ONLINE PROJECT MONITORING AND EVALUATION SYSTEM
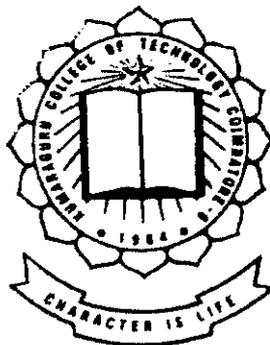
PROJECT REPORT

SUBMITTED IN PARTIAL FULFILMENT OF
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF
MASTER OF COMPUTER APPLICATIONS
OF BHARATHIAR UNIVERSITY,
COIMBATORE

SUBMITTED BY
Mr. R.PARAMESHWARAN
REG.NO. 9838M0508

GUIDED BY
Mr. M.RAJU B.Ed., M.C.A

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
KUMARAGURU COLLEGE OF TECHNOLOGY
COIMBATORE-641 006.

MAY 2001

This is to certify that the project entitled

ONLINE PROJECT MONITORING AND EVALUATION SYSTEM

Submitted to the

Department of Computer Science and Engineering

KUMARAGURU COLLEGE OF TECHNOLOGY

in partial fulfillment of the requirement for the award of Degree of
MASTER OF COMPUTER APPLICATIONS, by

Mr. R.PARAMESHWARAN
(Reg.No: 9838M0508)

is record of original work carried out by him during his period of study in the
Department Of Computer Science and Engineering, Kumaraguru College Of Technology,
Coimbatore-641006, under my guidance and supervision and this
project work has not formed the basis for the award of any
Degree / Diploma / Fellowship or similar title to
any candidate of any university.

Head Of the Department   Staff-in Charge

Submitted for the University Examination held on ---11/05/2001

Internal Examiner   External Examiner

TATA

TO WHOM IT MAY CONCERN

This is to certify that the project work entitled

ONLINE PROJECT MONITORING AND EVALUATION SYSTEM

Submitted by **Mr.R.Parameshwaran** for the partial fulfillment of the Degree of Master of Computer Applications, Kumaraguru College of Technology, affiliated to Bharathiyar University is a bonafide record of the work carried out at Tata Technologies Limited, Telco Premises, Thane from December 2000 to March 2001 under my supervision and guidance.

For Tata Technologies,

Mr.Manoj Jain.
(Deputy General Manager)

Mr.Sayatan Sar,
Software Consultant
(Technical guide)

Mr.Sudhanshu Deshpande,
Software Consultant
(Technical guide)

TATA TECHNOLOGIES

Tata Technologies Limited
Telco Premises Lal Bahadur Shastri Marg Wagle Estate Thane 400 604
Tel 91 22 582 3961 583 3150 580 4001 Fax 91 22 580 4021
Registered Office Telco Training Hostel Premises Pimpri Pune 411 018 India

DECLARATION

I **R.Parameshwaran**, Register Number 9838MO508, a student of **Master of Computer Applications** from **Kumaraguru College Of Technology** (afflicted to Bharathiyar University) hereby declare that the project entitled '**ONLINE PROJECT MONITORING AND EVALUATION SYSTEM**' is my original work developed under the guidance of **Mr. Sayathan Sar** and **Mr. Sudhanshu Deshpande of Tata Technologies (India) Limited, Mumbai** during the period (December 2000 – March 2001). This project has been done as a part of my MCA Curriculum.

R.Parameshwaran

Place: Coimbatore
Date: 20 - 04 - 2001
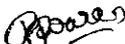
DEDICATED TO MY PARENTS

AND

ALL THE WELL WISHERS

ACKNOWLEDGEMENT

The satisfaction that accompanies the successful completion of any taste would be but incomplete without the mention of the people who made possible whose constant guidance and encouragement crowns all efforts with success. There are a number of people who should be acknowledged for their invaluable help with this project.

I express my sincere gratitude to our beloved principal **Dr.K.K.Padmanabhan** for allowing me to do this project.

My sincere thanks to **Prof.Dr. Thangaswamy**, Head of the Department Of Computer Science and Engineering, Kumaraguru College of Technology, for providing me this opportunity to take up the project work. He has been a source of encouragement and inspiration throughout the curriculum. My sincere regards and thanks for his immense help and guidance during the course of the project work.

I would like to express my sincere gratitude to my internal guide,
Mr. Raju, and to my external guides **Mr. Sayanthan Sar** and **Mr. Sudhanshu Deshpande**, Tata Technologies Limited, who guided me throughout the project and encouraged me to successfully complete my work.

I would also like to express my gratitude to my class advisor, **Mr.Sethuramalingam** whose goodwill and support was always with me throughout my curriculum.

I would also like to express my heartiest thanks to **Mr. Manoj Jain**, Project Manager for providing an opportunity to do project in such a deemed company.

R.Parameshwaran

System Outline:

The main goal of the system is to be an effective project management and monitoring tool. The major function of it being to help the project managers to schedule and track the entire development procedure in detail. This function is needed to be on-line so that the project managers, at any given point of time can monitor the current status of the development stages. Each procedure and task of the project should be evaluated against the ideal project plan.

The system will also be responsible for maintaining the tasks that are performed by the development team and the extent of the contribution put in by each member. The speed and the skill of each member can be checked by such a system.

The system should be capable of providing the information regarding the tasks performed with their duration, the tasks that have overshot the estimated plan duration, the details of the members of the team whose performance needs to be boosted, the details of the project whose deadline may be threatened etc.

The system should be able to store the data regarding the project plan and compare the actual performance of each system with this database. The data regarding the programmers working on the various systems and their daily report on the progress of the tasks performed has also to be stored in the system so that the performance of the programmers can be based on this.

CONTENTS

INTRODUCTION

Project Description

Software Requirement specification is focused specifically on functioning of the system. At various stages in the development of a system, the system analyst has to communicate ideas about the system. This specification will contain the procedure specifications such as - flowcharts, decision tables, network charts etc., data specifications such as - clerical documents, files and record specifications, print layouts etc., relationship charts such as - data structures, program structures, grid charts etc., and test documentation for the system.

This specification allows the developer/analyst to understand the system, functions to be carried out, performance levels to be obtained and corresponding interfaces to be established. Some of the attributes of the SRS are Unambiguous, Complete, Verifiable, Consistent and Modifiable, traceable and usable not only during software implementation, but also during the software operation and maintenance phases. Based on this specification, in future, not only the developer but also the user should be able to understand the functions of the system in a proper and unambiguous way.

The Purpose of this document is to describe the functionality of the project On-line Project Monitoring and Evaluation System.

Tata Technologies has over 4500 man-years of experience in developing and implementing high quality IT Solutions in these areas.

Alliances

Tata Technologies has strategic tie-ups with market leaders in these areas of Information Technology. The key alliances include:

- SAP AG
- MICROSOFT
- SIEBEL
- MATRA DATAVISION , FRANCE
- PARAMETRIC TECHNOLOGY CORPORATION
- S D R C , USA

By working closely with these alliances, Tata Technologies ensures cost-effective high quality IT Solutions for their clients.

Organization Profile

The Background

Tata Technologies India Ltd., a part of the TATA Group of Companies, is a company with a focus on providing IT enabled Business Solutions. It is a key player in providing enterprise-wide IT Solutions

through Engineering, Manufacturing and Distribution solutions for a wide range of companies globally. The range of services provided by Tata Technologies consultants encompass all the IT requirements organization wide.

With its strong manufacturing background and expertise in Information Technology, the company is equipped to advise and help customers attain manufacturing excellence.

