

My approach

4.1. Introduction

In the previous chapter I have given an overview about the technologies and approaches available in design the new system. Then in this chapter I will be discussing what technologies exactly will be going to use to track the production confirmation in Contourline. And I have selected below mention methodologies as per the availability and easy accessibility. Cost and reliability are also considered.

4.2. Design decisions

With carefully analyze the development and design methodologies mention in Chapter 3, the selected approach will be mention below.

4.2.1. Architecture

There will be two major components in this development as SAP development and non SAP development respectively. With regard to the SAP development it can be segregate to major components as follows.

1. Bundle Guide Creation
2. UPC sticker introduction and MR Creation
3. Line In
4. Rejects update

These components can be easily developed separately in SAP. Additionally there is a requirement of developed these functionalities separately as per the security concerns.

In non SAP development area I will have to create below functionalities.

1. Line Out capturing
2. Display board update
3. Schedule update to SAP

When this development is done using object oriented methodology all these functionalities are incorporated in separate classes.

By considering those facts and criticality of each function my developments are done by using component base methodology. That enables me to developed different components separately and linked as and when required.

4.2.2. Development methodology

Since I have already decided on using component base design to be followed and the non SAP part of my development is very critical I will be using object oriented analysis and design methodology to develop the non SAP part of the project. It will help me to concentrate more in to system functionality rather than think the system as whole.

4.2.3. UML

UML will be using to analyze the current system and proposed system. By following the UML diagrams I can simplified the more complex business scenarios and it interns helped me to design the system easily and with in short period. Though the SAP developments will not use classes we can developed design documents up to activity diagram level for SAP developments.

4.3. Technologies used in

The technologies used in production confirmation system are briefed below. Except for the SAP all other technologies selected based on appropriateness, availability and cost. Since SAP is implemented in MAS Active Pvt Ltd it will be taken as the base system for this system.

4.3.1. SAP

SAP is the world largest enterprise software company and the fourth largest individual software company in the world. SAP is recon as the most desirable industry solution from its first release in 1980's as SAP R/2. Capability of customize different business scenarios is the key strength of SAP. SAP R/3 release 4.6 gives the extended features such as powerful graphical user interface and roll based menu.

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Since MAS Active Pvt Ltd use SAP as the ERP of the organization most of the production and other operation related information is maintained there. Since the full garment manufacturing process is covered with in SAP relevant information required by Contourline such as Production Orders, Sales Orders and RM's, etc are picked form SAP. And Contourline also have to update their daily production IN/OUT, RM consumption in to SAP. Therefore the developments done in SAP for this new system will be the key part of this project.

SAP provides its own development environment call SAP development workbench supports to its own development language call ABAP. Since production confirmation and RM issue covers from this new development we need to automate those processes.

4.3.2. Database management system

4.3.2.1. SQL server 2005

Since this development goes beyond the limit of SAP there is a requirement of a database management system to store information required by non SAP development. SQL server 2005 incense copy is available in MAS Active Pvt Ltd. So that will be using for the database requirements in out of SAP.

SQL server is a product of Microsoft and its one of widely use DBMS. Which has a very powerful GUI interfaces. That is one reason for its high popularity with in the users.

4.3.2.2. Microsoft Access



Access comes with very user friendly database design tool. But it doesn't have a all the features like SQL server. There are limitations on no of concurrent connections that can be saved and so on. And features like stored procedures are not available in access. There are limitations in table size as well.

4.3.2.3. My SQL

A very popular open source database. It is used in millions of applications. The most popular is probably its use by Google for their search database.

Among mention database management systems most suitable one is SQL server 2005. Because MAS Active Pvt Ltd does have a valid license copy of it and it's easy on designing and maintain a database. Access would give errors or underperform when the data load is increasing.

4.3.3. Development environment

Below are most commonly use object oriented development environment. Brief explanation on each environment is as follows.

4.3.3.1. Java

Java language is one of very popular object oriented language. Since its open source product we can use it without any cost. The most important reason to select Java for this development is the fact that its capabilities to link with SAP.

Java developed in Sun Microsystems in 1991. Since then it becomes popular among the developers. The robustness and the platform independence are key features of Java. Java is getting improved everyday and the version we have used in this development is JDK 1.5. But the newest version JDK 1.6 has been released already. JDK stand for Java Development Kit.



Java comes with different kind of editions. Base on the area java is deployed there are set of available editions. Some of the most common editions are as follows:

- SDK : Standard Development kit :
The basic java libraries are bundled with this and most of the desktop applications are designed using this edition
- J2EE: Enterprise Edition:
This edition includes addition to the libraries of SDK, libraries required to developed applications for three tier architecture.
- Java ME : Micro Edition :
This comes with addition to SDK , libraries support for develop mobile applications

4.3.3.2. C#

One of the powerfull tool that can be using in the development applications easily and effectively following object oriented methodology.

Compare to Java, C# is also very rich development environment. But due to fact of unavailability of developers who are conversant with C# there is no possibility of using it.

4.4. Methodologies used in

This part contains the methodology used in tracking the production process in Contourline. Since the only product manufactured in Contourline is NIKE, we can use the NIKE upc sticker for monitor single peace flow. All the garments manufactured under NIKE contain this upc sticker. Therefore it can be used to track the production confirmation system. Figure 4.1 displays new proposed method of production confirmation.

