such as the collapse of the Rana Plaza made clear the necessity of more stringent safety laws.
- **Health Risks:** Working in confined quarters and being exposed to chemicals used in the clothing industry can both be harmful to an employee's health.

Legal issues impact:

- **Labor rules:** It is still difficult to guarantee adherence to both domestic and international labor rules with relation to child labor, overtime pay, and wages.
- **Safety Regulations:** Stricter construction and fire safety rules must be put into place and strictly enforced in order to protect worker safety.
- **Worker Rights:** It is crucial to defend employees' freedoms of association and collective bargaining.

Cultural issues impact:

- **Westernization:** Workers in the sector are exposed to Western fashion trends, which may have an effect on customs and cultural values.
- **Urban Migration:** When workers move from rural to urban areas, there may be cultural conflicts and difficulties adjusting to a new way of life.

5.4 Impact of project on the environment and sustainability

All manufactured goods have some impact on the environment even it is too little. The goods or product which have lesser negative impact on environment during manufacturing, uses & disposal is considered as environmentally friendly. Our

developed jacket is a denim jacket. We all know that in denim garments manufacturing process washing have very severe negative impact on environment. And the washing also uses lots of water. It is said that a pair of jeans consume about 6800 to 11000 liters of water. For this we must choose a factory which have Water treatment plant (WTP) and effluent treatment plant (ETP) & they use it properly. Again, the wastage of clothing is also polluting environment because it does not rot easily. For this reason, we can choose organic cotton fabric which is environmentally friendly.

6. Chapter-6: Conclusions

By completing the project, we go through a complete journey of a garments manufacturing from Tech file to End product. This project helps us to learn different new things and the importance of each section of a garments manufacturing factory. On the journey of developing a Jacket for the mannequin of our apparel Lab, we faced different types of problems and we managed to overcome those problems with taking help from our supervisor, factory concern different person etc. Now, we can say that at least we know almost all of the major operations required to develop any garments.

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