KEC INTERNATIONAL

PROJECT PRESENTIONTION

WELCOME TO THE COMPANY

KEC International Limited (Kamani Engineering Corporation) is an Indian multinational company and also India's second largest manufacturer of electric_power transmission towers. and one of the largest Power transmission, Engineering,_Procurement and Construction (EPC) companies in the world.

ABOUT THE KEC INTERNATIONAL

KEC International Limited, headquartered in Mumbai, India, is the flagship company of the RPG Group. A USD 2.1 billion Engineering, Procurement, and Construction (EPC) major, we deliver projects in key infrastructure sectors such as Power Transmission & Distribution, Railways, Civil, Urban Infrastructure, Solar, Smart Infrastructure, Oil & Gas Pipelines, and Cables.

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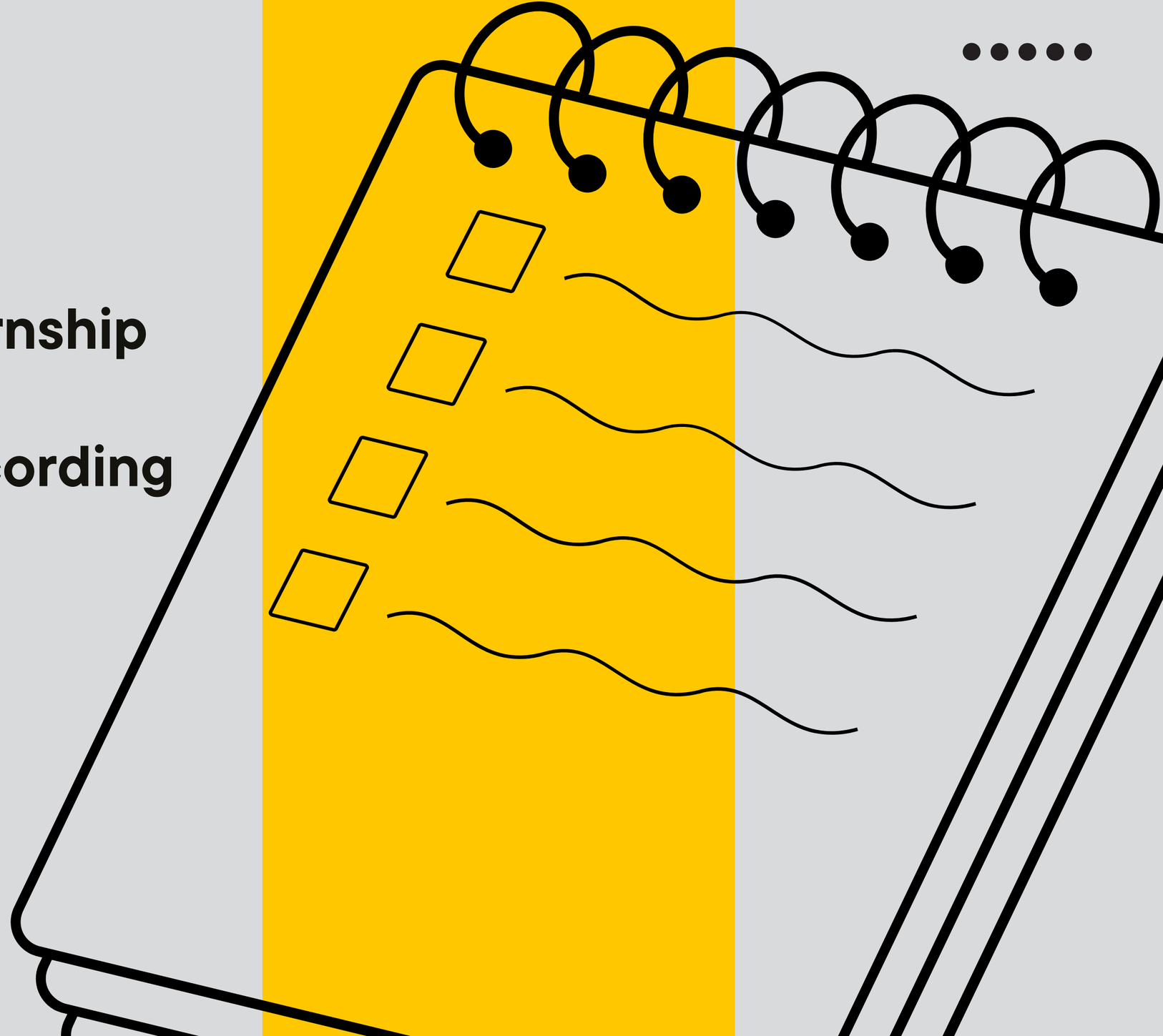
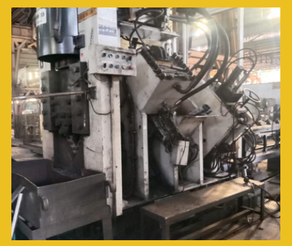
- Analysis and Data recording of specific machines
- Problem statements
- Remedies
- Safety issue



