BOX SHIFTING MECHANISM

CERTIFICATE

This is to certify that
Mr. BHALANI PARTH L.
Of Mechanical Engineering,
Enrollment no: - 136490319505
Has satisfactorily completed his term work in
Project –II (3361910)
For the term ending in April- 2016

Date *Student*

Date *Batch Teacher*

Date *Head of Department*

Date *Principal*

INDEX

BOX SHIFTING MECHANISM

1. PREFACE/ACKNOWLEDGEMENT.

BOX SHIFTING/CONVEYOR MECHANISM is project about material handling.

The objective of our project is to produce a mechanism that delivers this stop and move motion using mechanical linkages. The advantage of our system over the conveyor system is that the system has a time delay between moving packages and this delay can be used to introduce any alterations in the package or move the package for any other purpose and likewise.

And Special thanks to **V.B.RATHOD SIR** for guidelines.

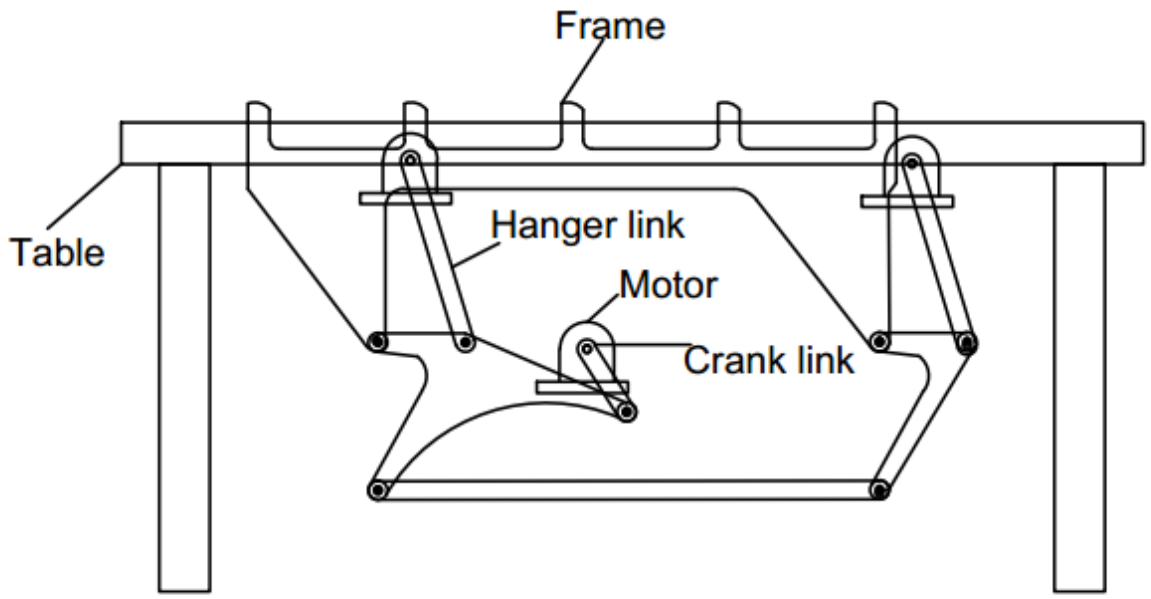
2. COURSE OUTCOMES.

i. Plan and identify materials, processes and other resources optimally.
ii. Develop innovative and creative ideas.
iii. Develop leadership, interpersonal skill and team work.
iv. Develop sense of environmental responsibility.
v. Purchase raw material/standard parts.
vi. Interpret the drawings, manufacture, assemble, inspect & if necessary modify the parts/unit/assembly of the project work.
vii. Familiar with fast changes in technology.

