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Plant Layout Management in an Industry using Kaizen

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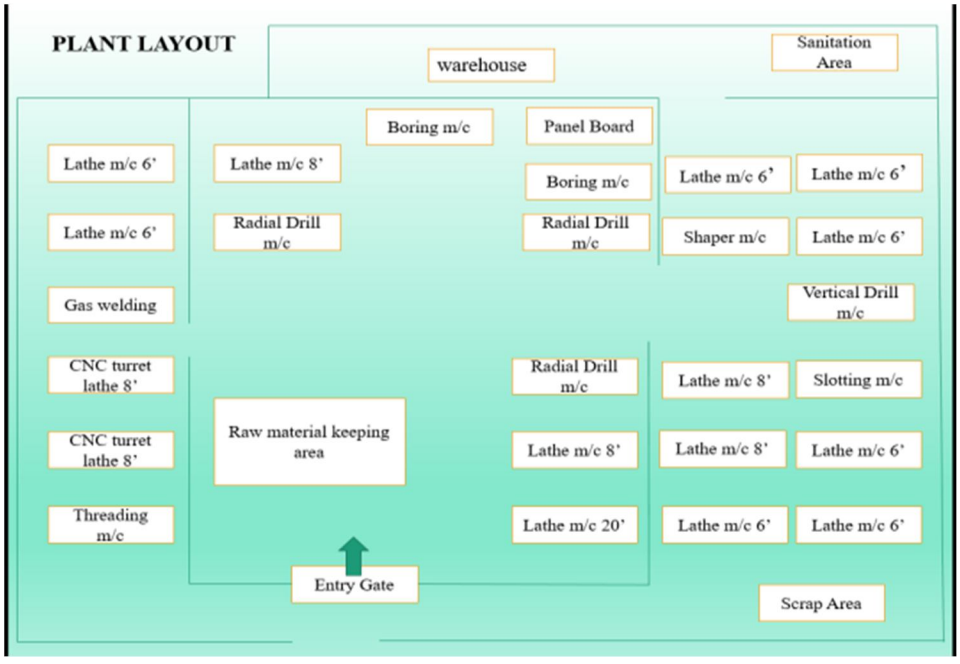
Abstract: The objective of this paper is to study plant layout and processing on CNC turning. Which is applied for improvement of process in production . Producing high quality of products. in this case study, the detailed study of the plant layout such as operation chart ,flow of material and activity relationship chart has investigated. the new plant layout has been designed and compared with the present plant layout .the new plant layout significantly decrease the distance of material flow from drilling process until keeping in ware house.

Keywords: plant layout, kaizen, contiuous improvement

I. INTRODUCTION

Rapid developing industrial technology gives which interrelate overcome through the market demand so over technology gets improve by innovation in industry with lower cost & higher effectiveness to Resolve this market needs we have to conclude the best working team in industry at all level like QC, TQM and productivity. we have to reduce the time for more production. Its all depend upon the industrial plant layout. if we are taking more time to finish some work & put on it to another phase so it taking long time and its worst for production.so, proper plant layout help to reduce time to shifting material to other platform from that material to does not need to revolve in plant again & again.

A. Plant layout



B. Background Of The Company

Kaizen company establish in 1994 to work on ASH HANDLING system ,slurry gate , flay ash , pneumatic conveying system.
In that company total number of working employess 400 to500 .its annual turnover approx 250cr to 500cr this company deals with important and also export business degal status of firm of that company is private limited company
Name of the company CEO is Mr. Rahul Chakraborty and H.R of company is Abhijit Sarkar .They are main decision taking ability persons in the company to deals with market and industry progress.