OBJECTIVE OF THE INTERNSHIP

- Man power optimization
- Maintenance protocols
- Machinery allocation
- Gap analysis
- Better management
- Wastage reduction

LAYOUT OF THE CNC'S



CP07

CP06

CP04

CP02

CP01

CP05

CP03

CP01

INPUT

WORK

OUTPUT

CP01

ACTIVITY		operator	worker 1	worker 2
INPUT	work	10	15	-
	wait	0	0	-
	walk	0	0	-
WORK	work	10+85	0	-
	wait	0	85	-
	walk	0	10	-
OUTPUT	work	10	20	-
	wait	0	0	-
	walk	0	0	-

total cycle time=130sec/piece

opertor-
total work=120 , wait=10 , walk time=0
worker 1
total work=35, wait=85 , walk time=0
worker 2
total work=0 , wait=0 , walk time=0

CP02

INPUT

WORK

OUTPUT

CP02

ACTIVITY		operator	worker1	worker 2
INPUT	work	13	17	-
	wait	2	0	-
	walk	0	0	-
WORK	work	8+88	0	
	wait	5	80	
	walk	0	10	
OUTPUT	work	18	18	
	wait	0	0	
	walk	2	2	

total cycle time=136sec/piece

opertor-
total work=127 , wait=7 , walk time=2
worker 1
total work=35, wait=80 , walk time=12
worker 2
total work=0 , wait=0 , walk time=0

CP03

INPUT

WORK

OUTPUT

CP03

ACTIVITY		operator	worker1	worker 2
INPUT	work	10	28	0
	wait	13	0	28
	walk	0	0	0
WORK	work	0	0	0
	wait	150	150	150
	walk	0	0	0
OUTPUT	work	10	0	32
	wait	22	32	0
	walk	0	0	0

total cycle time=205sec/piece

operator-
total work=20 , wait=185, walk time=0
worker 1
total work=28, wait=182 , walk time=0
worker 2
total work=32 , wait=178, walk time=0

CP04

INPUT

WORK

OUTPUT

CP04

ACTIVITY		operator	worker 1	worker 2
INPUT	work	0	90	0
	wait	90	0	90
	walk	0	0	0
WORK	work	30	0	0
	wait	150	180	180
	walk	0	0	0
OUTPUT	work	0	0	45
	wait	45	45	0
	walk	0	0	0

total cycle time=315sec/piece

operetor-
total work=30, wait=285 , walk time=0
worker 1
total work=90, wait=225 , walk time=0
worker 2
total work=45, wait=270, walk time=0

CP05

INPUT

WORK

OUTPUT

CP05

ACTIVITY		operator	worker1	worker 2
INPUT	work	5	5	0
	wait	0	0	5
	walk	0	0	0
WORK	work	60	60	0
	wait	0	0	60
	walk	0	0	0
OUTPUT	work	0	0	80
	wait	80	80	80
	walk	0	0	0

total cycle time=145sec/piece

operetor-
total work=65, wait=80, walk time=0
worker 1
total work=65, wait=80 , walk time=0
worker 2
total work=80 , wait=65, walk time=0

CP06

INPUT

WORK

OUTPUT

CP06

ACTIVITY		operator	worker1	worker 2
INPUT	work	0	32	0
	wait	32	0	32
	walk	0	0	0
WORK	work	30	0	0
	wait	120	146	146
	walk	0	0	0
OUTPUT	work	0	0	36
	wait	36	36	0
	walk	0	0	0

total cycle time=218sec/piece

operetor-
total work=30, wait=188 , walk time=0
worker 1
total work=32, wait=186 , walk time=0
worker 2
total work=36 , wait=182, walk time=0

