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Faculty of Industrial Technology
Department of Industrial and Manufacturing
Engineering

B.Eng (Hons): Industrial and Manufacturing Engineering

Project Title:

**Design of a PC-based Production Monitoring and Planning
System for the Manufacture of a Polypropylene Bag**

Case Study: NatPak Pvt Ltd

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*Submitted in partial fulfillment of the requirements of the Bachelor of Engineering
(Honours) Degree in Industrial and Manufacturing Engineering*

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Abstract

This project presents a low cost architecture for production monitoring in the textile industry. The proposed system, a hardware and software hybrid, allows for real time production and machine availability data acquisition as well as historical analyses of information available from the Tapeline Extruder machine. This machine essentially defines the core reason of existence of NatPak Pvt Ltd as it makes the tape required to weave polypropylene bags which are the major products of the company. Excel Spreadsheet is used to create files such as Inventory of Raw Materials, Inventory of Tape Produced, Material Requirements Planning and Purchases. A Production Schedule is also developed showing the start times of the jobs and the finish times.

Two systems, Machine Temperature Monitoring and Production Monitoring, are created in Visual Basic 6.0 using the random number generation concept to mimic the real events which will be occurring at the Tapeline Machine and these events are stochastic in nature hence the use of random numbers. The results of the Production Monitoring which are the Daily Production, Uptime and Downtime, are stored in a Microsoft Access database linked to the Visual Basic Interface hence the automatic storage of data as the Extruder produces tape. These results are necessary for Production Scheduling and Machine Maintenance Scheduling. The mode of obtaining machine data and sending it to PC in actual implementation is via the RS232 port. A model will be used to demonstrate how this is achieved. The thrust of this project is to aid the company in decision making and planning purposes and also be able to monitor and plan production activities in a manner that will not compromise promised customer product delivery dates and also ensure that smooth production takes place without stoppages due to material shortages.