Enterprise wide IT Solutions from Tata Technologies

The IT Solutions domain of Tata Technologies includes:

- E-Commerce Solutions for the Manufacturing Industry
- Enterprise Resource Planning with SAP R/3
- Customer Relationship Management
- with Siebel
- Engineering Automation Systems
- Systems Integration
- Product Data Management

The E-Commerce Center of Excellence

With the World Wide Web population growing at an explosive rate and Internet commerce becoming a trillion-dollar industry, individuals and business owners around the world will participate in E-Commerce that is destined to be the biggest revolution of the new economy. It has made online buying and selling a reality and opened global markets to individuals who never dreamed of doing business worldwide. "Spending on Internet and E-Commerce business is anticipated to grow from $11.8 billion in 1999 to $43.6 billion world-wide by the year 2002." - IDC, 1999
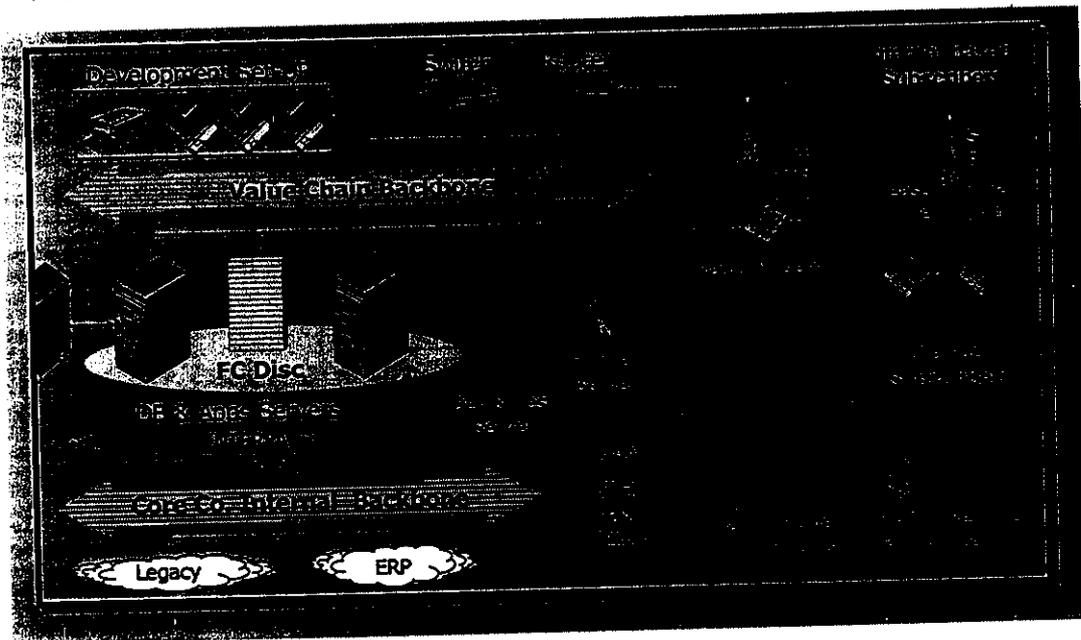
Keeping up with its commitment to provide the best-of-breed cost-effective solutions, the Tata Technologies E-Commerce Centre of Excellence provides Internet based Solutions to all the stakeholders in the organisation.

The Value Chain Management initiative is aimed to integrate the information flow across all the business partners of an organisation, which include the raw material suppliers, transporters, and dealers and bring them

on a common Internet based platform for Information Interchange. These stakeholders are the business partners who along with their normal business transaction also share their information (knowledge transaction) in many formal and informal ways. The end result is the product that satisfies the customer and ensures synergistic benefits for the enterprise. The solution is based on the robust Oracle 8 RDBMS at the back-end with Oracle Web Server as the engine and the Web Browser as the front-end to run the application.

<u>Visit us at:</u>

http://vcm@telco.co.in

The Systems Integration Center of Excellence

The System Integration (SI) group is responsible for providing the platform for design-to-delivery application systems. Its activities cover hardware, networking & system software. Well-trained, experienced and certified consultants offer system integration services. They have access to the most modern equipment including Optic Fibre Fusion Splicing machines.

The SI group has advanced UNIX & WIN NT skills, which include system level programming. The group has expertise in deployment and administration of Oracle Database Servers and front-end tools. It maintains one of the largest Oracle installations in India having over 1000 licenses comprising in excess of 30 Oracle Servers with a data size of more than 100 GB. The group also deploys secure Internet services. It maintains a VPN over the Internet to connecting the International sites of Tata Technologies.

The SI group has deployed enterprise wide messaging systems. It has expertise to

interconnect Lotus Notes, UNIX mail & MS Exchange into a seamless messaging system. Users can have the facility to access e-mail over the Internet from any standard browser from any location in the world. The SI group in now deploying web-hosted group ware applications. Enumerated below are the specific services offered by the Systems Integration group:

- Network Design, Deployment & trouble shooting

- Intranet/Internet Services

- Collaborative Messaging Implementations

- Web Hosted Workflow Applications

- UNIX / Windows NT & Oracle DBA Consultancy

The web-hosted applications can be used by the enterprise irrespective of location, time, workstation type (UNIX or Windows).

Products developed by the System Integration group

LinkD: This software was developed to allow SAP R/3 3.x GUI users to connect to the R/3 Server over dial-up Internet connections. This provides long distance access at local call charges.

SCMF: SCMF is the intelligent repository for software code. Source Code Management Facility is the software configuration management tool. It allows for a controlled development processed to be enforced. SCMF provides for versioning, build management, history tracking, dependency tracking, change management and release management.

NetLp: NetLp is a client-server print spooler for heavy-duty printing. NetLp command set provide many more features than "lp".

<u>Visit us at:</u>

    http://sips.telco.co.in

The ERP Centre of Excellence

ERP is no longer a buzz word in today's world of technological advances where change has become a part of an organization's attempts to reorient themselves with the ever-changing markets, business rules & customer requirements to gain an edge over competition.

An organization's success depends on the quality of its information and the speed with which that information can be shared. It is here that ERP offers your organization an integrated information flow to tackle the challenges faced by today's organization.

Increasingly, the challenges outlined earlier cannot be effectively met by isolated change to specific organizational units, but instead depend critically on the relationships and interdependencies among different organizations (or organizational units). This, in turn, increasingly transforms the above challenges into problems of enhancing the ERP implementation by

integrating the same with emerging dimensions of technology like Product Data Management and Supply Chain Management, interfacing with Depot Management Solutions and moving towards Business Intelligence for decision support using tools like BIW thereby leveraging on existing ERP Implementations. Tata Technologies brings to you world class ERP and related implementation services that give you a competitive advantage over

your competitors. As practitioners of technology through associations with clients in different industry segments that include Automotive, Process and Engineering Industry, Tata Technologies has built extensive experience in developing and implementing Enterprise Resource Planning (ERP) systems along with clearly defined Risk Minimisation and Change Management

Strategies.

Tata Technologies' consultants have experience in managing projects and know how to help clients with their project management needs. The consultants have hands-on business knowledge as well as R/3 product knowledge, apart from the skills in using the ASAP Methodology for SAP R/3 Implementations. This background along with Team SAP partnership allows them to effectively partner with end users to identify core business processes and requirements and quickly map these onto the SAP R/3 system, providing immediate feedback on customisation options and change management implications. The services provided by this group include:

- Turnkey SAP R/3 Implementation
- Off - Shore ABAP Development at the ERP Centre of Excellence in Pune
- SAP Consulting Services
- Customized Software Development
- Training

The Tata Technologies ERP Group has proven expertise in:

The Automotive / Engineering Industry

SAP R/3 Implementations at Tata Ryerson Ltd. And two major automotive giants viz. Bajaj Tempo Ltd. and Telco. The Process Industry Includes knowledge of GMP (Good Manufacturing Practices). SAP R/3 implementation at India's largest bulk chemical manufacturing company, Tata Chemicals Ltd. that has been live since October 1998. Tata Technologies has recently upgraded their installation to Version 4.0B. Implementation at Hindustan Inks and Resins: A leading Ink manufacturer in India. The highlight of the implementation is the development of a customized Depot Solution with an interface to SAP R/3 for usage at various Matching Centres, Depots and Regional Offices.

The Fertilizer Industry

Implementation at Tata Chemicals Ltd., Babrala Unit. The highlights include meeting very specific statutory government operating and reporting requirements set out by FICC. Apart from the same, Tata Technologies has implemented innovative solutions like Balancing Algorithm for steam and power based on production reported for intermediates (ammonia) and urea.

Development of RFC/ BDC programs for update of DCS parameters in SAP database with validation for the parameters in SAP R/3, Distribution Planning and Freight Calculation.

The Pharmaceuticals Industry

Tata Technologies has been selected by Fresenius AG, Germany to implement SAP for their Indian subsidiary Fresenius-Kabi India Ltd (Earlier known as Fresenius Mafatlal).

The Engineering Automation Centre of Excellence

New product development tools in the areas of CAD/CAM/CAE helps the organisation in a big way to reduce the Time-To-Market cycle of the   product.

