



**Daffodil**  
*International*  
**University**

Faculty of Engineering  
Department of Textile Engineering

## **Study on Machine stoppage time during garments production**

Course title: Project (Thesis)  
Course code: TE4214

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A thesis submitted in partial fulfillment of the requirements for the degree of  
**Bachelor of Science in Textile Engineering**

Advance in Apparel Manufacturing Technology

April, 2018

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## **Acknowledgement**

First of all we are grateful to Allah who gives us sound mind & sound health to accomplish this project successfully.

We are also grateful to our supervisor **Mst. Murshida Khatun**, Senior Lecturer, Department of Textile Engineering, Faculty of Engineering, Daffodil international University. Her endless patience, scholarly guidance, continual encouragement, energetic supervision, constructive criticism, valuable advice, reading many inferior draft and correcting these at all stages have made it possible to complete this project.

We are also thankful to our all teachers, lab assistant, register sir, coordinators and all the employees of Daffodil International University. We are highly delighted to express our regards & gratitude to honorable Head **Prof. Dr. Md. Mahbubul Haque** for providing his best support to us.

Finally, we would like to express a sense of gratitude to our beloved parents and friends for their mental support, strength and assistance throughout writing the project report.

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## Declaration

We hereby declare that, this project has been done by us under the supervision of **Mst. Murshida Khatun**, Senior Lecturer, Department of Textile Engineering, Faculty of Engineering, Daffodil International University. We also declare that, neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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## Letter of Approval

April 04, 2018

To

The Head

Department of Textile Engineering

102, Shukrabad, Mirpur Road, Dhaka 1207

Subject: Approval of Project Report of B.Sc. in TE Program.

Dear Sir,

I am just writing to let you know that this project report titled as “**Study on Machine stoppage time during garments production** ” has been prepared by the student bearing ID’s 142-23-3865, 142-23-3959 and 151-23-4229 are completed for final evaluation. The whole report is prepared based on the proper investigation and interruption through critical analysis of empirical data with required belongings. The student were directly involved in their project activities and the report become vital to spark of many valuable information for the readers.

Therefore it will highly be appreciated if you kindly accept this project report and consider it for final evaluation.

Yours Sincerely



.....

**Mst. Murshida Khatun**

Senior Lecturer

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## **Abstract**

This report presents the machine stoppage in sewing floor. Sewing machine stoppages cause loss of garments production. Sewing machine stops due to different causes. In this work it was found that the causes of stoppages are sewing thread breakage, lack of power supply, delay input, needle break, faulty stitch, oil problem etc. The whole production depends on how long the sewing machine running into the sewing floor. So every industry tries to reduce machine stoppage. This report giving idea how to reduce machine stoppage and how to minimize this problem. It also helped to know who is responsible for machine stoppage and how to solve or maintenance it an efficient way. Overall this report will be helped for know the causes of machine stoppage in sewing floor.

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# **Chapter -1**

## **Introduction**

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## 1.1 Machine Stoppage

The term machine stoppage is basically used to refer to periods when a machine working time is unavailable. Machine stoppage duration refers that a period of time that a system fails to perform its primary function. Reliability, availability, recovery, and unavailability are related to this. The unavailability is the proportion of a time-span that a system is unavailable or offline. This is usually giving a result of the system failing to function because of an unplanned event, or because of routine maintenance .

The term is commonly applied in industrial environments in relation to failures in industrial production equipment like machineries. Some facilities measure the stoppage time incurred during a work shift. Another common practice is to identify each stop time event as having an operational, electrical or mechanical origin. [1]

## 1.2 Reason of machine stoppage in sewing floor

- ❖ Improper supply of electricity.
- ❖ If the air blower doesn't work properly.
- ❖ If delay to give the garments cutting piece to the operator.
- ❖ If the operator doesn't handle the garments properly.
- ❖ Delay to garments cutting piece supply by operator to operator.
- ❖ If the needle break during sewing time.
- ❖ Machine stoppage during remove the faulty stitch.
- ❖ Workers need to fulfill the empty garments panel then they stand up and collect the new garments panel.
- ❖ Machine stops when every workers need some extra time when sewn the garments that means worker idle time.
- ❖ In sewing floor each line some workers are too slow and they can't pass the uncompleted garments in right time to the next operator. For this reason the machine stopped for few time.
- ❖ If the sewing thread breaks during sewing it need to stop the sewing machine.
- ❖ If the sewing thread package is finished for this reason the machine will stop.