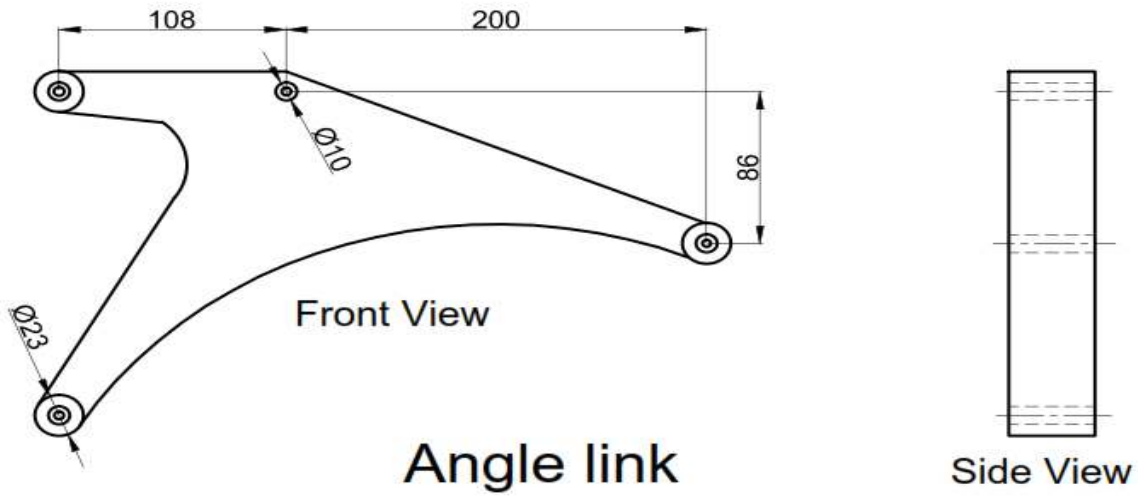
3. PROJEC T TITLE.

BOX SHIFTING MECHANISM

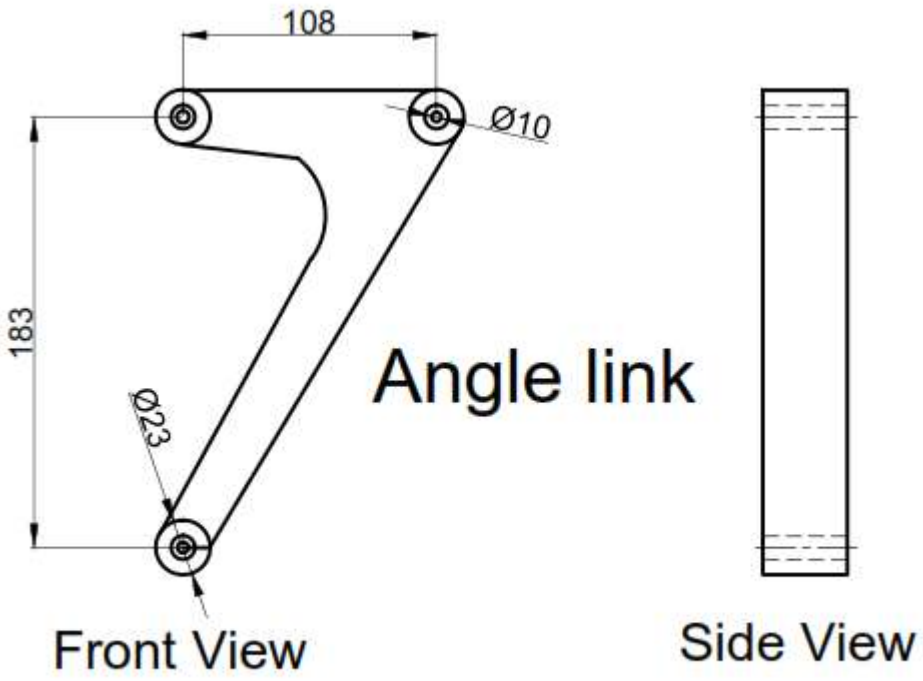
4. ASSEMBLY AND DETAIL PRODUCTIONDRAWINGS.