CP07

INPUT

WORK

OUTPUT

CP07

ACTIVITY		operator	worker1	worker 2
INPUT	work	2	15	-
	wait	8	65	-
	walk	0	10	-
WORK	work	2	0	-
	wait	80	70	-
	walk	0	0	-
OUTPUT	work	0	10	-
	wait	10	0	-
	walk	0	0	-

total cycle time=102sec/piece

operetor-
total work=4 , wait=98 , walk time=0
worker 1
total work=25, wait=77 , walk time=0
worker 2
total work=0 , wait=0 , walk time=0

PROBLEM STATEMENTS

- Ideal time of workers during working of machine
- Ideal time of operator during oiling and cleaning of machine
- Ideal time of workers during marking and measurement of output
- Wastege of time of workers during break down of machine and while changing specification
- Excess space utilization of stacking of material
- Shifts of workers and operators are different not confirm

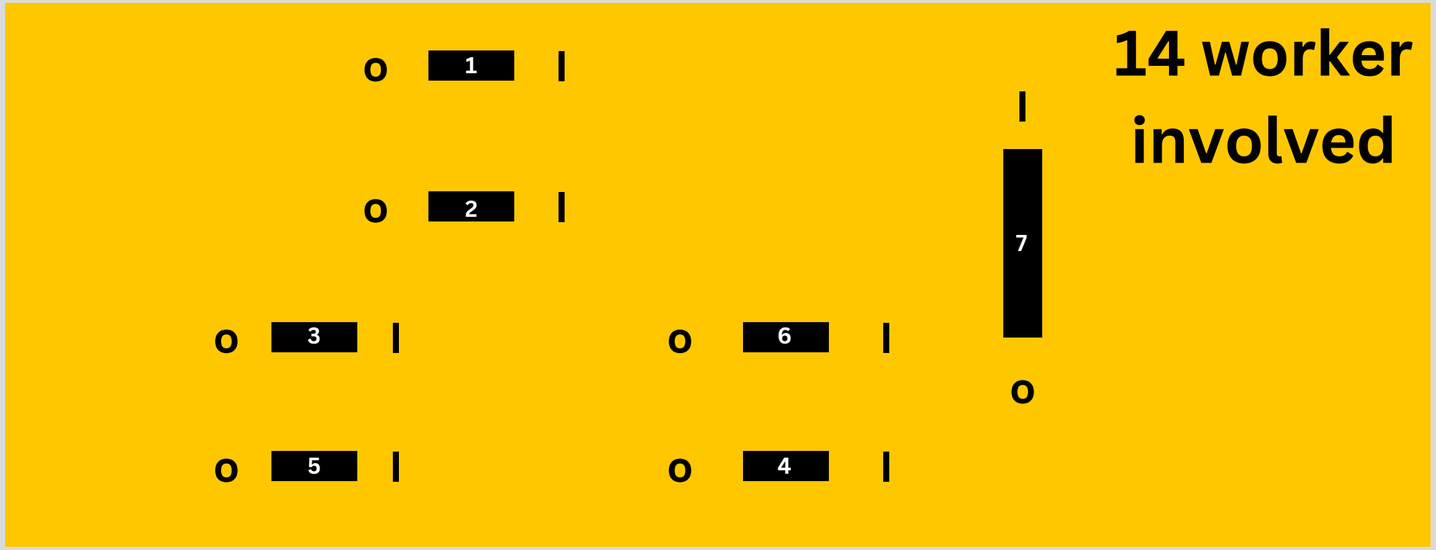
PROBLEM STATEMENT

IDEAL TIME OF WORKERS DURING WORKING OF MACHINE

REMEDIES

reallocation of cnc’s

original layout



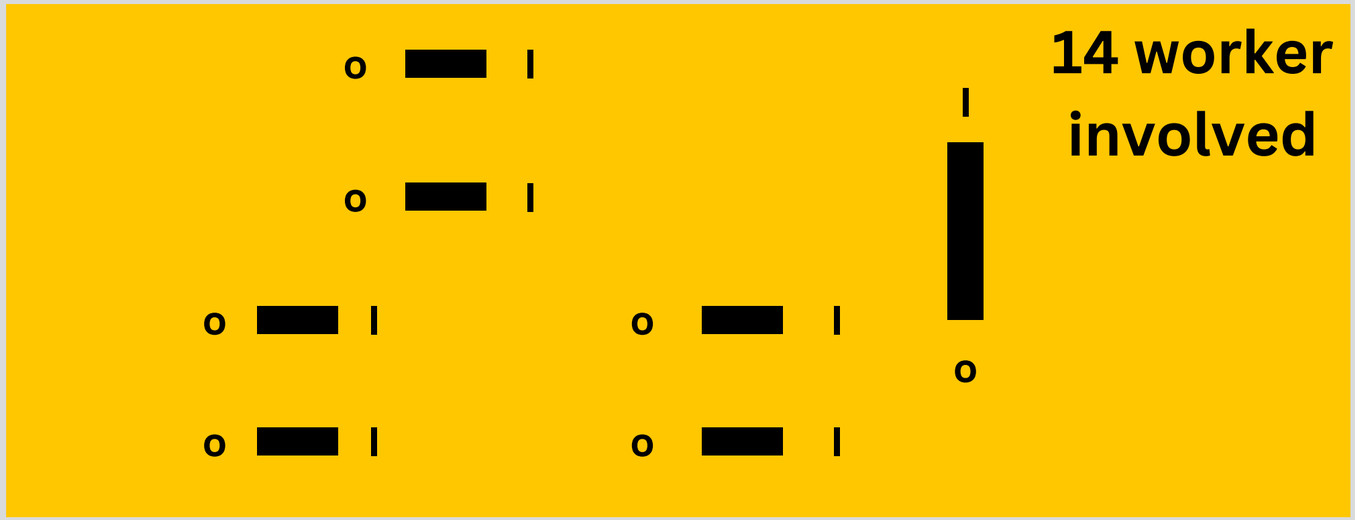
inversion of CP04 and CP06 machine

suggested layout

REMEDIES

reallocation of cnc’s

original layout



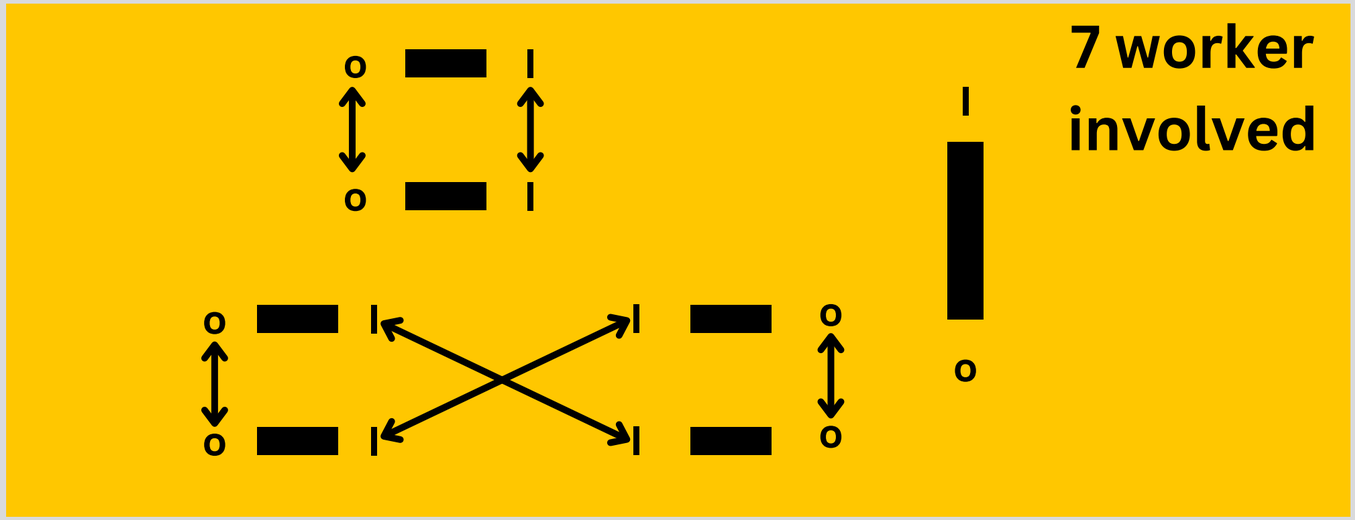
inversion of machine

+

cross working of workers

if possible

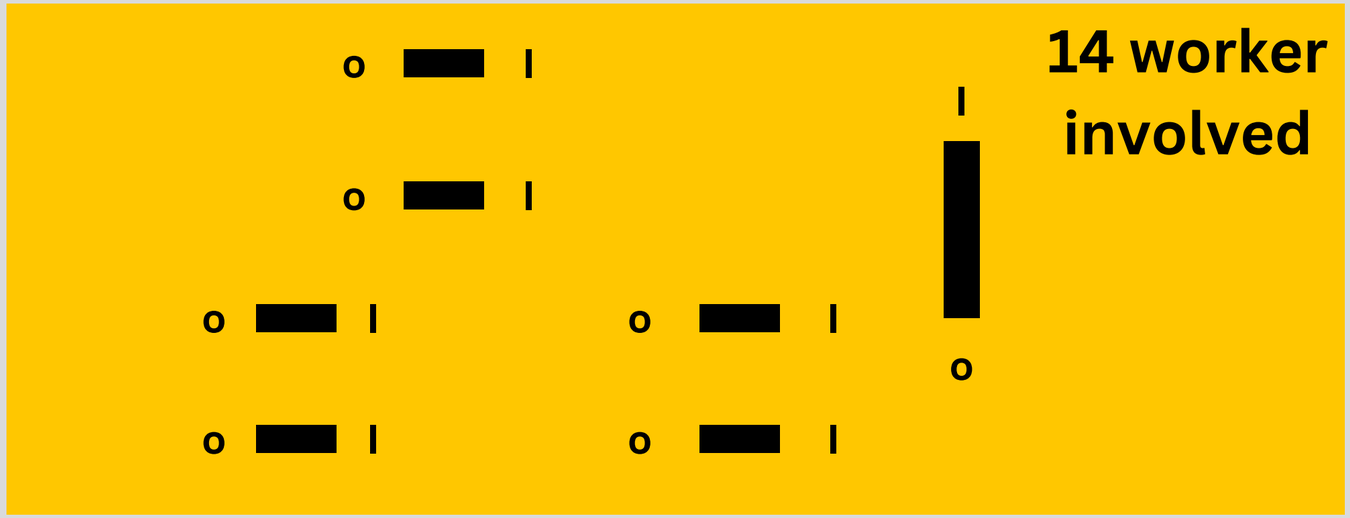
suggested layout



REMEDIES

