HUMAN RESOURCES MANAGEMENT SYSTEM

FOR

MASTERMIND SOFTWARE TECHNOLOGY SOLUTIONS, BANGALORE.

PROJECT REPORT P-1222

Submitted in partial fulfillment of the requirements for the award of the

degree of

M.Sc Applied Science Software Engineering,

Bharathiar University,

Coimbatore.

Submitted By

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Reg. No. 0137S0025

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KUMARAGURU COLLEGE OF TECHNOLOGY

AFFILIATED TO BHARATHIAR UNIVERSITY

COIMBATORE – 641 006

SEPTEMBER - 2004

KUMARAGURU COLLEGE OF TECHNOLOGY

(Affiliated to Bharathiar University)

Department of Computer science and Engineering

Coimbatore – 641 006

CERTIFICATE

This is to certify that the project work entitled

HUMAN RESOURCES MANAGEMENT SYSTEM

Done By

D.BALASUBRAMANIAN

Reg. No. 0137S0025

Submitted in partial fulfillment of the requirements for the award of the degree M.Sc Applied Science Software Engineering of Bharathiar University.

Professor and Head

Internal Guide

Submitted for the University examination held on ....29/09/2004....

Internal Examiner

External Examiner

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CERTIFICATE

This is to certify that **Mr. Balasubramanian D,** (Reg.No.**0137S0025**) of **Kumaraguru College of Technology, Coimbatore – 641 006** was associated with us as a project trainee to carry out his academic project for the partial fulfillment of award of Master of Science Software Engineering (MSc SE) Fourth Year.

He has successfully completed the project titled **"HUMAN RESOURCES MANAGEMENT SYSTEM "** in compliance with the requirement of partial fulfillment of the Master of Science Software Engineering Degree. He was associated with us during the period from **May - 2004 to September – 2004.**

The source code is not included in the report as per the policy of the organization.

He acquitted himself well during his traineeship and we appreciate his efforts. We wish him well for a bright future.

For and on behalf of Mastermind Software Technology Solutions.

(HR Manager)

Place: Bangalore
Date: 25/09/2004

DECLARATION

I hereby declare that the project work entitled

HUMAN RESOURCES MANAGEMENT SYSTEM

Done at

MASTERMIND SOFTWARE TECHNOLOGY SOLUTIONS, BANGALORE.

And submitted to

KUMARAGURU COLLEGE OF TECHNOLOGY

In partial fulfillment of the requirements for the award of the degree

M.Sc. APPLIED SCIENCE (Software Engineering)

Is a report of work done by me during my period of study in Kumaraguru College of Technology, CBE – 641 006

Under the supervision of

Mr.Ganeshbabu, MCA

Lecturer, Dept of Computer science & Engineering,

Kumaraguru College of Technology, Coimbatore.

Place: Coimbatore

Date: 24/09/2004

Signature of the Candidate

(D.BALASUBRAMANIAN)

ACKNOWLEDGEMENT

To add meaning to the perception, it is my indebtedness to honor a few who had helped me in this endeavor, by placing them on record. With profound gratitude, I am extremely thankful to **Dr.K.K.Padmanaban B.Sc.(Eng),M.Tech, Ph.D., Principal, Kumaraguru College of Technology, CBE** for providing me an opportunity to undergo the MSc APPLIED SCIENCE SOFTWARE ENGINEERING course and thereby this project work also.

I extend my heartfelt thanks to my Computer Science & Engineering Department head, **Prof.Dr.S Thangasamy B.E (Hons), Ph.D.,** for his kind advice and encouragement to complete this project successfully. It's my privilege to express my deep sense of gratitude and profound thanks to **Mr.ESWAR, Software Engineer, Mastermind Software Technology Solution,** Bangalore for having allowed me to do my project work in his esteemed team and for helping me in all means in successful completion of this project work.

Gratitude will find least meaning without thanking my course coordinator **Mr.K.R.Baskaran B.E, M.S.,** Assistant Professor, Dept of Computer Science & Engineering and guide **Mr.Ganeshbabu, MCA** Dept of Computer Science & Engineering for the valuable guidance and support throughout my project. Words are boundless foe me to express my deep sense of gratitude profound thanks to **Mr.Eswar** and all my associates at **Mastermind Software Technology Solution ,** for all their kind guidance and encouragement towards my project work. My gratitude is due to all staff members of CSE department, my parents and all my friends for their moral support and encouragement for successful completion of my project.