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# **Chapter-2**

## **Literature Review**

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## 2.1 Needle Breakage

### 2.1.1 Causes

If sewing machine has begun to bend needles there are several possible causes. The following list will help provide some ideas for troubleshooting the problem of needle breakage in sewing machine.

- ❖ The needle is improperly inserted.
- ❖ The needle is bent.
- ❖ The needle clamp screw is loose.
- ❖ The needle thread tension is too tight.
- ❖ The user is pulling too tightly on the fabric while sewing.
- ❖ The needle is too fine for the fabric being sewn.
- ❖ The area around the hole in the needle plate is damaged.
- ❖ The needle hits the needle plate.
- ❖ The hook is not properly installed.
- ❖ The needle and the hook are not properly passing each other.
- ❖ The presser foot is set too high and not properly positioned and the needle hits the presser foot.

After checking these with possibilities and making the appropriate corrections as needed, sewing machine continues to bend the needle, it may be time to take it in for repairs. [2]

### 2.1.2 Remedies

- ❖ Correctly winding of threads on to the bobbin.
- ❖ The tension should be adjusted to the bobbin threads.
- ❖ The edges should be smooth.
- ❖ Test the size and types of bobbin. [3]

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## **2.2 Worker Idle Time**

Idle time is unproductive time on the part of employees caused by management of factors that beyond their control. Idle time is the time associated with waiting. It could also be known as associated with computing, and in that case, refers to processing time.

### **2.2.1 Causes**

- ❖ Unnecessary movement of workers in sewing floor.
- ❖ Management do not efficiently schedule work shifts may cause idle time.
- ❖ Workers are responsible for causing idle time.
- ❖ Lack of training the individual operators in its practice as per standardized methods.
- ❖ Improper design of workplace layout in sewing floor.

### **2.2.2 Remedies**

- ❖ To eliminate wastage of time and unnecessary movement.
- ❖ To improve the design of work place layout.
- ❖ To accomplished the standardized method in sewing floor.
- ❖ To find a best way of doing a job.
- ❖ To detect the ideal time on machine and workers.

## **2.3 Lack of Supply Cutting Panel**

It is not a fault of production department it's totally depend on cutting department that they can't supply the cutting panel to the sewing line into right time. All plans and efforts towards productivity will fail if the line is not been fed continuously

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### **2.3.1 Causes**

- ❖ Improper operator work in the cutting section that's why it's delay to supply the cutting panel in right time.
- ❖ Delay to supply the cutting panel to the sewing floor.
- ❖ Panel missing found in sewing line
- ❖ Improper quick input supply for sewing line.

### **2.3.2 Remedies**

- ❖ Ensure proper supply cutting panel to the swing line
- ❖ Ensure full bundle quantity in sewing line

## **2.4 Efficiency Loss**

On the swing floor the production and IE team work hard to improve the line efficiency or at least they try to maintain the monthly average efficiency. The efficiency level goes down time to time.

### **2.4.1 Causes**

- ❖ Lack of quality issues.
- ❖ Improper line balancing.
- ❖ Due to operator absenteeism.
- ❖ Due to low skilled operators.
- ❖ Excessive worker idle times.

### **2.4.2 Remedies**

- ❖ Correcting motion study and correcting faulty motions.
- ❖ Hourly operator capacity checks.

- 
- ❖ Use best proper line layout.
  - ❖ Reduce line setting time.
  - ❖ Improve line balancing:

## **2.5 Machine Problem**

Sewing machines sometimes seem to have a life of their own when it comes to working properly or not. Many common sewing problems should prevent just by making sure the machine is set up properly and has regular maintenance.