Coupling the knowledge in state-of-the-art CAD/CAM environments with an understanding of best practices related to Engineering Processes gives synergistic results in terms of productivity gains and quality enhancements to an organization. The Tata Technologies "Engineering Automation Group" has the turnkey responsibility for implementing CAD/CAM Solutions at Telco. Tata Technologies has a large team of highly trained engineers who have implemented CAD/CAM/CAE Solutions based on the latest products and process standards. These applications cater to automobile design as well as dies, jigs, fixtures, special purpose machine tools etc.

The Engineering Automation Group has more than 350 CAD/CAM specialists who are either implementing CAD/CAM technology or

contributing to CAD/CAM software development. Apart from the same, the group has a specialist software design team of over 40 skilled professionals who have developed and implemented CAD/CAM/CAE solutions which include On-site as well as Off-shore development based on the latest products that include Pro-Engineer, Euclid, CATIA, SDRC-Ideas etc. Tata Technologies' services in this area range right from hardware and software selection to CAD/CAM Training and Consultancy Services to development of customized CAD/CAM Solutions. Apart from the same, EAG has developed multiple Intranet-based applications, which are in effect productivity boosters and supplement the CAD/CAM Systems and processes effectively.

The Product Data Management Center of Excellence

Product Data Management is the key to bridge the vital gap between CAD Solutions and ERP Solutions. Companies in every industry segment that designs and produces products can benefit from the use of PDM. Because of their application to a broad set of users and disciplines and their facilities for controlling the flow of information, PDM systems serve as enablers for implementing concurrent engineering practices. The PDM team members are responsible for design/development of the PDM Solutions for automobile giant Telco (in-house solution named DENIS). The team has expertise in all areas of the Design and Manufacturing cycle processes, variety of CAD and PDM systems backed with skills in ERP solutions like SAP.

Experience in all stages of software development life cycle like, Requirement analysis, Resource estimation, Development planning, Logical design, Physical Design, Coding, Testing and Implementation make every project undertaken by group a success. The areas in which PDM Services are offered include:

- PDM Implementation Strategy

- PDM integration with other processes

- Interfaces to ERP and CAD/CAM Systems

Key Projects undertaken by the PDM Group include,

- Development and Deployment of Telco's Product Data Management system named DENIS 3.2

- Multi-location data replication mechanism for ORACLE

- Development of SSAD & OOAD tools named Turbo Analyst & Object Analyst respectively & Relational Designer for RDBMS Design.

- Configuration Management product named SCMF for software configuration management.

Data Center Management at Telco

The entire IT requirements of Telco have been outsource to Tata Technologies which has implemented the best of breed IT solutions catering to enterprise wide business requirements. These range from Engineering Automation Solutions in the Design and Manufacturing area, ERP in for organizational functions like Production Planning, Materials Management, Sales and Distribution, Finance and Controlling etc, Product Data Management Solutions which act as a bridge between the Engineering Automation and ERP Solutions, Value Chain Management initiatives to involve all the stake-holders in the information flow, Web based Workflow systems aimed towards increasing productivity in day-to-day operations and deployment of the required Hardware and Networking Infrastructure at multiple locations to ensure an integrated view of all information across the enterprise.

The Tata Technologies Advantage

Tata Technologies brings to you world class Enterprise wide IT Solutions that give you a competitive advantage over your competitors. As practitioners of technology through our association with clients in different industry segments, we have built extensive experience in deploying enterprise wide IT solutions for global competitive advantage. Tata Technologies focuses on helping its customers improve their business by the use of IT solutions.

Tata Technologies is a unique implementation partner offering an aggressive rate structure and timely delivery record. Tata Technologies works with its customers to deliver on time and within budget solutions, providing seasoned expertise at very competitive rates.

For further information on IT for Enterprise wide business benefits, contact

Parthiv Shah Marketing Group

Tata Technologies (I) Ltd
Telco Premises Pune – 411001

Tel.: 020 - 7403393 / 759001

Fax: 020 - 772866

E-mail: parthivs@telco.co.in

SYSTEM ANALYSIS

System analysis is the reduction of an entire system by studying the various operations performed and their successor. Here the system analysis is conducted with the following objectives like scheduling and tracking the entire development procedure of a project in detail, checking the speed and skill of each member, task that has been overshot and assist in arriving at a corrective remedial action.

Here during the study the existing system is analyzed and requirements of the users are obtained. Once the study is over, the System Requirement Specification (SRS) is prepared. SRS contain the Input and Output design of the proposed system. This document is given to the user and their acceptance of the same is obtained. Only after getting the acceptance of SRS is over, the High level design and Low level design Phase is started.

Existing System Environment

The Project monitoring system is a schedule activity to track the development a project and also the work progress of the employee or the development team involved in a project development. It is done manually by giving each employee a time sheet which each has to fill at a specific period of the project development.

Employee Time Sheet:

Each employee is given a timesheet to fill in the detail of the work manually. It will contain the particulars like name of the project, module and task on which he is working on and also the details of completion of that project. The employee is given the time sheet at the beginning of every week and he has to submit the same at the end of every week

Performance Comparison:

Each project will have an ideal project plan that will be provided by the project manager or some other higher official in the organization. The ideal plan is then compared with the evaluated details of the projects through the timesheet. Each project will have a starting date and a deadline before which the project has to be completed by the project team. Each project will have module and which in-turn will consist of smaller tasks. Each individual is given a particular task to complete. So based on the total number of task completed the overall performance of the project can be established.

Performance Evaluation:

Based on the comparison of the project with the ideal plan the project manager or the management can estimate the performance of the members of the team, the task that have overshot and members of the team those have to be boosted. It will provide important information to the management so as to assist them in arriving at a suitable corrective remedial action

Limitations of the Existing System:

The limitations of the existing project monitoring system are:

1. It is a manual feed back system.
2. There should be some one to check the data entry by the user.
3. Since manually done different person will be entering data in different formats.
4. It is easy to manipulate the pre-entered data.
5. It is difficult to analyze the performance since calculations are manually done and so is error prone.
6. Maintaining the records is difficult.
7. Loss of accuracy may be there since the programmer may enter data at the end of every week.

Causes of Problem:

1. Laziness to fill the form manually.
2. Time consuming.
3. Difficult to calculate the performance.
4. Behavior of a person and cause corrupt data.
5. Maintenance is difficult.

Proposed System

The on-line project monitoring system is the computerized version of the older system. It overcomes most of the limitations of the older system. The main aim of this system is to be a cost-effective project management and monitoring tool. Its major functions of this system include scheduling and tracking the entire development procedure of the project and help the employees and the project development to check their progress any time.

The advantages of the proposed system are:

1. This is a on-line computerized Project Monitoring System.
2. It contains the same fields as that of Manual Project Monitoring System.
3. Any employee, at any time, from anywhere can fill and check the data by just logging into the system.
4. The project manager can evaluate the time sheet at any time on any day of the week and not necessarily by the end of the week.
5. Managers can make sure that the data entered by the employees are correct.
6. There will be a log that will record all the data or transactions entered by the employees so that post-modification or malfunction can be restricted.
7. There will a help module for assisting the employees to fill in the data.

Technical Feasibility:

Technically, there won't be much of a problem using this system, as it requires the minimum hardware configuration and the software used is also one of the most widely used one. It can also accommodate any number of users.

Economic Feasibility:

Hardware and software costs are not much in this system. It can be arranged on any backend database and the software used is the most widely used one. It can be run independently on the required operating system. Time taken for processing is also minimal. So we can say that the proposed system will be a good investment and will prove to be economic in nature.

Operation Feasibility:

Operational feasibility aims at checking if the system will help the users to work in a more efficient and accurate manner through all the routine operations. The implementation of the proposed system will not modify the routine operations on the site on a considerable level. The system is made to be comprehensive in nature, using a full menu driven system and appropriate user informative messages and warnings to avoid erroneous work and facilitate data integrity and consistency. On the contrary, the workload on the users will be lessened to a great extent, as the system is aimed at taking care of the complex procedures and automatic calculations. Thus the system is Operationally Feasible.

Requirement of the New System

The system objective can be identified only through a thorough analysis of the existing system. Such a system study helps to identify the flaws in the existing system and find solutions to these problems of the existing system, following requirement have been identified.