D . BALASUBRAMANIAN

SYNOPSIS

The project is done at Mastermind Software Technology Solution. The main aim of this project is to develop an H R Management System to handle the complete hourly work done by each staff. It also maintains their leaves. It gives facility for management how they are utilizing the potential of each employee.

This project is all about the automation of the HR Management System, which takes place in a company. Through this system, most of the paper work will be avoided and makes the workload of HR Department easier.

This project deals with the process of identifying the employees, recording their attendance hourly and calculating their effective payable hours or days. This project should maintain the records of each employee and their time spend in the company, which can be used for performance appraisal. Based on that transfer, removal, promotion etc can be done.

This system should make the H R Management System job easy so that there is no need to go through all the files. Only give the employee name or id then the report will be generated and displayed.

HR Management System is concerned with managing the administrator of HR Department in a company. The main objective of this project is to reduce the efforts of administrator to keep the daily events such as attendance works. Administrator can alter or create the records. It also helps the administrator to access the records at any time.

Contents

1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

Today the technology is fast advancing and it becomes the duty of a professional to utilize it properly and make it available to the masses. Everything is computerized online. For that purpose fast, powerful and smaller computers are developed for commercial and scientific applications. The computer industry focuses on the era of cost, flexibility, reliability and other such immaterial considerations. Our aim is to make the conventional systems computerized with maximum security, thus making it possible for the organizations to serve their customers well.

The system entitled "HR Management System" is application software, which aim at the development of HR Management System. And it is developed using Visual Basic 6.0 as the front end and MS Access as the backend on Windows Platform.

HR Management System is concerned with managing the administrator of H R Department in a company. The main objective of this project is to reduce the effort of Administrator to keep the daily events such as attendance.

This project deals with the process of identifying the employees, recording their attendance hourly and calculating their effective payable hours or days. This project should maintain the records of each employee and their time spend in the company, which can be used for performance appraisal. Based on that transfer, removal, promotion etc can be done.

The main objective of this project is to make the HR Management System job easy so that there is no need to go through all the files. Only give the employee name or id then the report will be generated and displayed.

To use the system the user has to first login to the system using a user name and a unique password.

The current system " HR Management System " can be used to maintain efficiently the HR Department schedule of any type of company. The graphical user interface leads the user to perform the actions. It also generates the important reports.

This report describes the various steps involved in developing the current system. It covers the details of the analysis, design, testing methodology and implementation details. The response of this document is to provide an outline of the development details and usage of the system.

1.2 ORGANIZATION PROFILE

Mastermind Software Technology Solutions, is world-class software led IT services. Mastermind Software Technology Solutions is an IT service company providing a range of value added software services to:

- Hardware product companies
- Software product companies
- End-user in large and medium business organization.

The information is the hallmark of today's world. A drive for productivity and the ability to offer quality solutions on information superhighway are the key to development. Mastermind Software Technology Solutions has mirrored the essence of true development since 1998 by enhancing growth with the presence of social justice. In promoting and cherishing, the growth of those associated with clients who are the true partners in progress.

There is no shortcut to success so as in the case of IT industry too. It is never possible without innovation, an eye for vision, a strong will to succeed and unlimited quality service. Quality objectives, precise and time bound are the root criteria for success and development is not an exception with Mastermind Technology Solutions.

Mastermind Software Technology Solutions will leave no stone unturned to reach its customer to the topmost rung of ladder success. A result that is translated at Mastermind Software Technology Solutions, i.e. - in tune with technology with time and trust, truth and tradition, and requirement is the principle assets.

Mastermind Software Technology Solutions has two divisions working at the moment - Training division as Compu Home and a software development division. It is the development division that is offering this project training as detailed in this document.

Mastermind Software Technology Solutions provides the state of the art technology like EJB, SERVLETS, JSP, XML, WEB SERVICES, 3-tier solutions etc. and limited support of its clients in India and abroad. Mastermind Software Technology Solutions also provides Consultancy services for all IT related matters to its clients. With the revolving strategy and re-structuring, Mastermind Technology Solutions has now started offering Web based solutions and gearing towards providing the E-Commerce / M-Commerce solutions to its existing and new clients.

