

DESIGN AND DEVELOPMENT OF VISUAL SHOP FLOOR CONTROL SYSTEMS

Manjaiah D.H.

Research Scholar

Dept. of Post - Graduate Studies & Research in Computer Science,

Mangalore University,

Mangalagangothri:574 199.

INDIA.

E-mail: ylm321@yahoo.co.in

Abstract

The real research is emphasis on design and development of visual control systems for effective shop floor control of precision manufacturing organizations intended to adopt pull production system as part of the world class manufacturing practices. This work serves concept of backend for online shop floor control that can be implemented by networking of the entire shop floor that can be enhanced by integrating the functional departments of the organization to implement intranet, Internet and extranet supported operations.

The general issues in manufacturing organizations are: high WIP (work in process) built up at each stage of production, lack of material accountability due to absence of visual control and inability to fulfill orders in time consistently. Hence, it is intended to design the KANBAN system for the shop floor activities. Design of such systems will call for entire data automation related to time standards, starting time, ending time, efficiency of the production, performance evolution of products, material specifications, raw material requirements, lead time for each activity, storage size of packing, dispatch quantity, etc.,. The generalized visual control systems serve very effective implementation of shop floor control systems resulting in reduction in WIP, higher throughput apart from enhanced quality of products manufactured through better accountability.

Today visualization tools are increasingly being offered in web-based versions in order to extend the availability of vital shop floor information and the rest, right out across the Internet. This development is being made possible by the increasing appearance of fully featured heterogeneous operating system in shop floor management. An attempt is made to provide the industry with better knowledge of shop floor control systems have been designed and suggested that knowledge should be collated to form generic reference architecture to be used as a template

for the development process. Conclusions drawn from case studies, literature and industrial surveys are highlighted.

The complete complex and dynamic global market industries today try to meet customer's demands; therefore, in the system of product development and production, the product delivery process has to be improved continuously. The working stages deals with the correlation between an organizational change process and delivery process of a networking software system to support work planning on the shop floor.

The main objective of this research work is to enhance the working status of visual shop floor control systems for effective monitoring, centralizing and controlling of shop floor at the base level and designing and developing computer networking systems for interconnecting the entire shop floor systems at the second level and further extending the network to connect functional departments of an organization to implement intranet, internet and extranet supported systems for reducing the lead times and throughput. After the completion of real research work contribution with industry interaction and learning, the attainable contributed objectives successfully implemented, to illustrate a few like , the material movement was reduced by 33.73% as a result of an optimal layout design. The balanced efficiency of the line was increased to a high of 133% from the earlier 44% (at the start of the project) and also, a WIP reduction of 25.16 % was obtained. A more organized and systematic work environment was created as a result of successful implementation and monitoring of 5S in the entire shop floor. Make the size the kanban to current operational conditions, Adapt container sizes to allow better kanban control. Make kanban signals visual, Develop rules that provide decision points plus checks and balances, Train operators to run the kanban operators. Set up audit plans to keep assumptions current and maintain system discipline. Develop a phased improvement plan to reduce kanban quantities.

Keywords: Visual control, Work in process, Computer networking, Industry Interaction, Kanban, web - based version.

Guide:

Dr.S.C. Sharma
Professor and Director of CMRTU,
R.V.College of Engineering Campus,
Bangalore:560 059.

(Manjaiah .D.H.)
Research Scholar