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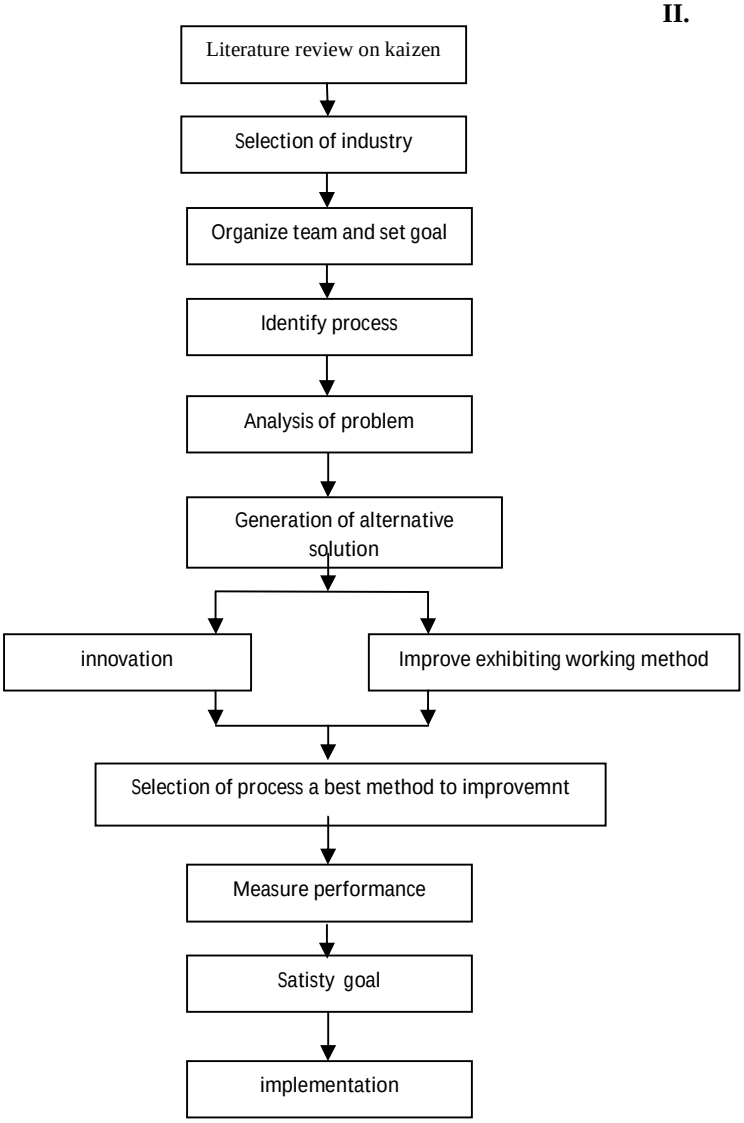
II. METHODOLOGY



III. STUDY OF ORIGINAL PLANT LAYOUT

In this analysis the production was made to customer satisfaction and its order. The method of manufacturing is shown in figure with the process of operation. With the help of study we better know the plant area and material flow and the arrangement of the plant and material handling equipment is show in given table.

1) Warehouse
2) Taken WH to CNC turret
3) Waiting for operation
4) CNC machine process
5) Finish process
6) Next operation drilling first and second
7) Drilling operation one
8) Drilling operation second
9) Waighing
10) Quality checked
11) Warehouse
12) Dispatch

A. Process of operation

Table No 1 Relation between equipment size and area

Department	Instrument	No of Instrument	Instrument area/working area (m^2)	Total working area
Cutter	Multipoint cutter	2	20	20
Facing	CNC turret 6	1	6	6
Drilling	Radial drill	1	5	5
Finishing	CNC 6	1	4	4

Table No 2
The Amount And Sequence For Manufacturing The Raw Material With Size A=15 And B= 15-22

Details	Distance (A) m	Distance (B) m
Ware house	-	-
Chute plate taken to CNC turret for waiting	11	11
CNC turret 6	-	-
Taken to waighing	2	2
Taken to radial drill (1)/waiting	9	6
Enter radial drill (1)	-	-
Taken to radial drill (2)	14.5	9.5
Enter radial drill(2)	0.5	-
Taken to storage room	4	4
The material was randomly pick up for checking quality	26.7	26.7
Checking quality	-	-
Bing storage at ware house	3	3
Keeping at ware house	2	2
Total	74.7	69.7

B. Transfer of Material

The raw material was stored by very long distance from the machine that all means waste of time and labour energy and also the cutting tool was situated very long distance from the machine hence the result is waste more time and energy waste.

C. Utilized area

In this company the more unusable machine are there that's why the space of this machine occupied un necessary, hence we have the limited area for storing.

D. Material Handling Instrument

The material handling instrument is not good and not capable to sustain heavy load. Material not arrange properly and the travelling space not so good.