It is the policy of Mastermind Software Technology Solutions to design, develop, deliver, maintain and support high quality software solutions. This is done not only to meet the client's requirements but also to exceed their expectations by being their true partners to the ladder of success. Mastermind Software Technology Solutions extend its services to its clients by providing skilled man power resources on contractual basis. This leads to a dedicated human resources development program.

2.0 SYSTEM STUDY & ANALYSIS

SYSTEM STUDY

System study and system development can generally be thought of as having two major components. "System Analysis and Design". System Analysis is a process of diagnosing the problem, gathering and interpreting facts and using the facts to improve the system. On the other hand, System Design is the process of planning a new system to replace or complement the old one. All the efforts put on the system analysis are of no use if the design is not proper and vice versa.

INITIAL STUDY

This involves the investigation of the existing system, which includes a vast level of interviews with the user and the concerned staff in sufficient depth. This also includes the collection and study of detailed information and literature regarding the complete existing procedure.

The detailed initial study properly documented and the failing and problems are noted separately. The system is properly designed and proper outline of the proposed computerized system is prepared. The proposed design is brought against all the known facts and further proposals are made.

Various resources including the software, hardware and manpower requirements are decided and are mentioned in the report.

ANALYSIS

♦ FEASIBILITY STUDY

The prime focus of the feasibility study is to evaluate the practicality of the proposed system keeping in mind by number of factors. The following factors are taken into account before deciding in favor of the new system.

♦ Economic Feasibility

The proposed Attendance compilation automation system will save lots of paper work and facilitate magnetic record keeping thereby reducing the costs incurred on above heads.

♦ Technical Feasibility

Now a day's all organizations are automating the repetitive and monotonous works done by humans. The key process areas of current system are nicely amenable to automation and hence the technical feasibility is proved beyond doubt.

♦ Operational Feasibility

The day-to-day maintenance of the employee details is error prone and time-consuming. The computerization will not only increase the operational efficiency of the staff but also result in safety.

Analysis is the detailed study of the existing system. The study is carried out with a view of making system more effective by identifying inefficiencies. The system is analyzed by gathering various information's like:

- How the system functions currently?
- What are the requirements for the proposed system?
- Who are the users are?
- What are their tasks and responsibilities?

Our Project deals with the integration of ibutton and one-wire technology with HRMS so that it can be used efficiently and effectively. I buttons are used for recording employee's login time, logout time, attendance, shift duty, overtime etc.

The scope of the project is based up on ibutton technology, which includes following basis,

A. Technology

An ibutton is a chip housed in a stainless steel enclosure. To keep the cost of access low, the electrical interface is reduced to an absolute minimum, i.e., one data line plus ground. The energy needed for communication is "stolen" from the data line ("parasitic power").

B. Synchronization

Data transfer can be done before the ibutton and master are connected i.e., before the memory touches the data and ground lines of micro controller. Just a few micro seconds after the connection is established (after touching), the ibutton pulses the data line low to tell the master that it is on the line and is waiting to receive a command. This waveform is called a presents pulse. The master can also request the ibutton to give a presence pulse by issuing a reset pulse. If the ibutton

receives a reset pulse over is disconnected, it will sends a low level on the data line and will generate a presence pulse just after the line reaches the high level again.

C. Data transfer

After the presence pulse, the ibutton expects to receive a command. Any command is written to the ibutton by concatenating write-one and write-zero time slots to create a complete command byte.

The data transfer in the opposite direction (reads from ibutton) uses the same timing rules to represent a 1 or a 0, respectively. Since ibuttons are designed to be slaves, they leave it to the master to define the beginning of each time slot. To do this, the master simply initiates a write-one timeslot to read a data bit. If the ibutton has to send a 1, all it has to do is wait for the next time slot. If it has sent a 0, the ibutton will hold the data line low for a specified time, in spite of the release by the master.

So the scope of the project can be considered as the task of integration of the existing technology to the maximum level possible so that it gives measures to reduce the time and cost significantly and the system can be utilized and implied in the suitable way possible.

2.1 SOFTWARE REQUIREMENT SPECIFICATION

The Dallas Semiconductor DS0621-SDK iButton-TMEX Professional Software Developer's Kit, Version 3.10, is a tool for professional programmers to facilitate the development of programs utilizing the TMEX Application Program Interface (API) calls.

