

**To Reduce Overall Lead Time of PC Bottle Production Line
By Takt Time & Line Balancing Approach at SPEL Pvt.
Ltd. to Cope Up with Increasing Demand & By Using
Simulation Modelize it with Future Prospect**



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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the name of Allah, the Most Merciful, the Most Kind

Dedication

This project is dedicated to my mother, because of her prayers & endless support I will be called an engineer. It is also dedicated to my teachers, who taught me that even the largest task can be accomplished if it is done one step at a time.

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Sir Abbas Raza has been the ideal project advisor. His wise advice, perceptive criticisms, and patient inspiration aided writing this project in numerous ways. I would also like to thank to all of those whose firm support in this project was greatly needed and extremely appreciated.

Abstract

SPEL Pvt. Ltd wants to improve the layout design to reduce their lead time to maximize their production in order to fulfill their customer's increasing demand. They want to reduce worker involvement to minimize the part rejection in the production line. They want to increase the efficiency of production line at optimum level.

Customer demands for PC Bottle on average are 1500 units per day. Company pays the worker overtime to meet it daily demand target as their daily production on average is 1440 units with in shift hours. So they want to improve the efficiency of production line to meets it increasing demand targets.

We did time study of all operations from the manufacturing of PC bottle to the dispatching daily order to customer & proposed a method due to which they can produce up to 1600 units daily. This can be achieved by improving current printing mechanism. We used takt time & line balancing techniques to improve productivity by reducing their lead time. At the end of the study we used simulation software **Arena** (Version: 14.50) to compute the efficiency of the proposed method for comparing results.

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