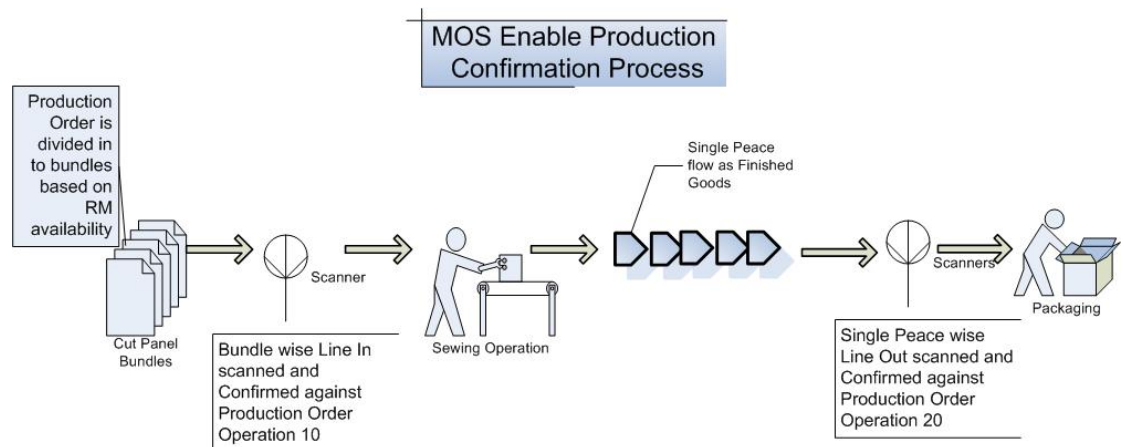


Figure 4.1 Proposed production confirmation system

There is no possibility of tracking single peace flow in Line In since only the cut fabric are inserted to production and tracking cut fabric peace wise is non value addition process. On the other hand it will be trigger additional cost to implement and maintain (using barcode sticker).

4.4.1. IP scanners

Key requirement of this development is to capture the single piece flow in production. When we analyze the process in Contourline we realize that the only way of tracking the production process is at the end point of the production, calls Line Out.

Traditionally to read a barcode either pos terminal or a desktop is required equipped with a scanner. If we placed either pos terminal or a desktop at the end of each module we need to place an additional data entry operator as well in the end line to operate it. That is not feasible in cost and violating the MOS concepts as well.

By setting up IP scanners at each end line we have overcome this issue. Figure 4.2 displays the layout. When an IP scanner reads an input it will pass the recorded value + the IP assign to it to the network. That message can be captured by a simple program runs in a pc in the same network.

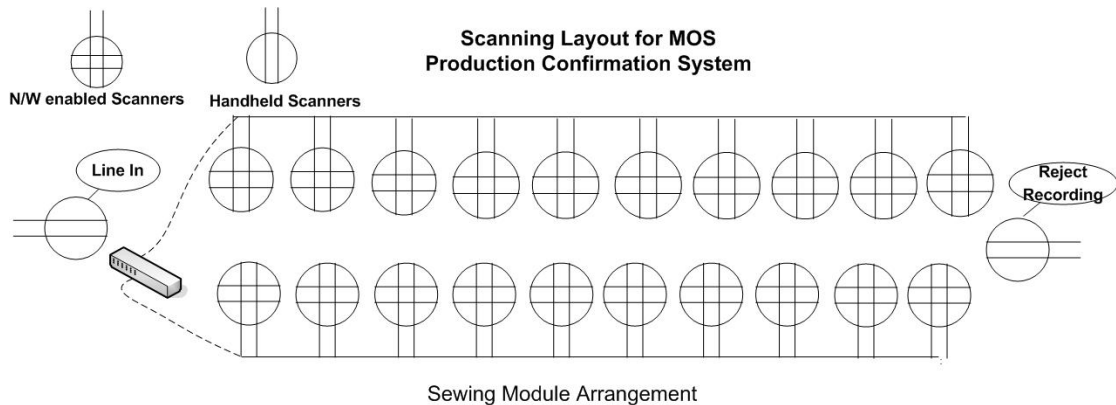


Figure 4.2 Proposed layout for scanners setup

4.4.2. UPC stickers

NIKE provides a unique product code (UPC) for each of their brand. That product key is unique for a given size of any sales order/ line item. UPC code is provided by NIKE as a sticker to stick in all the finished garments. The sticker is pasted to the quality passed garments

within the packing operation at end of the process. Therefore we can trace the sales order, line item and the size of the garment by using UPC sticker.

4.4.3. Barcode stickers

Barcode sticker is required in Line In operation. It will be using to confirm Line In operation. In the Contourline, there bundle guide will be a combination of sales order, line item and a sequence no. In the barcode sticker in addition to that it will display the operation (10) which it's using to be confirmed. Figure 4.3 displays sample barcode.



Figure 4.3 Line In barcode format

4.5. Scope of the project

The scope of the project within this phase will be limited to the following objective:

- This development will capture the Line In/Out operations in Contourline.
- Capture the single peace flow in Line Out.
- Uploads the production in/out to SAP.
- Implement electronic display system of the production flow (In/Out, target).
- Implement error alarming and error rectifying mechanism.

- In this level it's not consider to display the efficiency by module/plant.
- Shift wise changers are also not considered (efficiency/ shift wise In/Out)

4.6. Project Limitations

As per the above scope project doesn't consider the efficiency to be displayed in display boards. System only updates Line Out in regular intervals. Unless if this designed to online update the Line Out, there will be situations like some of the data may be not updated due to network issue. On the other hand then SAP has to call it's standard functionality every time when a confirmation happen. That's a burden for system. Therefore the SAP upload is planned in schedule.

Since the Line Out confirmation happens schedule wise the any given time system may not give the real picture of Line Out.



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4.7. Summary

I have discussed the implementation technologies and the methodologies I have used in this project to build this production confirmation system. The next chapter will be cover the analysis and design of the system.