TMEX is the set of drivers, utilities and other interface modules required to interface with the Dallas Semiconductor ibutton products utilizing the 1-Wireprotocol.IButtons are high capacity, general-purpose electronic data carriers, each with a unique registration serial number. Communication to iButtons is done over 1 data line and ground using the '1-Wire protocol'. This wire in conjunction with the

protocol is called the 'MicroLan'. The DS0621-SDK iButton-TMEX Professional Software Developer's Kit, henceforth referred to as SDK, and contains software drivers, utilities, example source code and a design guide. The iButton-TMEX version 3.10 software drivers provided in DS0621-SUL version 3.10 support DOS and Microsoft Windows 3.1/95/NT environments.

This kit was designed to work in conjunction with iButton-TMEX (DS0621-SUL), or just 'iButton-TMEX'. IButton-TMEX will install the drivers for each platform and make the computer ready for applications created with this developer's kit. IButton-TMEX comes on three disks with three different setup programs. There is a disk for DOS, Windows 3.1 and Windows 95/NT.

The TMEX version 3.10 drivers have been successfully tested with:

- Microsoft DOS Versions 5.0 and 6.2
- Microsoft Windows 3.1 and 3.11
- Windows 95 (DOS, 16, and 32 bit drivers) Version 4.0
- Windows NT (32 bit drivers only) Version 3.51

This Software Developer's Kit provides the following components:

- A general design guide for writing iButton applications using the TMEX Application Program Interface (API) calls.

- TMEX drivers (TSRs and DLLs) for PCs and other similar operating environments, including several different hand-held computers. The supported hardware interfaces for these drivers are the PC COM port using the DS9097E PC Serial Port

Adapter or the PC parallel port using the DS1410E PC Parallel Port Adapter.

- The modularity of these drivers supports expansion into other hardware media by writing custom low-level hardware interfaces. Also included is a description of all the application program interface (API) calls provided in TMEX version 3.10 and how to make these calls from DOS and Microsoft Windows. Platforms other than DOS and Microsoft Windows for TMEX are under development.

- Description of the iButton-TMEX utility programs provided in the SDK. There are simple utility/example programs for execution under DOS which perform standard file operations on TMEX data files, similar to the familiar file management utilities

- Six DS0621-SDK 3.10 (FORMAT, DIR, COPY, TYPE, etc.) available in DOS. A description of each of these utilities can be found in the section '3.1. TMEX DOS Utility Programs'. These utilities return meaningful error codes to DOS upon completion. A program could spawn these utility programs and use the error codes to interpret the results of the operation.

- Example programs have been written in several different languages in the DOS and Microsoft Windows environment to illustrate the usage and calling methodology required for each language in calling TMEX. The source for all of the example

programs is in sub-directories under \SOURCE. The languages used to implement the examples are, 'Borland Pascal', 'Borland C', 'Microsoft Visual Basic', 'Quick Basic', 'Borland Delphi', and 'Microsoft Visual C'.

- A description of the entire Extended File Structure for iButton data with special notes indicating the level of implementation in TMEX 3.10. This will allow users to develop iButton applications, which will be compatible with the current and future editions of TMEX.
- A list and description of TMEX 3.10 DOS and Microsoft Windows software drivers.
- A description of the Universal Data Packet (UDP). The UDP is the structure used in storing data on iButtons using the Extended File Structure. The SDK files are organized into three main sub-directories BIN, DRIVERS, and SOURCE. BIN contains all the executables of the DOS and Microsoft Windows utilities and examples. DRIVERS contain the DOS TSR and Microsoft Windows DLL TMEX drivers. SOURCE contains the source code for the TMEX example programs.
- The programming code examples in this documentation will be in 'C'. This is not the only programming language that can call on TMEX. TMEX was designed to be language independent. The documentation and the accompanying drivers, utility programs, and programming examples should serve as a comprehensive foundation on which to develop highly effective ibutton application programs.

Solution:

The use of I-button for recording the attendance eliminates in maintaining lots of records in the company, also we consider about the whole administration of the company. The automation of the whole attendance system will reduce much effort.

2.3 PROPOSED SYSTEM

Owing to above-mentioned problems, there is a need to automate the maintanence of attendance. The system should provide a way to authenticate users based on an I-Button who are the employees. It should maintain a record of all the employees and their attendance details. It should keep record of employees for calculating their workhours.