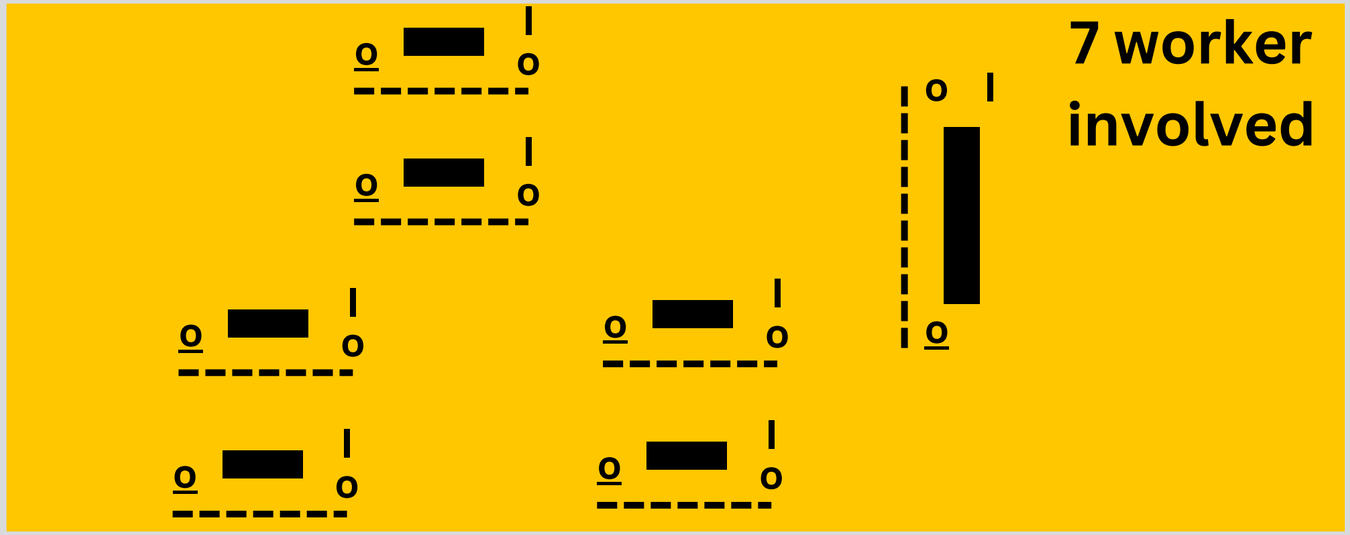
reallocation of output

original layout



output and input at same location using conveyor belt

suggested layout



PROBLEM STATEMENT

IDEAL TIME OF OPERATOR DURING OILING AND CLEANING OF MACHINE

REMEDIES

Reshduling time of cleaning and oiling of CNC machine

this process consume 25-30 mins

lunch time should be utilized for this process so that machine production capacity can be increased by 30 mins and total time gain will be 210 mins

14 workers will be engaged in this task in lunch time and their lunch will be schedule from 11:30 am to 12:00 pm instead of 11:00 to 11:30 am