### **2.5.1 Causes**

- ❖ Due to mechanical Noises.
- ❖ Due to breaking needle or bending needle.
- ❖ Due to machine vibrating.
- ❖ Due to Sewing Machine Thread Is Tangling, Bunching
- ❖ Improper oiling into different sewing machine parts.

### **2.5.2 Remedies**

- ❖ Proper maintenance should be done.
- ❖ In time lubrication into machine parts.
- ❖ Remove lint or dust from under needle plate.
- ❖ Check if needle clamp screw is loose or not.

## **2.6 Delay Shipment**

In the contest of RMG sector,its need to keep the production plan and goods delivery date properly. Give best effort to control and implement the proper production plan, but cannot predict what obstacles are awaiting for the end of the sessions.

### **2.6.1 Causes**

- ❖ Delay in raw material collection and approval.

- 
- ❖ Delay approval of samples.
  - ❖ Late of production process.
  - ❖ Human miss communication in recording.
  - ❖ Problem in final QA inspection and subject to rechecking.

### **2.7.2 Remedies**

- ❖ Factories whole management and inventory system has to be improved.
- ❖ There should be continuous monitoring mechanism in the operation.
- ❖ A proper plan.
- ❖ Control in the operations including embroidery, printing and washing is very critical.

## **2.8 Labor Unrest**

Clothing industry is one of the most labor intensive sectors in the world. The industry is most labor-intensive sector in Bangladesh due to lack use of technology. Frequent labor unrest in clothing manufacturing sector strikes by labors and their unions. Most common reason for the unrest is wages and increments up to a level, which could help them to live a good life.

### **2.8.1 Causes**

- ❖ Low wages.
- ❖ Higher wages gap in organizational hierarchy.
- ❖ Lack of compliance.
- ❖ No responsible organizations who will fulfill labors needs and demands.
- ❖ Death of any garment labors in the factory premises, could be by fire-smoke and electrified.
- ❖ Distorted minded boys or males labors create corrosion of unrest to press their illegal demands.
- ❖ Local influential trading of garment wastes, sometimes creates unwanted unrest in the garments manufacturing areas.
- ❖ Many labors believe international politics willing creates their unrest.

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## 2.8.2 Remedies

- ❖ Restructure factory hierarchy organogram provide incentive to deserving employees but keeping salary unjust level.
- ❖ Ensure social and environmental compliances in the garment manufacturing sector.
- ❖ Needs to formulate garment police to tackle such incidence.

## 2.9 Faulty Stitch

### 2.9.1 Slipped stitch

Missing of interloping or interlacing between top and bottom threads.

#### Causes:

- ❖ Loper and needle are not correctly placed.
- ❖ Improper thread tension.
- ❖ Deflection of needle.
- ❖ Too small of needle thread loop size.

#### Remedies:

- ❖ Needle and looper placement should be proper.
- ❖ Correct tension maintaining.
- ❖ Needle should be changed.

### 2.9.2 Staggered stitch

Stitch is not parallel produced by needle.

#### Causes:

- 
- ❖ Deflection of needle.
  - ❖ Due to incorrect needle point.
  - ❖ Improper motion of feed dog.
  - ❖ Incorrect adjustment of needle and thread size.

**Remedies:**

- ❖ Increase needle size.
- ❖ Needle size and thread size should be correct.
- ❖ Motion of feed dog should be adjusted.

### **2.9.3 Unbalance Stitch**

Improper interlacement of threads in lock stitch machine.

**Causes:**

- ❖ Incorrect tension of sewing thread.
- ❖ Used incorrect thread path.
- ❖ Snagging of needle with bobbing case in sewing machine.

**Remedies:**

- ❖ Setting the right tension to the sewing threads.
- ❖ Use of proper thread path.
- ❖ Bobbin case should be smooth.

### **2.9.4 Variable stitch density**

Number of stitch per unit length is not equal.