- Develop a system, which is user friendly and has menu-driven screens.
- Develop a system, which has Data Manipulation form for the Data Stored.
- Develop a system, which maintains database according to the changes made on them.
- Develop a system, which maintains a log table so that both the old and update data are present and in case of controversies it can be checked.
- Develop a system, which will produce the required information whenever requested.
- Develop a system, which will restrict the use of the system to authorized users only.
- Develop a system, which is also Cost-effective.

User Characteristics

On-line Project Monitoring and Project Evaluation provide interactive data entry forms to the users for manipulating the data, Query and to get Information from the database. The implementation of the proposed system will not modify the routine operations on the site on a considerable level.

The system is made to be comprehensive in nature. It consists of full menu driven system. There have been appropriate informative messages and warnings wherever necessary to avoid erroneous work. This system also facilitates data integrity and consistency. On the contrary, the workload on the users will be reduced to a considerable extent, as the system is aimed to take care of the complex procedures and automatic calculations.

The types of user can be categorized into two main types. They are the programmers and the project managers. The project managers have greater authorization rights than the programmer.

PROGRAMMING ENVIRONMENT

Hardware and Software Configuration

Hardware Configuration:

Client Side
- Pentium 166 MHz. Machine
- 32MB RAM
- Cache Memory 256kb.
- Network Interface Card, TCP/IP

Server Side
- Pentium II Machine, 232 MHz.
- 64MB RAM
- Network Interface Card, TCP/IP

Software Specification:

Client Side
- Windows 95
- Developer 2000 forms 6i
- Intranet Connection Tools

Server Side
- Windows NT or UNIX Server
- Oracle 8.i as Back End.

Software Features

Developer 2000

Developer 2000 is a very powerful kit comprising Forms and Reports. Both the FORMS and REPORTS are used in providing excellent Applications on Client Server Platform. Both the products are used along with Oracle to provide Client – Server Compatibility.

Forms

Forms are the product used in availing the input requirements. This is used in designing input screens. These screens created using Forms are highly user friendly.

The Graphical user functionality is also implemented using Forms. All the user-friendly controls required for every input are inbuilt. These inbuilt controls are used appropriately as required.

All the functionality required for the controls are coded automatically. The programmer is required to only design the requirements. The rest is completely taken care by FORMS 6.0.

Reports

Reports in D2K form a vital part in providing outputs. The data acquired from FORMS are used for manipulation. Manipulated data are used in generating reports.

Given a database query, the report is automatically generated. The generated report is also user friendly and vivid.

ORACLE:

Oracle 8 is an Object Relational Database Management System (ORDBMS). Oracle 8 database offers capabilities of both relational and object-oriented database systems. Oracle 8 supports very large database that could contain hundreds of terabytes of information. It also provides access to many concurrent users to the order of thousands or ten thousand users. Managing large amount of data could present administrative and performance challenges. Oracle 8's data partitioning features help to minimize the problems. A large table that is partitioned can enhance performance because accessing can be done on multiple partitions simultaneously. Each of the partition can be managed individually, thereby allowing efficient management of the database.

Windows NT and Windows 95

Microsoft Windows NT Server 4.0 provides the connectivity, reliability, basic services and administrative tools necessary to deliver critical business information across a distributed network of computers. Its scale ranges from small network to the enterprise, providing basic file and prints services while also supporting mission-critical management. Improvements in Windows NT Server 4.0 deliver better performance scalability on microprocessor systems. New Applications Programming Interfaces for server application developers and better server performance deliver improved throughput and scalability for server applications.

Windows '95 has emerged as the most popular window based operating system. It executes both 16 bit and 32 bit applications. Many utilities are available for window programmers and application developers. Windows '95 can easily switch among different programs and exchange data between them. It can be used as an efficient client operating system for connecting to the Windows NT Server. Windows '95 is the successor of Windows 3.x. Windows '95 is a complete, integrated 32-bit operating system that does not require MS-DOS, even though it can run MS-DOS applications. It implements the Win32 API and provides pre-emptive multitasking and multiple threads for execution of 32-bit application. Windows '95 includes reliable and open networking support and high performance in addition to messaging and dialup Networking access service

- Windows '95 meets a number of key requirements.

SYSTEM DESIGN AND DEVELOPMENT

SYSTEM DESIGN AND DEVELOPMENT

The most creative and challenging phase of the system life cycle is the System Design. The design focuses on the detailed implementation of the system. The design phase is a transition from a user-oriented document to a document oriented to the programmer or the project manager and the organization management. System design goes through two phases of development and they are the logical and the physical design. When analysts prepare logical system design, they specify the user needs at a level of detail that virtually determines information flow into and out of the system and the required data sources. Physical design produces the working system by defining the design specifications that tell the programmers what the system must do.

First step in design phase is to determine how the output is to be produced and in what format. Secondly, input data and the master files have to be designed to meet the requirement of the proposed output. Finally at the end of the design phase the System Design Document (SDD) will be ready which is used as the base for coding phase.

Input Design

Input design is the part of the overall system design that requires very careful attention. Most expensive part in this is the collection of the input data in terms of equipment and persons involved. If a data going into a system is incorrect then processing and output will magnify these errors. Objectives during design are as follows:

- Produce cost effective method of input.
- Achieve high level accuracy.
- Ensure that the input is free of ambiguity.

Input design is the most important part of the system design. In the input design the user-oriented inputs are converted into computer recognizable format. In the input design the data is accepted and it can be readily used for data processing or can be stored in a database for further use. Input design is that part of the design, which requires the most attention. Data should be accurate because inaccurate data is the most common cause of errors in the data processing. The input screens are very user friendly and menu driven.

The main objective of the input design is to produce a cost-effective method to input the highest possible level of accuracy and to ensure that the input is acceptable and understandable by the user. While entering data, proper validation and checking are carried out and the software to enter the proper output data will alter necessary message. This was done using Developer 2000 / Form 6I and form triggers.

Output Design

Outputs from the computer system are required primarily to communicate the results of processing to users or other system. In the output design emphasis is on producing the hardcopy information requested. Outputs are the most important and direct source of information to the clients. Efficient, intelligible output design will improve the system relationship with the user and help in decision making. Outputs are used to provide a permanent hardcopy of results.

The following are the reports generated by the online project monitoring and evaluation system according to the needs.

- Percentage-Detail report – gives the percentage of project completed.

- Employee-Detail report -- gives the details of the employees and the project they are currently working on and under whom.

- Employee report -- gives the details of the employees with their designation.

- Project-Assigned report -- gives the detail of the project the employee is working on.

Database Design

Database design is an important stage in the design phase of the system. Efficient database design ensures data integrity and avoids data redundancy. A database is a collection of information related to a particular subject or purpose. Database is a large pool of information in a form suitable for handling by the computer.

A collection of interrelated set of programs to access data is called Database Management System. It is a mechanism for coordinating the storage and retrieval of data in a manner ensuring its constant integrity, consistency and availability. The function of DBMS is to record names, descriptions, values and relationship of data and to allow access to this information in a controlled manner. Database management systems are meant to manage large bodies of information. The major components of database systems are hardware, software and users.

Table Design

1). Designationmaster. [Give the detail of the employer and his designation based on which access rights are given to enter into the system i.e., full or restricted]

Entity	Attribute	Type	Data type	Width	Description
Project manager Or programmer	Desigcd	Primary key	Text	10	Designation code
	Designation	Element	Text	30	Description of the designation. USING POPUP MENU.
	Dtype	Element	Text	2	Describe the type of designation

2). Ticketmaster. [Give the details whether the person is manager or programmer based on the ticket no and designation]

Entity	Attribute	Type	Data type	Width	Description
Programmer or project manager	Tktno	Primary key	Text	10	Ticket number.
	Name	Element	Text	30	Name of the programmer or project manager.
	Desigcd	Foreign key	Text	10	Designation which refers to the designation code of desigmaster
	Supercode	Element	Text	10	To check for programmer or manager and whose null value indicates manager.
	Dept	Element	Text	15	Give the department of the user. USING A POPUP MENU
	Grade	Element	Text	10	Give the grade of the employees
	Password	Element	Text	15	For ensuring security and integrity.