PROBLEM STATEMENT

IDEAL TIME OF WORKERS DURING MARKING AND MEASUREMENT OF OUTPUT

REMEDIES

inspection using transparent dimensions sheets

a transparent sheet with exact dimensions of hole and other specification are printed on that sheet will be provided with root sheet

so that operator can match that with the produced output for faster checking of dimensions.

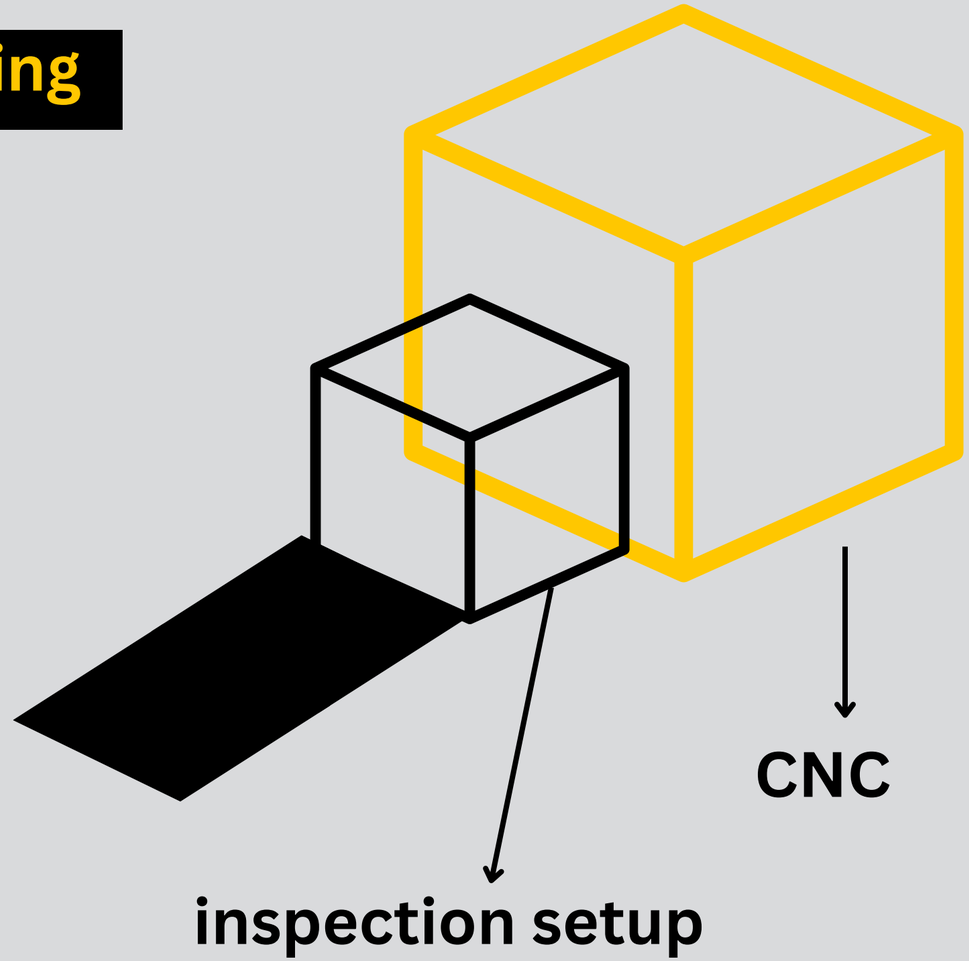
REMEDIES

Inspection using Machine Learning

machine learning model will be setup just after CNC on output path way

machine learning model will be setup just after CNC on output path way to inspect the quality of output