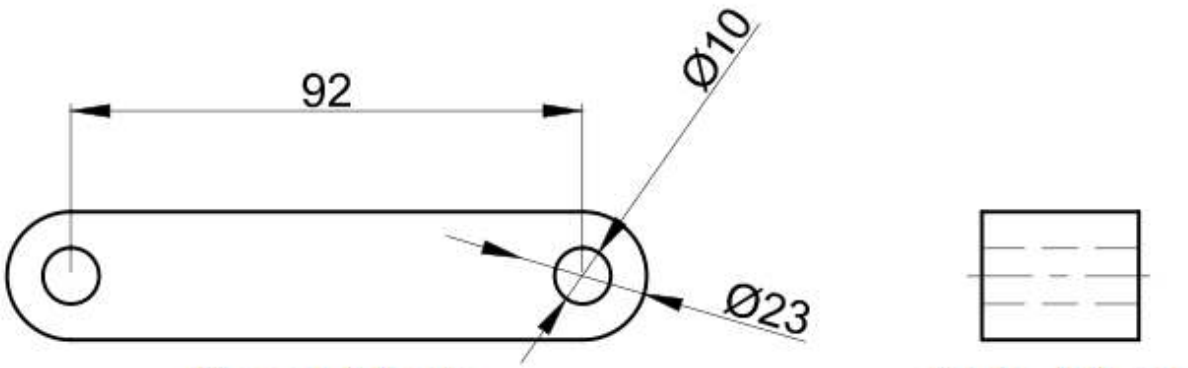
BOX SHIFTING MECHANISM



BOX SHIFTING MECHANISM



BOX SHIFTING MECHANISM



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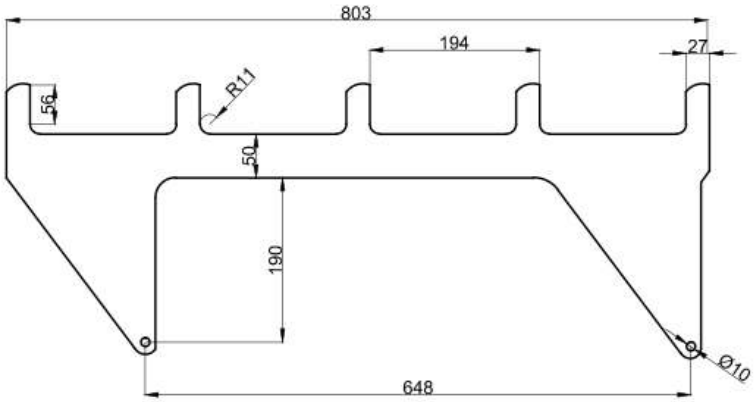
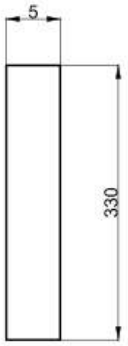
BOX SHIFTING MECHANISM



