

**MAYANK MINGLANI**

***ROP: (Roll over Protection) Placement Mechanism***

John Deere is launching two new types of lawn mowers in the month of November 2006. For a new vehicle, the design of ROP is changed. The new ROP is bulky enough for a work force to lift while assembling the equipment.

The problem was to design an automated mechanism to lift and place the ROP at its desired position during assembly of the mower. Different mechanisms were studied and simulations were run for them. Finally, considering the constraints, we came up with a cheap, easy to assemble design to lift the ROP from cart and assemble it at the required position.

**DHIRAJ JADHAV**

***Implementation and Maintenance of Manufacturing Execution Systems & Peripheral Utilities at John Deere Turf Care.***

The John Deere Turf Care facility at Fuquay-Varina, NC primarily manufactures its turf care range of products on three assembly line viz. Large Frame, Mid Z and Mini Z. Starting last year they expressed a need for having a centralized network based software inventory and production tracking system to tie in different processes in the facility together. The interns from the IMSE Institute put together a highly customized MES system that essentially provides exemplary tracking capabilities without intruding in the production processes. It was an excellent example of software development from scratch to fit into the facility.

My role primarily revolved around maintenance of this system which was a major concern for establishing the reliability and resilience of the system. I worked on the error and exception handling features and also on

the cross compatibility with different version of development and runtime conditions. We also worked on the issue of inconsistent use by the personnel.

Alongside, I also developed software that develops a paint loading schedule for a week looking at the production requirements. This was primarily aimed at reducing dependence on human experience and skill sets in critical factory procedures.

We also started work on documentation and management procedures for the software.

## **TIM LANG**

### **Paradigm Shift: Lean Manufacturing**

Shifting from traditional batch manufacturing methods in a customized product facility where orders are unit ships of multiple pieces to a lean manufacturing mindset. Dealing with varying lead times and complexity while driving lead times to lower amounts and service to higher rates.

## **TIM HORN**

### **An Overview of HALT&HASS for Manufacturing**

This presentation is a brief overview of HALT & HASS accelerated reliability techniques. HALT or Highly Accelerated Lifetime Testing is a technique used in the product design stage to improve product robustness by identifying potential failure modes. HASS, or Highly Accelerated Stress Screen is a technique used during production to screen for production/manufacturing related failure modes. These techniques have been traditionally used in the manufacturing of electronic

and electro-mechanical devices but may be applied to the manufacturing of other products and assemblies as well.

**ELIZABETH EDWARDS**

***Work at Closure Medical***

Currently, I am helping with the process of relocating a form, fill and seal machine, including the appropriate documentation. I have created a barcode system for placing orders from the supply room. Also, I am doing development work on two pieces of new equipment.

**ANUBHAV SHARMA**

***AFB Body Machining, Lean Six Sigma Project.***

Magneti Marelli Powertrain USA, Sanford, NC supplies AFB carburetors which are sold under the brand name *EDELBROCK*. These carburetors are “after market” products and have a demand of 800/day. AFB design is patented and has almost never had any customer complaints for 30 years, and hence, there was never an urge/need to improve the process efficiency.

This Lean Six Sigma project made the cost of poor quality visible, reduced non value added time by 43.78% and Average WIP by 59% and optimized machine and man hour utilization, resulting in annual savings of \$194,898.30.

**BIJOY SHAH**

***Project I: Relocation of Fabrication Machines and Equipments***

Machines and equipment of the fabrication area were planned on to be relocated in order to accommodate for a new Assembly Line and a Tool Crib. Microsoft Project and AutoCAD were the two tools utilized extensively for this project.

***Project II: Fabrication Database***

Different areas of the fabrication department use this tool for several reasons, such as to calculate scrap costs, plot charts, compare charts, and also to analyze the data gathered. Future work on this project would include interfacing this tool with SAP.

**ANKIT SHAH**

***Inventory Management at B/S/H Dishwasher Warehouse***

There was an apparent inconsistency existing between the SAP and parts actually existing in the warehouse. My primary goal was to investigate the reasons for these inconsistencies and make necessary changes in the SAP to make it more reliable for the warehouse personnel and the material planners. Investigating the COGI errors and working with the planners for the use up parts were also my responsibilities.

**SEKAR ARUN**

***Service Control Panel Project: Re-Ordering System***

Washers and dryers manufactured at the B/S/H Laundry plant in New Bern, NC are sometimes subjected to damage on the line. They are not fit for delivery and hence have to be reworked. Most commonly damaged part is the Fascia of the Control Panel and these have to be reordered since these are not regular production parts.

This project deals with the creation of a database which allows the line worker to request for a new fascia to replace the damaged part. The database has been proven successful in cutting down the waiting time for the service parts to arrive.

## **KENT MARSHALL**

### **A Rolling Ball Clock Sculpture: An Applied Use of Rapid Prototyped Components in a Mechatronic System**

An animated sculpture involving several custom, rapid-prototyped, mechanical sub-assemblies. There will be a brief discussion about what is required to make parts functional with processes like Fused Deposition Modeling and Stereolithography.

Among the internal workings will be an exposition of an embedded control system with both open and closed looped systems. Several laser cut components, and some examples of "ideation" and some very nice CAD models.