**Causes:**

- ❖ Improper unwinding of thread from package during sewing.
- ❖ Twisting of needle thread in the bottom of thread package.
- ❖ Use of broken check spring.
- ❖ Fraying of thread in the needle.



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**Remedies:**

- ❖ The position of thread guide must be 2.5 times higher than the position of thread package.
- ❖ Foam pad need to be used to the bottom of thread package.
- ❖ Winding of more threads into the thread guide.
- ❖ Check spring must be changed.
- ❖ Finer threads need to be used.

**2.9.5 Frequent thread breakage**

Thread breakage frequently during sewing.

**Causes:**

- ❖ Higher tension to the bobbin threads.
- ❖ Incorrect fitting of bobbin case.

**Remedies:**

- ❖ Proper winding of threads on to the bobbin.
- ❖ Bobbin threads tension must be adjusted.
- ❖ Check the damaging case.

**2.9.6 Problem of puckers:****Causes:**

- ❖ Variable or uneven stretch on fabric plies.
- ❖ Fabric dimensional instability.
- ❖ Extension of sewing thread.
- ❖ Sewing threads shrinkage.
- ❖ Fabric construction
- ❖ Mismatched patterns.

**Remedies:**

- ❖ Proper feed mechanism should be used with equal ply stretch.
- ❖ Fabric shrinkage property must be almost equal.
- ❖ Using less tension to the thread.
- ❖ Fabric and sewing thread shrinkage% should be equal.

- 
- ❖ By reducing stitch density for heavy fabric.
  - ❖ Pattern should be matched properly.

### **2.9.7 Damage of fabrics on seam line**

Fabrics or threads are damaged along the seam line during sewing.

#### **Causes:**

- Mechanical damage.
- Needle heating damage.

#### **Remedies:**

- By using perfect size and shape of needle and needle point.
- By testing sew ability before sewing fabrics.
- By flowing cool air on the needle during sewing.
- By using lubricant to the needle and fabrics to the sewing line.

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# **Chapter-3**

## **Experimental Details**

### 3.1 Calculation of Machine stoppage hour for 150 machine in Rose Garments Ltd.

Date	M/C No.	Machine Stoppage/hour ( in min)						
		9-10				Total No of Stop	Total stop time	EFF%
		Duration of individual stoppage	Reason of stoppage	Responsible person to solve the problem	No. of stops			
22-01-18	7	10	Hook problem	operator	1	2	21	
	15	11	power suply failure	electric department	1			
23-01-18	13	10	Not input supply	cutting department	1	6	41.83	
	7	8	not input supply	cutting department	1			
	12	12	Not input supply	cutting department	1			
	23	11	change the looper & refreshment	operator	1			
	3	0.83	S/N MACHINE PROBLEM	operator	2			
24-1-18	34	16	elastic supply delay	lineman	1	6	76	
	21	18	mechanical problem	mechanical department	2			
	7	25	not input from kansai m/c	operator	1			
	18	10	absence of operator		1			
	14	7	B/T MACHINE PROBLEM	mechanical in charge	1			
25-01-18	2	60	Not input supply	cutting department	1	8	247	
	3	60	not input supply	cutting department	1			
	4	60	Not input supply	cutting department	1			
	5	60	Not input supply	cutting department	1			

	21	3	needle breakdown	operator	3			
	13	4	SKIP STICH S/N MACHINE	operator	1			
27-1-18	6	1.5	HOLE MACHINE PROBLEM.	operator	1	4	11.1	
	8	1.33	O/L MACHINE PROBLEM.	operator	1			
	9	0.5	O/L MACHINE PROBLEM.	operator	1			
	32	7.77	fabric problem		1			
28-1-18	22	11	MACHINE PROBLEM	mechanical department	1	5	63	
	11	13	electricity breakdown	electric department	1			
	12	13	electricity breakdown	electric department	1			
	13	13	electricity breakdown	electric department	1			
	14	13	electricity breakdown	electric department	1			
30-1-18	17	11.22	pipng not supply	operator	1	2	23.7	
	21	11.45	pipng not supply	operator	1			
31-1-18	3	2.13	HOLE MACHINE PROBLEM.	operator	1	5	64.24	
	6	2.11	O/L MACHINE PROBLEM.	operator	1			
	12	20	cutting parts not available	supervisor	1			
	13	20	cutting parts not available	supervisor	1			
	14	20	cutting parts not available	supervisor	1			
4/2/2018	11	7	fabric problem	supervisor	1	7	29.15	
	29	5.26	sewing thread not available	lineman	1			
	31	0.92	kansai m/c problem	operator	1			