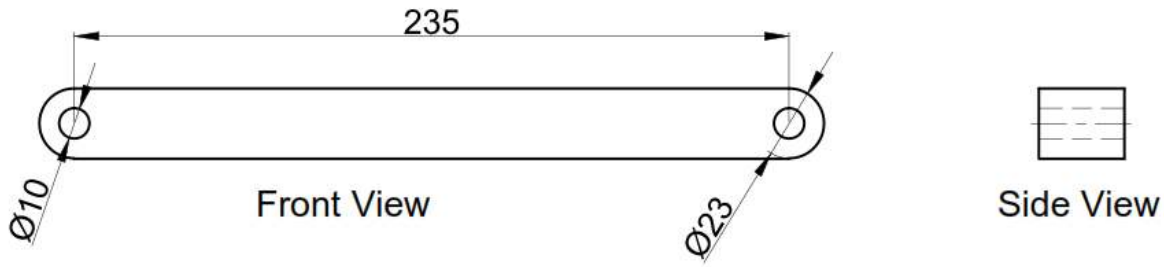
Front View



Side View

Frame

BOX SHIFTING MECHANISM



Hanger link

BOX SHIFTING MECHANISM

5. LIST OF ACTIVITIES AND WORK ALLOCATION MATRIX :-

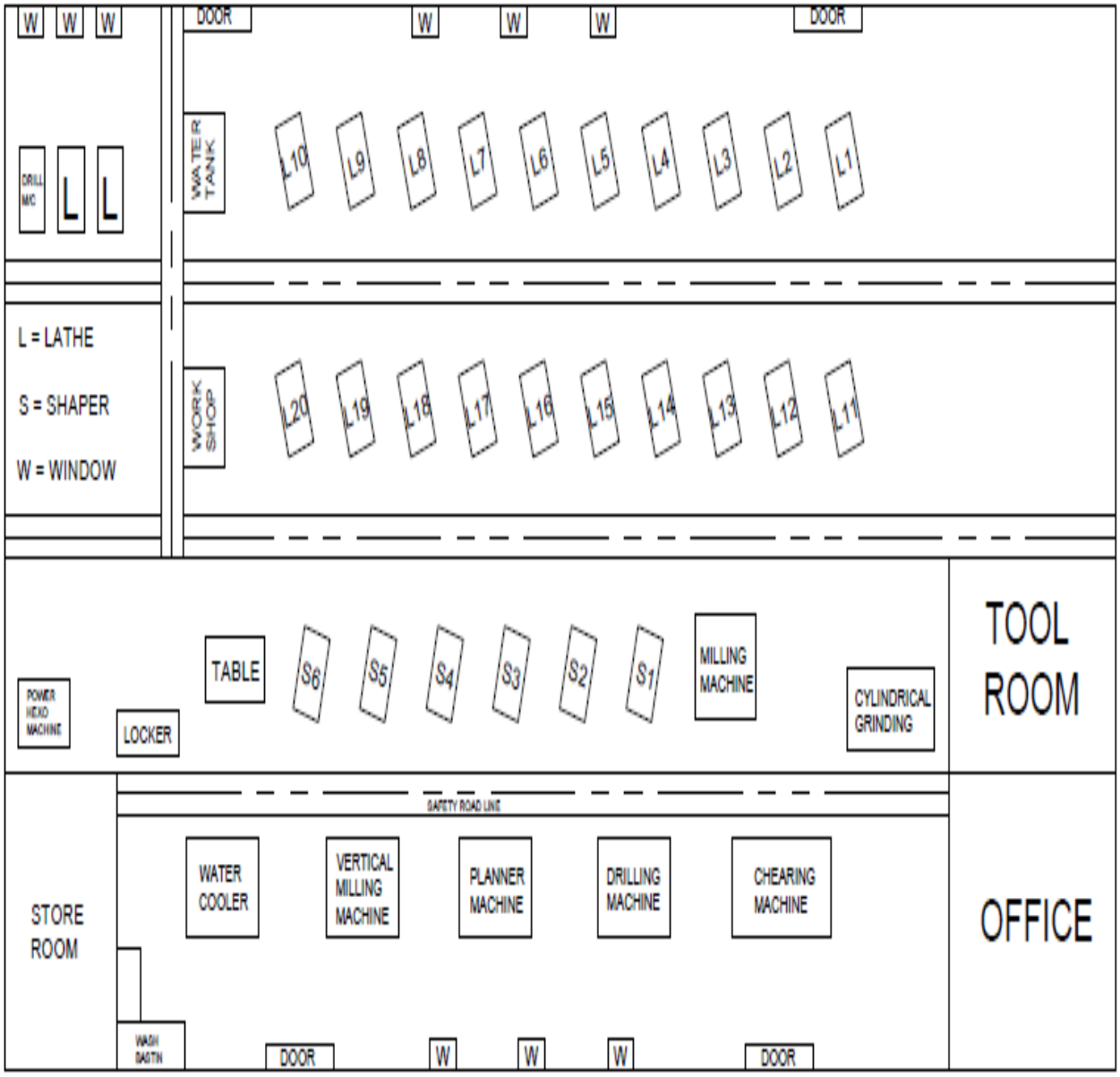
ACTIVITY NO.	SHORT DESCRIPTION OF ACTIVITY	WHO WILL PERFORM?	PLANNED DATES		ACTUAL DATES		WHO HAS/HAVE PERFORMED?	REASON/S FOR ANY DELAY/DEVIATION FROM PLANNIG	INITIAL OF TEACHER
			STARTING	ENDING	STARTING	ENDING			
1	Preparing and maintaining logbook as per Annexure-v.	**YUVRAJSINH**	---	---	---	---	---	---	
2	Finalization of assembly and detail drawings (this must be production drawings with suitable scale along with dimensions, tolerances, surface roughness symbols, heat treatment / other treatments, quantity per assembly for components drawings, etc.	**RUTVIK ,TEJAS**	05/ 01	19/ 01	05/ 01	15/ 01	**RUTVIK, TEJAS**		
3	Preparing master schedule and work allocation matrix in group.	**PARTH**	05/ 01	22/ 01	05/ 01	26/ 01	**PARTH**		
4	Preparation of bill of material.	**VIVEK**	05/ 01	22/ 01	05/ 01	19/ 01	**VIVEK**		
5	Collecting data and specifications of available resources-mainly material and machineries / equipment/facilities and tools.	**VIVEK,YUVRAJSINH**	15/ 01	22/ 01	15/ 01	22/ 01	**VIVEK,YUVRAJSINH**		
6	Make or buy decision.	**ALL**	29/ 01	02/ 02	29/ 02	02/ 02	**ALL**		