3). Projectmaster. [Give the details of the project, module in it and the task in the modules]

Entity	Attribute	Type	Data type	Width	Description
Project manager	Projcd	Primary key	Text	10	Project code, which will give details about project, module and task.
	Projname	Element	Text	30	Project name
	Projdescc	Element	Text	200	Project description
	Progmancd	Foreign key	Text	10	Give who is the project leader.

4). Groupmaster. [Give the details of the group and its manager]

Entity	Attribute	Type	Data type	Width	Description
Project manager	Groupcd	Primary key	Text	10	Group code will identify a group
	Groupname	Element	Text	30	Group name
	Gr_lea_tktno	Element	Text	10	Leader of the group.

5). Groups. [Shows which employee belongs to which group]

Entity	Attribute	Type	Data type	Width	Description
Project manager	Groupcd	Foreign key	Text	10	Refer the group master
	Gr_user_tktno	Element	Text	10	User belonging to that group.

6). Department. [Give the details of the department]

Entity	Attribute	Type	Data type	Width	Description
Project manager	Deptcd	Primary key	Text	10	Department code
	Deptname	Element	Text	30	Name of the department.

7). Grademaster. [Give the details of the grade]

Entity	Attribute	Type	Data type	Width	Description
Project manager	Gradeno	Primary key	Text	10	Grade number
	Grade	Element	Text	30	Grade name.

8). Projectuser --due to many to many relationships between project and programmer/project manager.

Entity	Attribute	Type	Data type	Width	Description
Project manager Programmer	Tktno	Foreign key	Text	10	Give the details of the user
	Projcd	Foreign key	Text	10	Give the details of the project.

9). Projectplan. [Gives the detail of the task to be done by a programmer and is given by the project manager]

Entity	Attribute	Type	Data type	Width	Description
Project manag	Projcd	Foreign key	Text	10	Project code is a foreign key to projmaster, which will give details about project, module and task.
	Startdate	Element	Date		Give the date of starting of the task/project.
	Timedur	Element	Number	2	Give the duration of the project in hours
	Daydur	Element	Number	3	Gibe the duration of the project in days
	Taskdead	Element	Date		Give the deadline date.

10) Percentage. [Give the final performance of the project based on the tasks completed]

Entity	Attribute	Type	Data type	Width	Description
Taskplan and Ticketmaster	Projcd	Foreign key	Text	10	Project code, which will give details about project, module and task .from projectmaster
	Percentage	Element	Number	3	Give the performance in percentage.
	Taskoversho t	Element	Number	3	Give the number of tasks over shot.
	Remark	Element	Text	200	Give the actions to be taken.

11) Progpercent. [Give the final performance of the project based on the tasks completed]

Entity	Attribute	Type	Data type	Width	Description
Taskplan and Ticketmaster	Tktno	Foreign key	Text	10	Refer the ticketmaster
	Taskoshot	Element	Number	3	Show the task that are over shot for that programmer
	Ppercent	Element	Number	3	Give the percentage .

12). Modulemaster.

Entity	Attribute	Type	Data type	Width	Description
Project manager	Modcd	Primary key	Text	10	Module code, which will give details about project's module.
	Projcd	Foreign key	Text	10	Reference the projcd of productmaster.
	Modname	Element	Text	30	Module name
	Moddesc	Element	Text	200	Module description

13). Taskmaster.

Entity	Attribute	Type	Data type	Width	Description
Project manager	Taskcd	Primary key	Text	10	Task code, which will give details about project's task.
	Projcd	Foreign key	Text	10	Reference the projcd of productmaster.
	Modcd	Foreign key	Text	10	Refers the modcd of modulemaster
	Taskdesc	Element	Text	200	Task description
	Taskstart	Element	Date	8	Give the starting date of the task
	Taskend	Element	Date	8	Give the end date of the task

14). Timesheet.   [The output chart of the task done by a programmer]

Entity	Attribute	Type	Data type	Width	Description
Programmer/ Project manager	Tktno	Foreign key	Text	10	Give the employees details. And refers to ticketmaster table
	Transid	Element	Number	3	Give transaction number of the task done on that day. WILL BE AUTOMATICALLY GENERATED.
	Transdate	Element	Date		Give the date of doing task. WILL BE PROVIDED BY SYSTEM
	Fromtime	Element	Text	5	Give the start time of the project.
	Duration	Element	Text	5	Give the duration of work done by the programmer
	Totime	Element	Text	5	Give the end time of working on the task
	Projcd	Foreign key	Text	10	Give details of the project and refers to the projmaster table.
	Modcd	Foreign key	Text	10	Give the description of the module currently under progress.
	Taskdc	Foreign key	Text	10	Give the description of the task under progress.
	Status	Element	Text	30	Whether to insert, modify or delete data. I.e., purpose of logging. USING A POPUP MENU.
	Remark	Element	Text	200	Give the detail / report of the task. BY THE USER.

15). Logtable [Automatically generated when the user enters values into the timesheet]

Entity	Attribute	Type	Data type	Width	Description
Programmer/ Project manager	Tktno	Foreign key	Text	10	Give the employees details. And refers to ticketmaster table
	Transid	Element	Number	3	Give transaction number of the task done on that day.
	Transdate	Element	Date		Give the date of doing task.
	Fromtime	Element	Text	5	Give the start time of the project.
	Duration	Element	Text	5	Give the duration of work done by the programmer
	Totime	Element	Text	5	Give the end time of working on the task
	Projcd	Foreign key	Text	10	Give details of the project and refers to the projectmaster table.
	Modcd	Foreign key	Text	10	Give the description of the module currently under progress.
	Taskdc	Foreign key	Text	10	Give the description of the task under progress.
	Status	Element	Text	30	Whether to insert, modify or delete data. I.e., purpose of logging.
	Remark	Element	Text	200	Give the detail / report of the task. BY THE USER.
	Trans_code	Element	Text	2	
	Trans_status	Element	Text	2	Show whether the table is modified or newly entered.

Process Design

During process design we identify the processes involved in the system, analyze the decisions within these processes and to define the data required for facilitating the decisions. Efficient process design helps to develop a system, which collects and stores only the data that is useful for the processes and decisions that have been analyzed. After the design of the existing system and its problems, an outline for the new system is drawn. A through study revealed the structure of the database required. Using normalization technique redundancy was avoided to the maximum possible extent and efficiency in accessing data was ensured. The tables were created in ORACLE. The various constraints were specified to the required fields. Relationships among various tables were included. Sample data was loaded to check the working of the system after the database design and the input and output for various modules were designed. The various screens were developed using developer 2000 / form 6i.