walk time of operator will be reduced since no manual measurement is required



PROBLEM STATEMENT

WASTEGE OF TIME OF WORKERS DURING BREAK DOWN OF MACHINE AND WHILE CHANGING SPECIFICATION

REMEDIES

centralized system should be made in which complete details will be mentioned like,

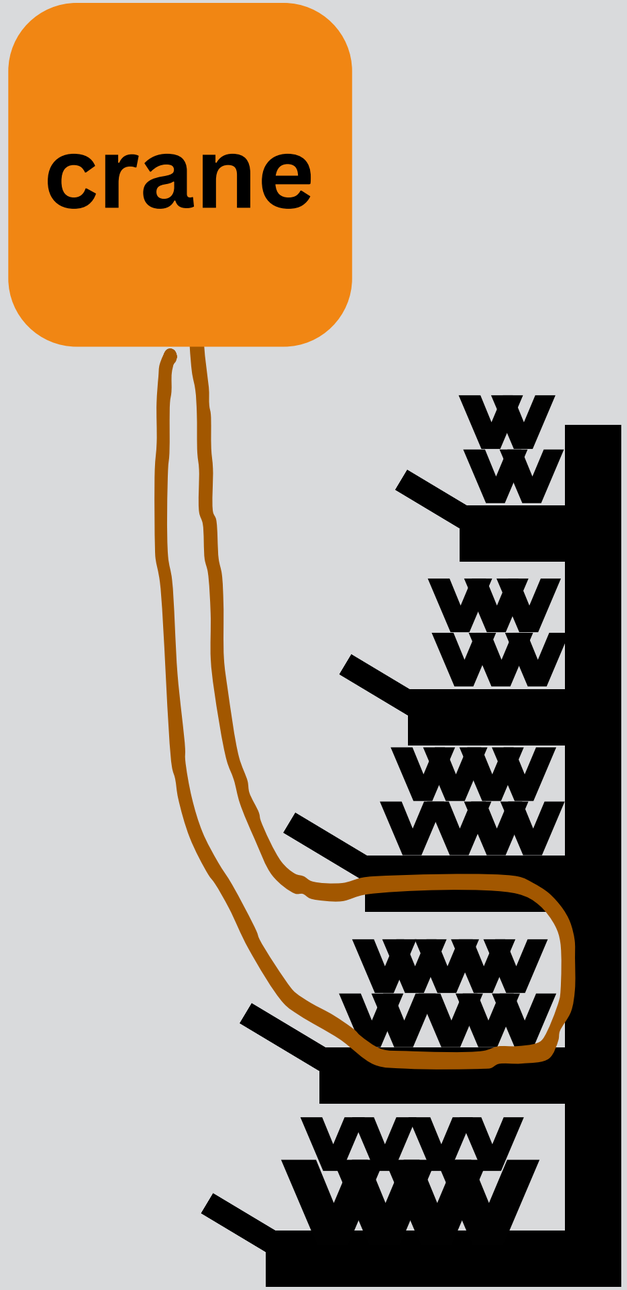
which operator and worker is working of which machine

PROBLEM STATEMENT

EXCESS SPACE UTILIZATION OF STACKING OF MATERIAL

REMEDIES

verticle stacking



PROBLEM STATEMENT

SHIFTS OF WORKERS AND OPERATORS ARE DIFFERENT

REMEDIES

machine and workers are ideal when operators switch their shifts , same happens when workers changes their shifts

workers and operators should have same timings of the shift so to avoid wasteage of time

SAFETY ISSUE

lack of communication between crane operator and workers at workshop floor

device like walkie talkie should be provide to crane operator and workshop floor workers

insufficient lighting during evening and night shift

quantity of lights should be increased and lights having wider eluminating area should be used and their location should be appropriate according to working of machines and workers

Thank You

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