7	Preparing specification of bought-out parts.	**PARTH**	02/ 02	09/ 02	02/ 02	09/ 02	**PARTH**		
8	Preparation of process planning (sheets) for all components in standards format	**PARTH, VIVEK,YUVRAJSINH**	02/ 02	09/ 02	02/ 02	09/ 02	**PARTH,VIVEK,YUVRAJSINH**		
9	List, quantities and specifications of consumables.	**RUTVIK, TEJAS**	02/ 02	09/ 02	02/ 02	09/ 02	**RUTVIK, TEJAS**		
10	Preparation of list of required tools-cutting tools, jigs, fixtures, measuring instruments and other tools along with necessary specifications and sketches if required.	**ALL**	12/ 02	19/ 02	12/ 02	19/ 02	**ALL**		
11	Identifying and locating required resources like material, machineries / equipment / facilities and tools.	**TEJAS, YUVRAJ SINH**	19/ 02	26/ 02	19/ 02	26/ 02	**TEJAS, YUVRAJ SINH**		
12	Preparing plant layout.	**PARTH**	22/ 02	26/ 02	22/ 02	26/ 02	**PARTH**		
13	Manufacturing of components.								
	a) Table	**ALL**	27/ 02	02/ 03	27/ 02	02/ 03	**ALL**		
	b) Frame	**RUTVIK, YUVRAJ SINH**	02/ 03	08/ 03	02/ 03	08/ 03	**RUTVIK, YUVRAJ SINH**		
	c) Links	**TEJAS,VIVEK**	02/ 03	08/ 03	02/ 03	08/ 03	**TEJAS,VIVEK**		
14	Details of inspection carried out.	**PARTH**	058 /03	29/ 03	08/ 03	29/ 03	**PARTH**		
15	Assembly.	**ALL**	01/ 04	08/ 04	01/ 04	08/ 04	**ALL**		

16	Details of testing carried out.	**ALL**	08/ 04	---	08/ 04	08/ 04	**ALL**		
17	Rework / rectification activities if required.	**ALL**	08/ 04	19/ 04	08/ 04	19/ 04	**ALL**		
18	1) Project monitoring and control, record keeping.	**TEJAS,RUTVIK,VIVEK**	05/ 04	19/ 04	05/ 04	19/ 04	**TEJAS,RUTVIK,VIVEK**		
19	Costing.	**YUVRAJ SINH**	19/ 04	20/ 04	19/ 04	20/ 04	**YUVRAJ SINH**		
20	Preparation of notes on troubleshooting.	**PARTH**	08/ 04	19/ 04	08/ 04	19/ 04	**PARTH**		
21	Preparation of notes individually on :- a. Extent to which he has achieved learning outcomes. b. Own experience in executing project. c. He has faced technical problems during and solutions found.								
22	Preparation of list of references.	**ALL**	19/ 04	21/ 04	19/ 04	21/ 04	**ALL**		
23	Preparation of project report.	**ALL**	18/ 04	19/ 04	22/ 04	25/ 04	**ALL**		
24	Presentation.	**ALL**	22/ 04	---	---	---	**ALL**		