DATA FLOW DIAGRAM

Context Level DFD

First Level DFD's

PROJECT PLAN — PLAN DETAILS. → 3.0 REPORT GENERATION ← TASK COMPLETION DETAILS. — TIME SHEET

PERFORMANCE DETAILS. ← PERCENTAGE TABLE

REPORT GENERATION → PROJECT STATUS REPORT → PROJECT MANAGER

REPORT GENERATION → MIS REPORT → MANAGEMENT
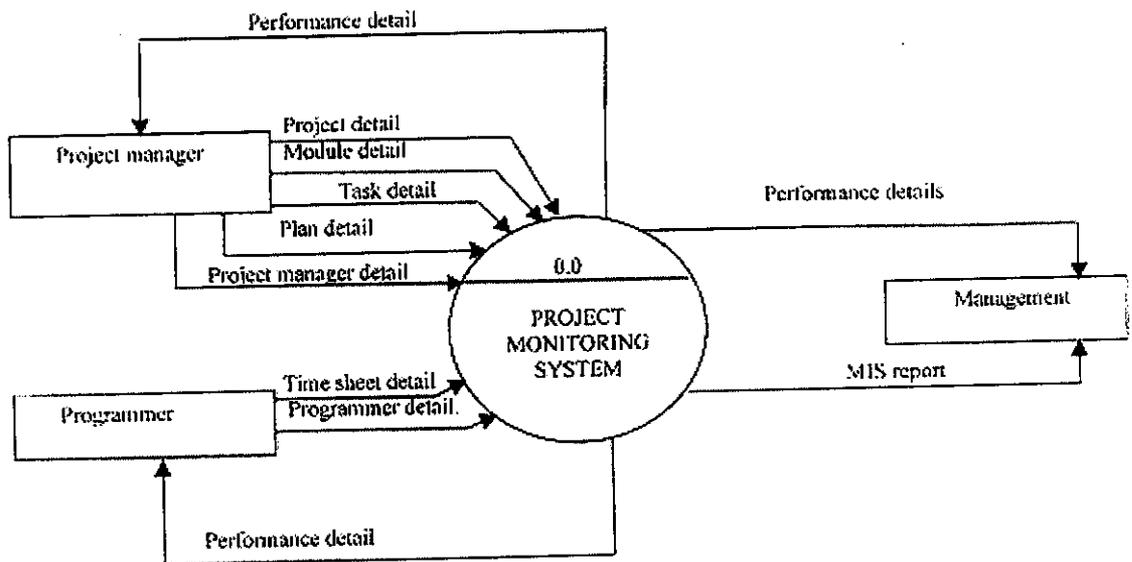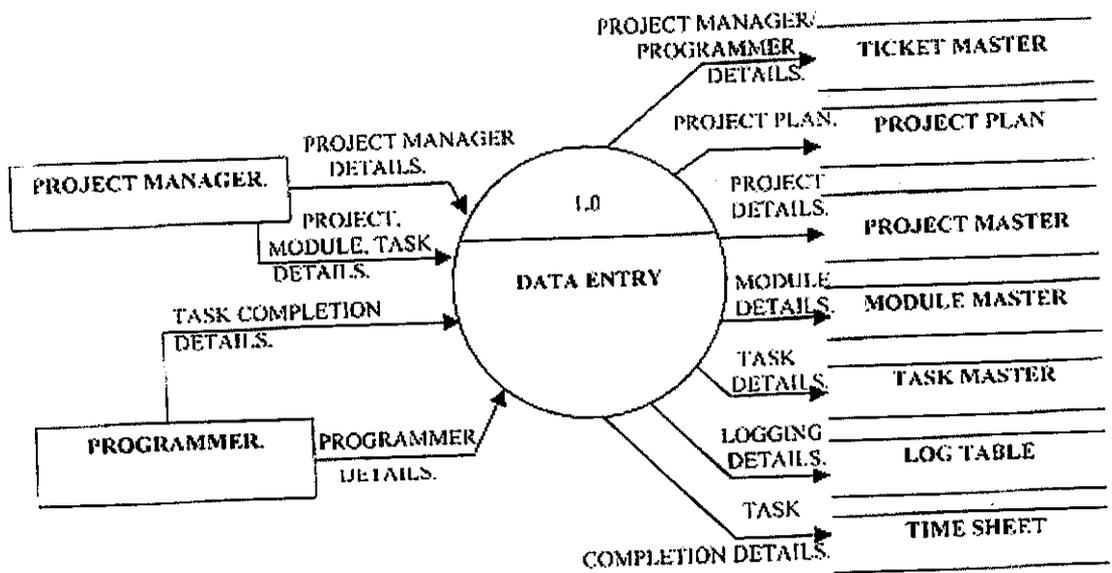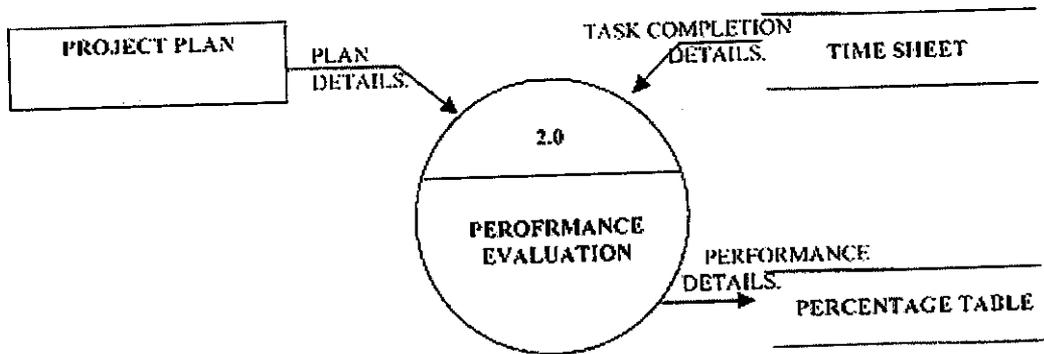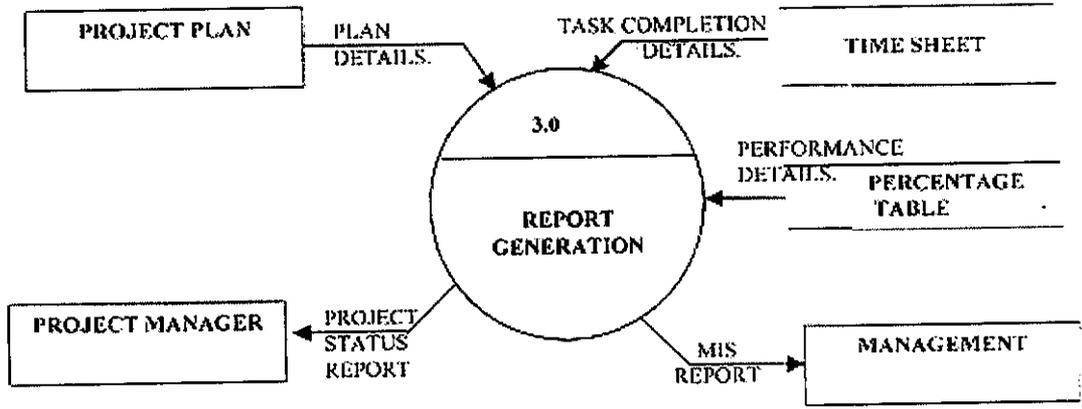
SYSTEM IMPLEMENTATION AND TESTING

System Implementation

Implementation is the key stage in achieving a successful new system because, usually it involves a lot of upheaval in the user department. It must therefore be carefully be planned and controlled. Normally, this involves setting a coordinating committee, which will act as a sounding board for ideas, complaints and problems. The first task in implementation is planning i.e., deciding on the methods and time scale to be adopted. The planning process provides guidelines for everything starting with the planning itself and ending with the successful deployment and working of the new system.

Apart from planning the two other major tasks of preparing for implementation and education the training of users and testing of the system. Education of users should really have taken place much earlier in the project when they were being involved in the investigation and design work. At the Implementation stage the emphasis must be on training in new skills to the staff confidence that they can cope with the new system. Once staff has been trained, the system can be tested. It is important that the whole system and its environment to be tested and not just the computer programs.

Once these activities are over the conversion of the existing data to the computer media and setting up these files as they are converted on the

47

computer take place. This process is of grave importance since it deals with the data. Once the coordinating committee is satisfied with the training and the testing, changeover can begin.

System Testing

System testing is the stage of implementation, which is aimed at ensuring that the system works accurately and efficiently before live operation commences. In principle, system proving is an ongoing activity through out the project. The logical design and the physical design should be thoroughly and continually examined on paper to ensure that they will work when implemented. Thus the system test in implementation should be a confirmation that all is correct and an opportunity to show the user that the system works.

When we have tested each program individually, using test data designed by us and have verified that these programs link together in the way specified in the program suite specification, the complete system and its environment was tested to the satisfaction of the system analyst and the user.

The system analyst provided us the test data, specially designed to show that the system will operate successfully in all aspects and produce expected results under expected conditions. The test should take place as far as possible under actual operating environment, and they should test people and equipment as well as programs. Where this is not possible, the system should be tested in simulated operational environment.

System Test Data:

There was careful planning of how the system will be proved and the test data designed. The system analyst was so clear about the test objectives. The system test data can rarely be comprehensive enough to test the system fully, some aspects of the system should be tested during live operation. System analyst deliberately plans the extent to which the system should be tested. This depends on the purpose and sensitivity of the system.

To take an extreme case, where the system is a 'life or death' type, the extra effort and time required for the production of the most comprehensive system test data was essential. The system test data and the results of processing it is maintained as a permanent manual through out the operational life of the system, for audit purpose or to test any subsequent major amendments.

Refinement Based on Feedback

The system life cycle does not finish all on a sudden after implementation. In any system development process certain minor faults will remain unnoticed by the system development team. The user who works on the system regularly finds these problems and possible suggestions are conveyed to the system development team and the team together decides corrective measures. These changes are incorporated in to the system to make it more efficient because it will take time to identify all the problems in the system. The system developer has to be in touch and be user-friendly.