	3	0.87	S/N MACHINE PROBLEM	operator	1			
	16	3.5	lase not available	supervisor	1			
	15	3.8	laze not available	supervisor	1			
	7	7.8	needle break down	operator	1			
6/2/2018	28	5.67	B/T MACHINE PROBLEM	mechanical in charge	1	4	31.37	
	32	7.7	power supply failure	electric department	1			
	33	9	power off	electric department	1			
	36	9	power off	electric department	1			
7/2/2018	19	4.56	print part not available	lineman	1	5	57.92	
	20	4.88	print part not available	lineman	1			
	21	6.48	print part not available	lineman	1			
	29	21	cutting problem	cutting department	1			
	30	21	cutting problem	cutting department	1			
8/2/2018	37	13	fire drill		1	3	15.59	
	39	0.92	B/T MACHINE PROBLEM	operator	1			
	41	1.67	kansai m/c problem	operator	1			
10/2/2018	79	13	button stitch machine problem	mechanical department	1	4	28.2	
	83	2.67	overlock machine problem	helper	1			
	67	11	fire drill	fixed person	1			
	37	1.53	looper change	operator	1			
12/2/2018	44	0.98	needle break	operator	1	5	25.86	
	49	1.88	kansai m/c problem	operator	1			

	34	4.67	s/n machine problem	mechanical incharge	1			
	66	1.33	looper change	operator	1			
	73	17	D/N machine problem	mechanical department	1			

Table:

### 3.2 Liz Fashion Industry Ltd.

Date	M/C No.	Machine Stoppage/hour ( in min)				Total No of Stop	Total stop time	EFF%	
		9-10		Reason of stoppage	Responsible person to solve the problem				No. of stops
		Duration of individual stoppage							
16-01-18	5	20	electricity breakdown	electric department	1	3	33		
	12	13	power supply failure	electric department	2				
18-01-18	12	11	Not input supply	cutting department	1	7	46		
	6	9	absence of operator	operator	1				
	18	12	Drop stitch	mechanical	2				
	2	1	S/N Machine Problem	operator	2				
	28	13	elastic supply delay	lineman	1				
21-1-18	24	16	mechanical problem	mechanical department	2	7	96		
	19	9	absence of operator	operator	1				
	16	6	B/T machine problem	mechanical in charge	1				
	4	30	Not input supply	cutting department	2				
	5	35	elastic supply delay	lineman	1				
22-01-18	8	60	Not input supply	cutting department	1	8	72.85		
	22	4	needle breakdown	operator	1				
	11	5	SKIP STICH S/N MACHINE	operator	1				
	8	1.5	HOLE MACHINE PROBLEM.	operator	3				
	8	1.35	O/L MACHINE PROBLEM.	operator	1				
	6	1	S/N Machine Problem	operator	1				
23-1-18	29	7	fabric problem		2	5	45		
	25	12	Drop stitch	mechanical	1				
	17	14	cutting parts not available	supervisor	1				
	14	12	cutting parts not available	supervisor	1				
25-1-	12	12	Drop stitch	mechanical	1	6	47		