BOX SHIFTING MECHANISM

6.PLAN LAYOUT :-



PLANT LAYOUT

7.LIST AND SPECIFICATIONS OF MACHINERIES, EQUIPMENT ANDTOOLS.

MACHINERIES:-

1. Lathe:-

- Type of lathe:- Engine lathe
- Distance between center:-600mm
- Height of center:-190mm
- Swing over bed:- 390mm
- Swing over cross slide:-200mm
- No of speed range:-8/45 938 rpm
- No of thread range:-36/4 60 TPI
- No of feed range:-72/0.2 6 min/rev

2. Drilling machine:

- Drilling capacity:-40mm
- Spindle nose:-MT_4
- Spindle travel:-215mm
- Distance between center of spindle to column:-305mm
- Number of spindle speeds:-8
- Spindle speed range:-75 to2070 rpm
- Column diameter:-130mm
- Drilling motor:-1 hp

TOOLS:-

5. **Single point cutting tool:-**
    a. Material:-HSS
6. **Drill bits:-**
    a. HSS twist drill shank:-
        i. 6mm
        ii. 3mm
        iii. 15mm
7. **Rough file:-**
    a. Length:-250mm
    b. Width:-5mm
    c. Height:-30mm
8. **Cutter:-**
    a. Max dia:-200mm
    b. Thickness:-3mm
    c. No of tooth:-48
    d. Material:-HCS

BOX SHIFTING MECHANISM

- **EQUIPMENTS:-**

1) Spanners:-

2) Pliers:-

3) Hammer:-

4) Scale:-

- We use 30 cm long scale

5) Vise:-

a) Bench vice

b) Width:-150mm

c) Max span:-120mm

d) Total length:-450mm

e) Length of handle:-250mm

BOX SHIFTING MECHANISM

8.BILL OF MATERIAL WITH MAKE OR BUY DECISION.

PART NUMBER	DESCRIPTION	QUANTITY/PROJECT	RAW MATERIAL	SIZE	MAKE OR BUY	REMARK
1	TABLE	1	WOOD	LENGTH=3 HIEGHT=2	MAKE	
2	BATTERY	1	-----	------	BUY	
3	MOTOR	1	ALLUMNIUM	-----	BUY	
4	LINKS	8	M.S	VARIOUS	MAKE	
5	FRAME	1	WOOD	LENGTH=2	MAKE	
6	SCREW	24	M.S	DIA=10	BUY	
7	NUT	24	M.S	DIA=10	BUY	
8	WASHER	24	M.S	DIA=10	BUY	
9	WIRES	2	COPPER	LENGTH=1	BUY	

9.SPECIFICATIONS OF BOUGHT OUT PARTS.

PART NUMBER	DESCRIPTION	SPECIFICATION
1	BATTERY	5 to 20 volts
2	MOTOR	54 to 60 RPM
3	SCREW	M10
4	NUT	F=16, G= 17.7, H=8.4
5	WASHER	ID=10.5mm , OD=21, T=1.25
6	WIRE	COPPER , L=2m

BOX SHIFTING MECHANISM

10. PROCESS SHEETS-AS PER FORMAT GIVEN IN COURSE INDUSTRIAL ENGINEERING : -

NAME OF COMPONENT :- TABLE, FRAME
MATERIAL :- WOOD
QUANTITY / BATCH :- 1

OP. NO.	DETAILS OF OPERATION	MACHINE	CUTTING TOOLS USED	CUTTING PARAMETERS			SETTING TIME	OPERTION TIME
				CUTTING SPEED	FEED	DEPTH OF CUT		
				RPM/NO. OF STROKES	(MM/REV OR MM/MIN)	(MM)	MIN	MIN
1	Cutting (As per drawing)	Hexo m/c	Hexo cutter					
2	Drilling (As per drawing)							