This process repeats itself for some time with the system even after implementation and changeover because these refinements are based on the feedback from the users.

CHANGE OVER

Once all the preparatory work of implementation had taken place the system has been tested and staff trained, the change over from old to new system began. Change over is the state of moving over the old manual system to the new computer-based system.

In order to that this can be done, the clerical filed had to be converted into computer format and media and then input to the computer to form the new computerized time sheet. It was very difficult task to achieve quickly and accurately. When the files have been set up on the computer, the change over properly takes place. There were several possible methods to achieve this, direct change over, parallel change over, staged change over etc.

The implementation coordinating committee chose the most appropriate method that is the direct change over in our case. The users are satisfied with the results and the new system is working properly under the system analyst for the time being.

CONCLUSION

This is an on-line Project Monitoring System, which will help the project manager to evaluate the performance of the project team and the team members and also help the members to evaluate their own performance. Apart from this, the management will also be in a position to get all the details, at any given point of time. Thus providing the management with all the latest and up-to-date information, which will surely help them in developing the organization further and faster.

SCOPE FOR FUTURE DEVELOPMENT

SCOPE FOR FUTURE DEVELOPMENT

In future this system is proposed to be linked with the Human Resources Management system. This will further make this system more accurate. Because in the current proposed system, if a person is on leave, then his task is actually stretching. This can be checked to an extent at this stage, but integration with the leaves system would make it more reliable and dependable.

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E) ORACLE DEVELOPER/2000 HAND BOOK by Robert J.Muller

APPENDIX-A : SAMPLE SCREENS

ENTRY FORM - [ENTRYFORM]

Ticket number

Parameshwaran

Password

http://mycom

PR_MIDDLEFORM - [WIN_FORMANAGER]

Reports

Timesheet

http://mycom

Cut

Time Sheet

1

8   16-MAR-2001

10   ⬜   10   22   ⬜   22

12:12

1   1   1

Completed ⬜

Form is working properly

Record

Cut

1

Transaction id 8   Transaction date 16-MAR-2001

From Time 10   To 10   22   22

12:12

1   1   1

Completed

Form is working properly

Department code 2

Department name SALES

Save   Cancel   Exit

Record

http://mycom
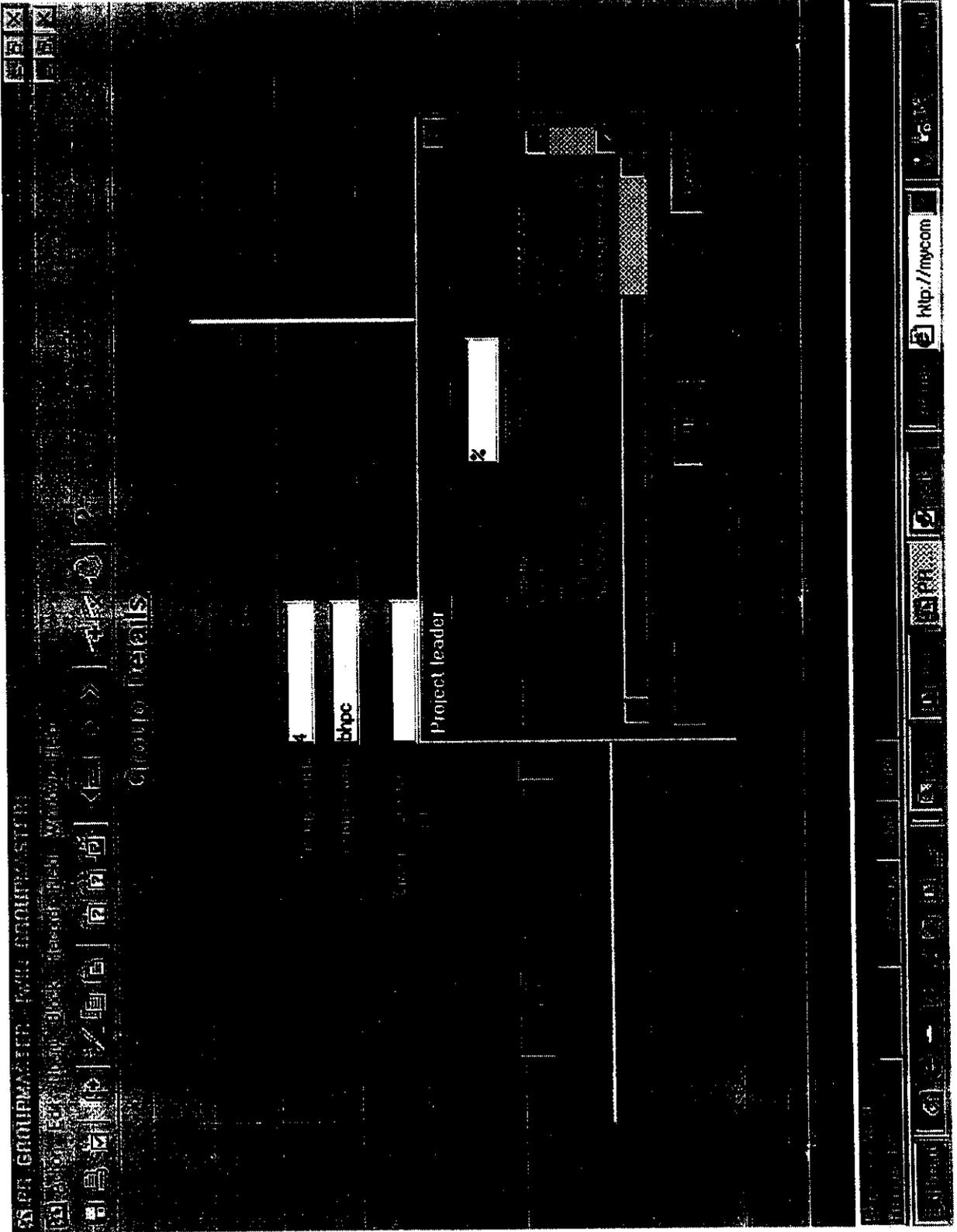
1

41

Designation Details
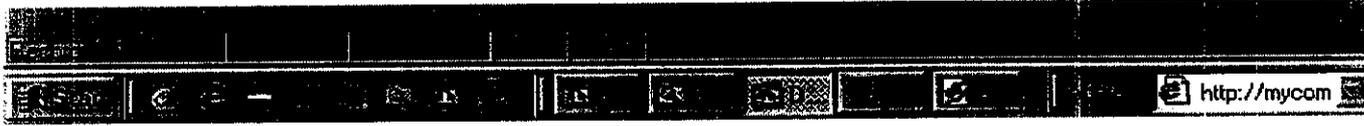
1

Programmer

Programmer

Save   **Cancel**   **Exit**

PR_Ticketmaster - [WIN_TICKETMASTER]

1

Parameshwaran

2   Program manager

3

A1

*****

PC GROUPMASTER [MR GROUP]

