

Productivity Improvement of Packing Machine Assembly Line by using Lean Techniques



Alphonse P. Jose

alphu1983@gmail.com
Ph. No: 0 99642 89398

Student's Name	Alphonse P. Jose	EMM (FT-2010)
Academic Supervisor(s)	K. M. SharathKumar	
Industrial Supervisor(s)	George V. Thomas, Tool Tech Private Limited, Hyderabad	

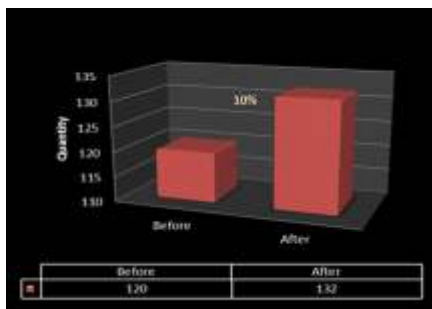
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Abstract:

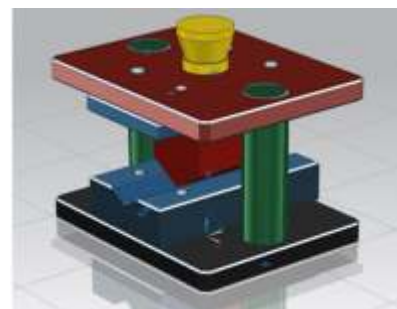
In the current era of manufacturing, competitiveness is increasing due to varying customer demand. This involves application of cutting edge technologies to improve productivity along with product packaging. Hence, there is a steady demand for packing machines in India. In order to counter the demand, an attempt to improve the productivity of packing machine assembly line has been carried out.

In this work, literature review on application of lean principles in packing machine industry has been conducted. Packing assembly line process has been studied using process flow chart and time and motion study for Takt time calculations. Subsequently, critical areas in the manufacturing process has been identified using Pareto diagram and Why-Why analysis. Firstly, fixture design for reducing machining setup time has been implemented. Secondly, in order to reduce rejections in the bending process, v-bending tool design has been carried out using CATIA and Uni-Graphics. Thirdly, 5S has been implemented to minimise mix-up of the components.

Results revealed 10% improvement in productivity of packing machine assembly line. Further, 25% time reduction has been attained through the proposed fixture for jaw machining process. In addition, rejections in cover sheet bending have been eliminated using V-bending tool.



Productivity comparison between legacy and proposed method



Proposed 3D model of V-bending tool



Tool tech packing machine