NAME OF COMPONENT :- LINK
MATERIAL :- ALLUMINIUM
QUANTITY / BATCH :- 1

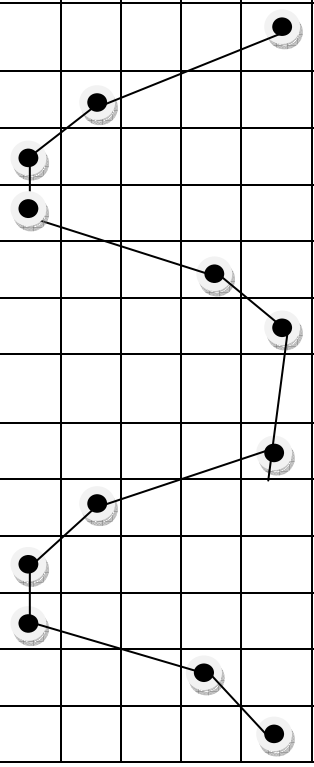
OP. NO.	DETAILS OF OPERATION	MACHINE	CUTTING TOOLS USED	CUTTING PARAMETERS			SETTING TIME	OPERTION TIME
				CUTTING SPEED	FEED	DEPTH OF CUT		
				RPM/NO. OF STROKES	(MM/REV OR MM/MIN)	(MM)	MIN	MIN
1	Cutting (As per drawing)	Hexo m/c	Hexo cutter					
2	Welding (As per drawing)	Welding transformer						

BOX SHIFTING MECHANISM

11. FLOW PROCESS CHART :-

FLOW PROCESS CHART (PROPOSED / PRESENT)										
CHART NO.:1	SHEET NO. OF1				SUMMER Y					
MATERIAL / MAN / EQUIPMENT					ACTIVITY		PRESENT	PROPOSED	SAVING	
ACTIVITY : Wood Cutting, Drilling (frame , Table)					OPERATION	○	4			
					TRANSPORT	⇨	2			
					DELAY	D	0			
METHOD: PRESENT / PROPOSEI					INSPECTION	□	2			
					STORAGE	▽	4			
					DISTANCE, IN METERS.		200 m			
LOCATION :					TIME (MINUTES).		50 min			
OPERATOR(S)	CLOCK NO.				LABOR COST		-----			
CHARTED BY:					MATERIAL COST		1500 rs.			
APPROVED BY:					TOTAL COST		1500 rs.			
DATE :										

SR.NO.	DESCRIPTION	QTY	DISTANCE	TIME	SYMBOL ○	⇨	D	□	▽	REM
(1) 1	Storage RAW material	1		2 min						
2	Transport to hexo cutter	1	50 m	3 Min						
3	Cutting	1		10min						
4	Drilling	2		3 Min						
5	Inspection	1		2 min						
6	Storage of part	1	50 m	- -						
(2)	PART 2 Table									
1	Storage of raw material	1								
2	Transport to cutting	1	50 m	3 min						
3	Cutting	1		15min						
4	Drilling	12		15min						
5	Inspection	1		2 min						
6	Storage of part	1	50 m	- - -						



BOX SHIFTING MECHANISM

FLOW PROCESS CHART (PROPOSED / PRESENT)										
CHART NO.2:	SHEET NO. OF 2			SUMMERY			PRESENT	PROPOSED	SAVING	
MATERIAL / MAN / EQUIPMENT				ACTIVITY						
ACTIVITY :				OPERATION	○		4			
				TRANSPORT	⇨		2			
LINK'S WELDING				DELAY	D		2			
				INSPECTION	□		3			
				STORAGE	▽		2			
METHOD: PRESENT / PROPOS				DISTANCE, IN METERS.			170m			
LOCATION :				TIME (MINUTES).			99min			
OPERATOR(S)	CLOCK NO.			LABOR COST			100 rs.			
CHARTED BY:				MATERIAL COST			500rs.			
APPROVED BY:				TOTAL COST			600 rs.			
DATE :										