IV. ANALYSIS PLANT LAYOUT BASE ON KAIZEN

Due to the study of manufacturing processes we properly know that where is the company weakness and how it is overcome by using Kaizen improvement technique. We found that the material storage area is very long distance from the machine and it would be reduce by moving storage area and thrown out the un necessary part like un usable machine. By applying the Kaizen improvement technique and reduce the area of storage and un necessary area of the company that could clean up and utilized for other purpose like cutting tool place on these empty space. We can arrange the important thing such as machine tool, drilling tool as proper manner to improve their production rate and the quality checking room nearer to the machine.

A. Material ware hou
B. CNC turret
C. Waighing
D. Radial drill(1
E. Radial drill(
F. Finishin
G. Waighin
H. Quality check

Below Table Shows The Workflow Of The Manufacturing Process In Double Stage

Product	Per month	Method
Material with size of A	2700	Q-R-S-T-U-V-W
Material with size of B	1900	Q-R-S-T-V-W
Material with size of C	1500	Q-R-S-T-V-W

The important sequence of each activity was rearranged from the most important one to the least important one as shown in Fig 4. The intensities of flow from each activity to another were developed.

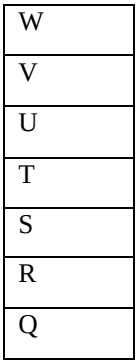
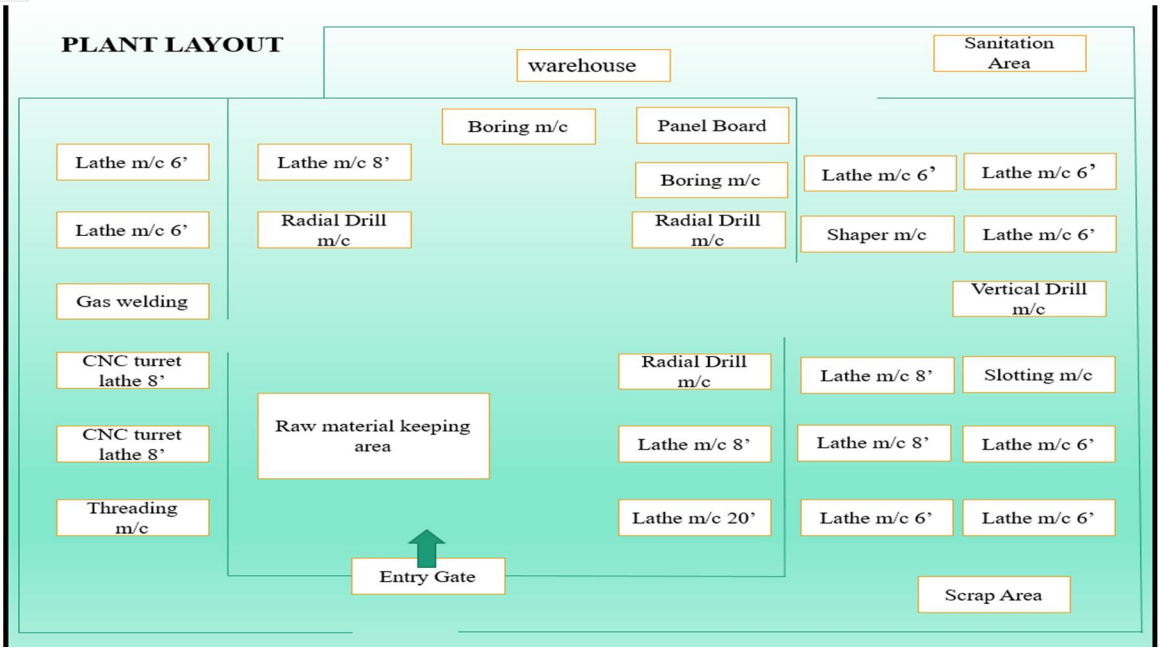


Fig. 4 The sequence of activities in the manufacturing process



V. RESULT

Workflow Of The Material Process For Raw Material With The Size Of A Mmin The Double Stage Plant (New Layout)

Details	Distance (m) A	Distance (m) B
Ware house	-	-
Chute plate taken to CNC turret for waiting	11	11
CNC turret 6	-	-
Taken to waighing	2	2
Taken to radial drill (1)/waiting	9	6
Enter radial drill (1)	-	-
Taken to radial drill (2)	12.3	7.5
Enter radial drill(2)	0.5	-
Taken to storage room	4	4
The material was randomly pick up for checking quality	26.7	26.7
Checking quality	-	-
Bing storage at ware house	3	3
Keeping at ware house	2	2
Total	70.5	62.2

VI. CONCLUSION

Thus we have reduced the time requirement by the adjustment of the work place with proper placement, systematical arrangement of the raw materials, with the help of labeling. This will help the labor for the ease to reach the material and this will reduce the time as well as efforts.