Employees Group

Cobra

ticketmaster

http://mycom

Employee's Group

Cobra

Programmer

http://mycom

5

Srikar

1   Programmer

1   Parameshwaran

3

A1

http://mycom

1

01-MAR-2001   30-MAR-2001

28
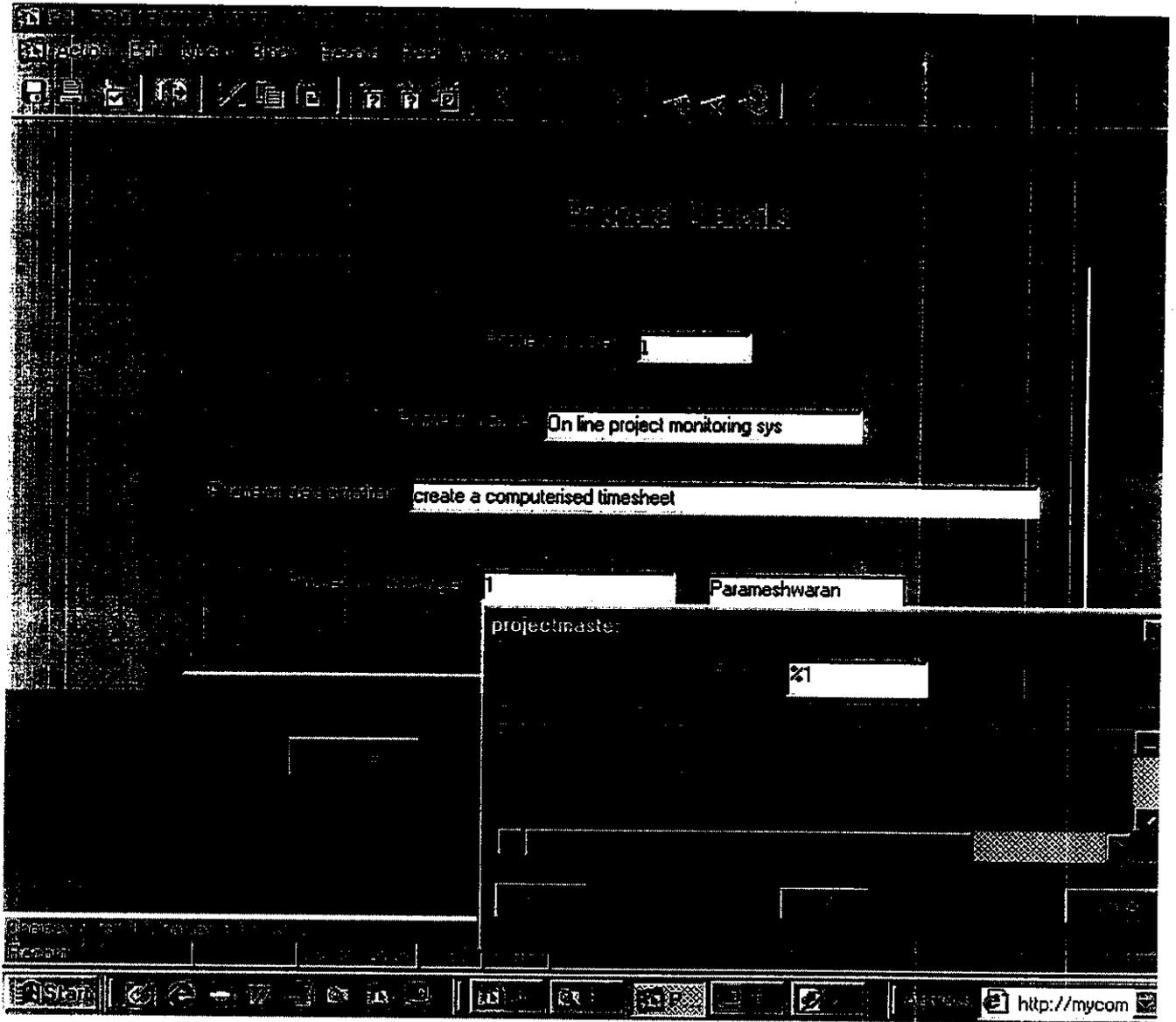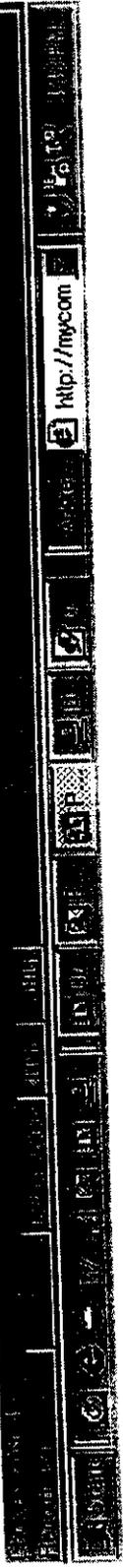
http://mycom

Project Details

On line project monitoring sys

create a computerised timesheet

1   Parameshwaran

projectmaster

%1

Module Details

modulemaster_lov

Project Details

Task Details

Project Code 3   creating a robort for preparin   1   3-first

Project Start Date   23-JUL-01   30-MAR-02

Task Note   311

Task Start   23-JUL-2001   Task End   23-OCT-2001

Start | http://mycom

modulemaster_lov

Performance Evaluation

projectmaster

Project Details

PR_PERCENTAGE - [WIN_PERCENTAGE]

Performance Evaluation

28

15

1

4

0

2

50

0

WORKING ON THE 3RD FORM

http://mycom

APPENDIX-B : REPORTS

Arial   14
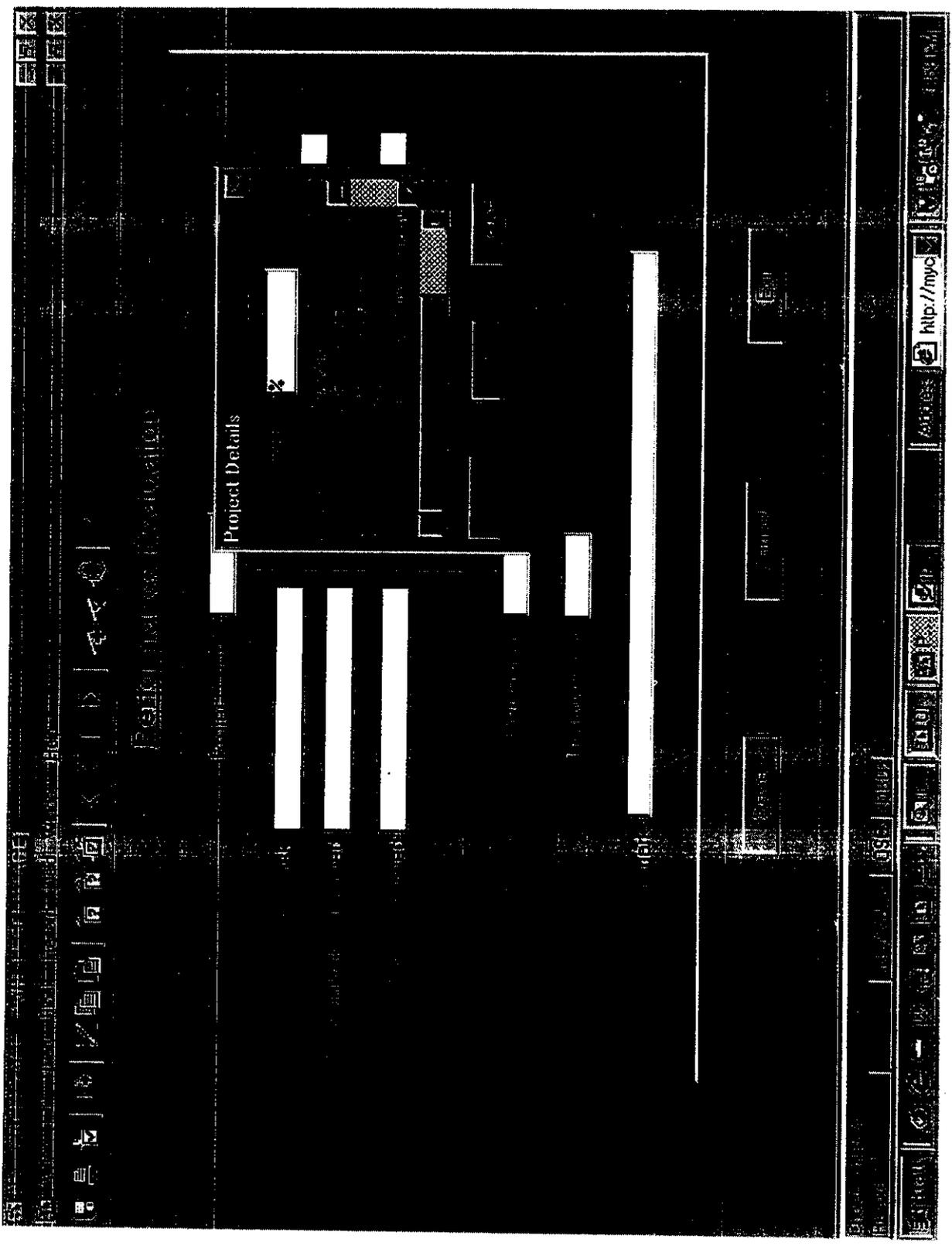
PERCENTAGE-DETAIL

Project Code	Project Name	Project Manager	Taskdead	Percent

http://myc

EMPLOYEE-REPORT

Ticket No:	Name	Designation
		Program manager
		Program manager
		Admin
		Programmer
		Programmer
		Programmer
		Admin

http://mycom