SR.NO.	DESCRIPTION	QTY	DISTANCE	TIME	SYMBOL					REM
					O	⇨	D	□	▽	
1	Storage Raw Material	1								
2	Transport to Hexo cutting m/c	1	40 m	4min						
3	Delay	1		2min						
4	Hexo Cutting	1		6min						
5	Inspection			3min						
6	Transport to Drill m/c	1	60 m	4min						
7	Delay			2min						
8	Drill the holes	16		30min						
9	Inspection	- - -		3min						
10	WELDING	6		30MIN						
10	Finishing	1		6min						
11	Inspection	1		3min						
12	Storage of part	1	70 m	6 min						

12.SPECIFICATION AND CONSUMPTION OF CONSUMABLES.

SR. NO.	NAME OF CONSUMABLES	SPECIFICATION	UNIT OF CONSUMPTION	TOTAL CONSUMPTION
1	Welding Torch	-----	-----	-----
2	Electrodes	2 inch	Pieces	7 Pieces
3	Drill 0.02	High Accuracy	Pieces	1 Pieces

13.DETAILS OF INSPECTION / TESTING CARRIEDOUT.

After completing our project we have testing the project. In our project 1 friend has connect the wires to battery fastly. After connecting the wires, the frame is moving in oscillating motion. After this process the box is moving one place to another place by frame .

Our inspection of project is complete and our project is working.

14. COST ESTIMATION.

MATERIAL COST :- 2500 + 50 + 500 + 50 + 1500 = **4600 Rs.**

PROCESS COST:- =100 Rs.

TOTAL COST:- 4600 + 100 = **4700 Rs.**

Part No.	Description	Unit	Qty/project	Mat. cost/unit rs.	Procees cost/unit rs.	Total cost/unit rs.	Total cost/project rs.
1	TABLE	Kg	1	600	250	600	850
2	BATTERY	Volt	1	----	----	----	----
3	MOTOR	Rpm	1	-----	----	-----	2500
4	LINKS	Length	8	300	200	300	500
5	FRAME	Kg	1	400	200	400	600
6	SCREW	Dia	24	50	----	50	50
7	NUT	Dia	24	50	----	50	50
8	WASHER	Dia	48	100	----	100	100
9	WIRES	m	2	50	-----	50	50
10	**Total Cost**						**4600 Rs.**

15.NOTES ON TROUBLE SHOOTING.

1) Our first trouble is our two motor damaged by DC overload.

2) Our second trouble is project's mechanism we are try and successful in making of project's mechanism.

3)Our third trouble is alignment of links is very hard.

16. NOTES ON INDIVIDUAL ACHIEVEMENT OF SKILLS/EXPERIENCE/PROBLEMS / SOLUTIONS.

SKILLS AND EXPERINCE:-

- First time I manually operate drilling machine.
- My welding knowledge is improve.
- I get practical knowledge of safety.
- My leadership quality and trouble shooter quality is improve.

PROBLEMS:-

- Some time drilling tool is fitted on work piece when in drilling operation.
- Some time we cannot get the electrode for welding.
- Some of drilling holes not on marking.
-

SOLUTION:-

- We tight the tools.
- We take new material making again and also drilling again.
- We hide some electrode for our daily work.

17.REFERENCES.

- http://www.mekanizmalar.com/transport01.html
- http://projectseminars.org/report-box-transport-mechanism-project-report-in-pdf
- http://seminarprojects.com/s/box-transport-mechanism
- https://www.youtube.com/watch?v=tDLof06nBjU

18. PRESENTATION INCLUDING MOMENTS AT WORK-VIDEO/PHOTOGRAPHSIN ACTION.

BOX SHIFTING MECHANISM

THANK YOU…