18	15	21	electricity breakdown	electric department	1			
	24	10	pipng not supply	operator	1			
	5	2	HOLE MACHINE PROBLEM.	operator	1			
	7	2	O/L MACHINE PROBLEM.	operator	2			
28-1-18	10	22	electricity breakdown	electric department	1	2	66	
	15	22	electricity breakdown	electric department	1			
30-1-18	16	22	electricity breakdown	electric department	1	6	50	
	10	8	fabric problem	supervisor	1			
	21	5	sweing thread not available	lineman	1			
	30	12	Drop stitch	mechanical	2			
	18	3	lace not available	supervisor	1			
1-2-2018	18	5	needle plate change	operator	1	3	12	
	8	7	neddle break down	operator	2			

### 3.3 Fakir Apparels Ltd.

Date	M/C No.	Machine Stoppage/hour ( in min)				Total No of Stop	Total stop time	EFF %	
		11-12		Reason of stoppage	Responsible person to solve the problem				No. of stops
		Duration of individual stoppage							
24-3-18	2	2.20	Overlock m/c problem	operator	1	5	57.25		
	4	2.05	S/N m/c Problem	operator	1				
	11	18	Delay input cutting parts	supervisor	1				
	13	15	Cutting parts not available	supervisor	1				
	12	20	Delay Pass	supervisor	1				
25/3/2018	10	8	fabric problem	supervisor	1	7	27.33		
	23	5.00	sewing thread not available	lineman	1				
	28	1.31	kansai m/c problem	operator	1				
	4	1.00	Delay Pass	operator	1				
	15	3.32	lace not available	supervisor	1				
	13	3.00	Elastic not available	supervisor	1				
	8	5.30	needle break down	operator	1				
26/3/2018	25	4.50	Lock Stitch m/c problem	mechanical in charge	1	4	27		
	28	6.10	power suply failure	electric department	1				



	30	8	Overlock m/c problem	operator	1			
	33	8	power off	electric department	1			
27/3/2018	17	4.14	print part not available	lineman	1	5	29.41	
	20	4.00	Worker Absence	lineman	1			
	21	7.13	print part not available	lineman	1			
	23	8.14	Stitch problem	Operator	1			
	27	10	Idle Time	Operator	1			
28/3/2018	31	11	Cutting parts not available	Lineman	1	4	20.09	
	30	1.43	Overlock m/c Problem	operator	1			
	35	3.23	Button attaching m/c problem	operator	1			
	37	4.03	Fault Stitch	Operator	1			
29/3/2018	42	11.30	button stich machine problem	mechanical department	1	4	25.1	
	51	2.50	overlock machine problem	helper	1			
	59	09	fire drill	fixed person	1			
	61	2.30	looper change	operator	1			
31/3/2018	41	4.45	needle break	operator	1	5	28.09	
	39	2	Delay Pass	operator	1			
	37	4.51	s/n machine problem	mechanical in charge	1			
	50	2.13	Looper Thread change	operator	1			
	45	15	No cutting piece available	Lineman	1			