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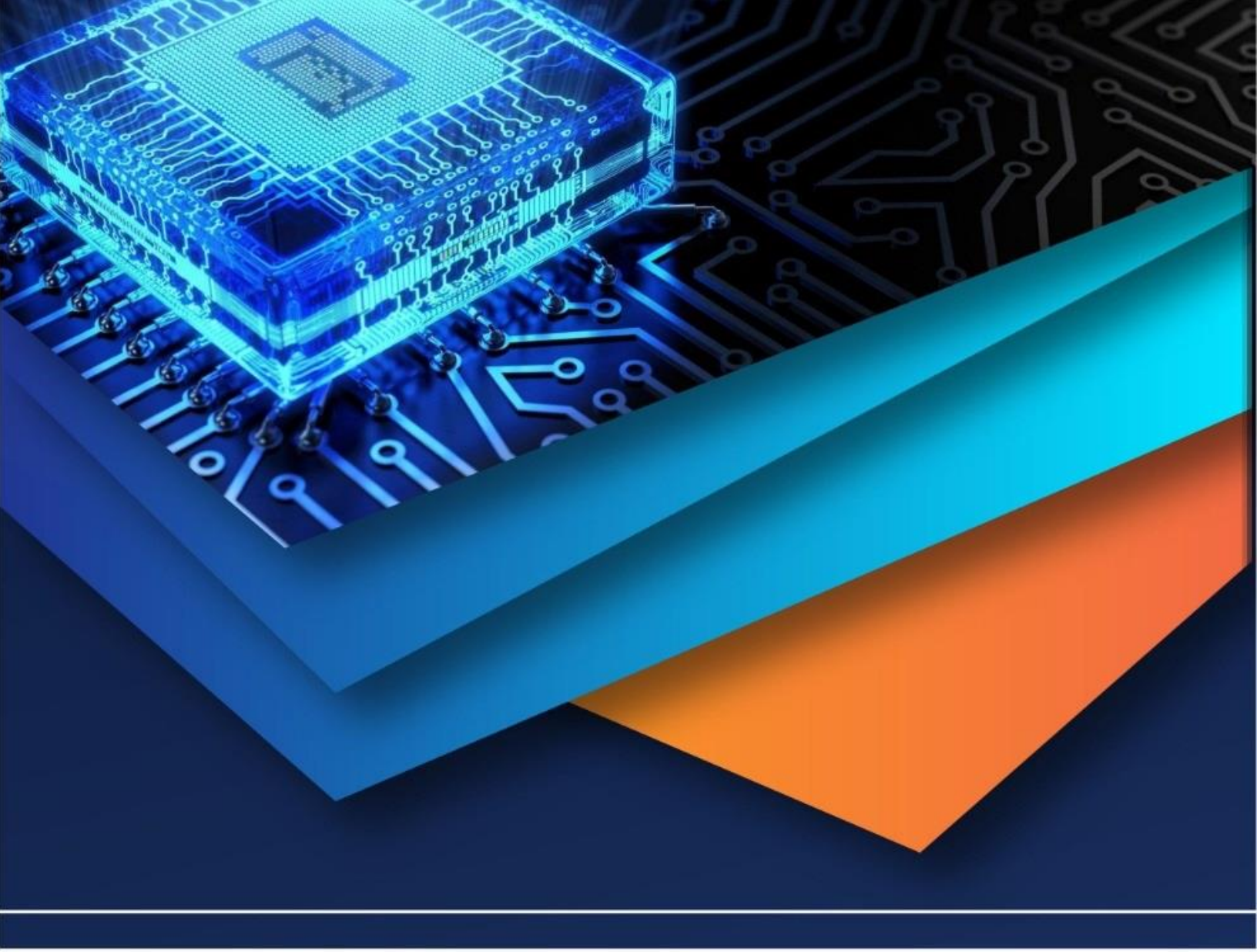
AUTHOR'S PROFILE

Prof. Aamir sayed BE degree from Anjuman College of Engineering Nagpur and M-tech from Yeshvanyrao Chavan College of engineering in production. Author's has depth of knowledge in production



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