---

# **Chapter-4**

## **Discussion of Result**

## 4.1 Problem Analysis

### 4.1.1 Rose garments

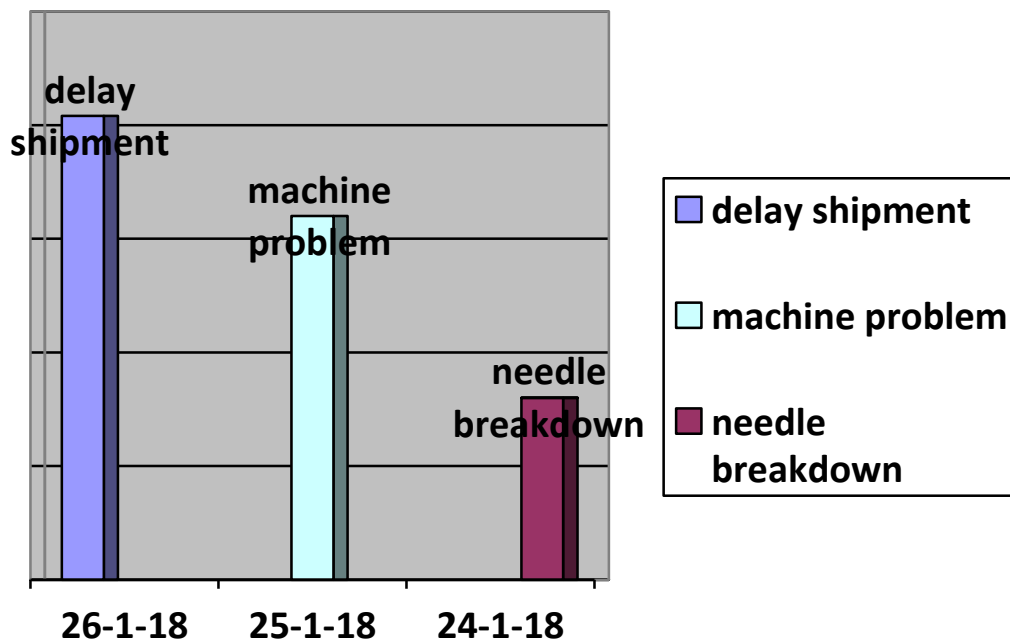
Many reason behind sewing machine stoppage in Rose Garments such as Hook problem, power suply failure, Not input supply,change the looper & refreshment S/N machine problem,elastic supply delay,mechanical problem,cutting problem, fire drill etc.

**Major reason:** Delay input cutting parts and different machine problems.

**Minor reason:** Needle breakdown

**Remedies:** The cutting operator and In charge should be careful about their responsibilities and ensure time to time delivery the cutting piece to the sewing line .

#### 4.1.1.1 Graphical Analysis



### 4.1.2 Liz Fashion Industry Ltd

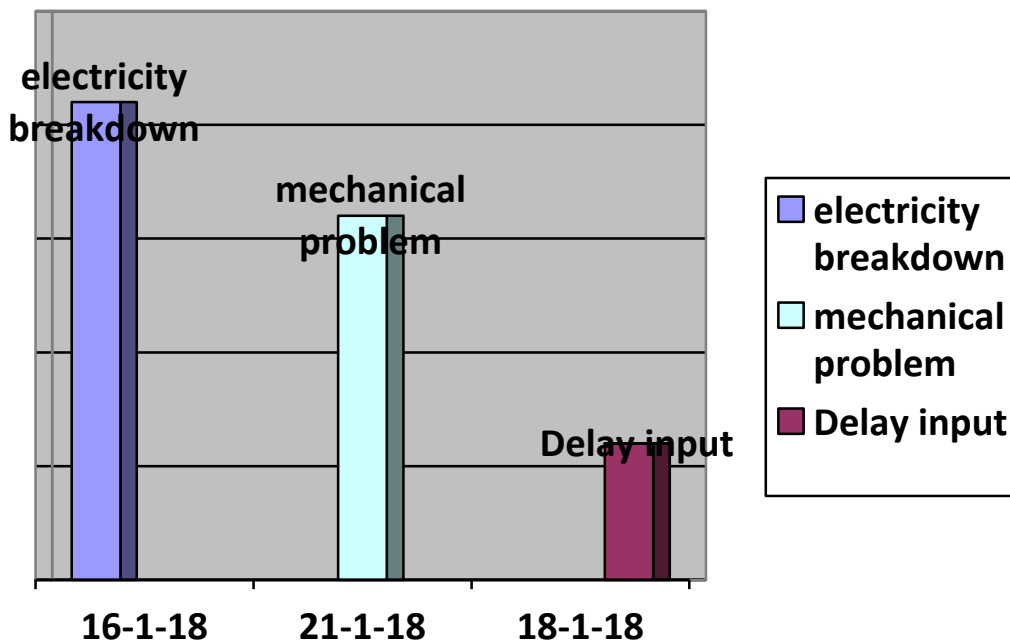
Many reason behind sewing machine stoppage in Liz Fashion Industry Ltd such as electricity breakdown,power supply failure,Not input supply,absence of operator,Drop stitch,mechanical problem,needle plate change,needle break down, fabric problem,cutting parts not available etc.

**Major reason:** Electricity Breakdown and mechanical problem.

**Minor reason:** Delay pass of cutting piece and needle breakdown

**Remedies:** The electrical department and maintenance should be careful about their responsibilities and take care machine power supply.

#### 4.1.1.2 Graphical Analysis



#### 4.1.3 Fakir Apparels Ltd

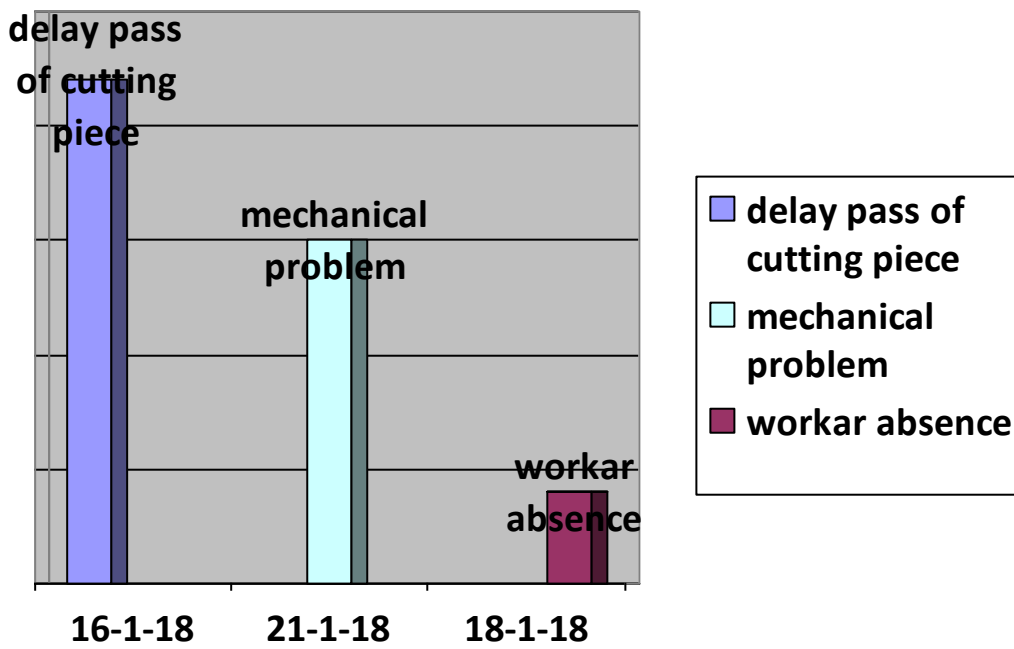
Many reason behind sewing machine stoppage in Fakir Apparels Ltd such as Overlock m/c problem, S/N m/c Problem, Delay input cutting parts, Cutting parts not available, Delay Pass fabric problem, sewing thread not available, kansai m/c problem, lace not available, Elastic not available, needle break down, Lock Stitch m/c problem etc.

**Major reason:** Delay pass of cutting piece and mechanical problem

**Minor reason:** Worker absence in sewing line

**Remedies:** The cutting section and sewing section management should be careful about their responsibilities and take care right time delivery of cutting piece.

#### 4.1.1.2 Graphical Analysis



## Chapter-5

## Conclusion

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## **5.1 Conclusion**

Garment industry is the one of the major sector of Bangladesh, the scope of which is increasing day by day. At the same time competitors are also increasing day by day. For increasing company demand its related production and machine stoppage is one of the most important factors. There are some reason behind the sewing machine stoppage like needle break, delay input, electricity problem, mechanical problem, oil problem etc. It's important to reduce this problem and increase productivity into the sewing floor. Those table of machine stoppage hour describe the time loss in production floor in garments industry. In here, sewing machine is important part in sewing floor so it's a duty to take care of all the sewing machine.

Overall we can say that if we reduce machine stoppage during production in sewing floor it will help to increase production efficiency day by day.

## **References**