If we automate the whole company using I-button, all these alterations, such as addition of new employees, removal of retired employees, and so on can be accomplished without much effort.

Benefits of the proposed system

a. Easiness of Administration

Right from the automation itself it will be easier to go through each and every record whether daily, weekly, monthly or even annual basis. We can detect each and every problem from minor misunderstanding to major problems even with in a glance. Thus by automation of a attendance system using I-button makes administration an easy task.

Flexible

If we automate the whole system using I-button, all these alterations, such as addition of new employees, removal of retired employees, in order to provide better facilities to the administration and so on can be accomplished without much effort. Attendance compilation system using I-button makes the whole system that flexible.

Less Human Intervention

If we automate the business using an I-button, whatever may be the size of the company, whether it may be small one or a multi national company we can manage the whole system with a single administrator. Therefore, chances for errors such as errors of omission are relatively low.

Less Time Consuming

Whatever job we have to do like recording of alterations such as removal of employee details, addition of new employees, enhancement of facilities in favor of employee, keeping record of employees, can be done very easily.

This project is intended to use the following steps;

System/Information Engineering and Modeling: Work begins with establishment of requirements for the system. Information is gathered from the reliable resources.

Design: Software is designed with proper data structure, software architecture, interface representations and procedural details.

Testing: After the coding the whole process, testing will be performed with different inputs and changes will be made accordingly. This part plays very important role for the complete success of a project.

Maintenance: It is required to after the software has been delivered to the customer. Changes are required because of user's functional enhancements depending upon the market need.

3.0 PROGRAMMING ENVIRONMENT

3.1 HARDWARE CONFIGURATION

The minimum Hardware Configuration for the Project is

- ✓ Processor - Intel Compatible Processor.
- ✓ Hard Disk Drive - HDD (2 GB Minimum).
- ✓ Primary Memory - 32 MB (or more) RAM.
- ✓ Environment - LAN.

3.2 DESCRIPTION OF THE SOFTWARE & TOOLS

The minimum software requirements needed for the project are

- ✓ Platform : Windows NT,2000 and Above
- ✓ Front-End Tool : Visual c++ 6.0
- ✓ Back-End Tool : MS-Access
- ✓ Middle-End Tool : TMEX SDK, Windows API

Tools used

- ✓ IButton is used to send the signal for authentication.
- ✓ Visual C++ is used to develop the API programming, Loading and calling functions in the DLL's, Thread Creation and Synchronization and to develop the application part of the Attendance Compilation System.
- ✓ Ms-Access is used to develop database for recording employee attendance details.
- ✓ TMEX Embedded software and TMEX SDK.

Int FAR PASCAL TMExtendedStartSession (int Prt):-

This function is called with the port number "Prt" of the 1-wire bus to be used. The function returns the session handle number if the session has been established, 0 to indicate that the 1-wire bus is busy while another session in progress. The session handle is good for atleast 1 second and up to 10 seconds with continuous use.

Int FAR PASCAL TMEndSession (int Handle):-

This function return 1 means session successfully closed. If returns 0 mean if there was no valid session established with the specified session handle.

[Comments: It is the responsibility of the programmer to open and close sessions frequently, in order to allow other instances of i-Button programs to continue executing in the multi tasking environment.

BASIC FUNCTIONS:

Int FAR PASCAL TM Setup (int Handle):-

This function verifies the existence of the 1-wire port and returns its condition as follows:

0 - Setup failed

1 - Setup OK

2 - Setup OK but 1-wire bus shorted

3 - One wire bus does not exist

4 - Setup not supported

EXTENDED FUNCTIONS:

Int FAR PASCAL TM Next (int Handle, BYTE FAR *GB):-

This API calls finds the next multi drop device on the microlan specified with the session handle. A ROM search algorithm is used to find the next unique registration number (ROM) data pattern on the microcan. The ROM data pattern stored in an internal 8 byte buffer. The internal 8 byte buffer can be read using the TMRom API call. After the last device on the microcan is found the next call to TM Next will return 0. When TM Next returns a 0, the search algorithm will be reset and the next call to TM Next will be equivalent to a call to TM First.

Int FAR PASCAL TMStrongAccess (int Handle, BYTE FAR *GB):-

'Strong Access' to reset and start a new communication session with a particular device on the 1-wire bus. That is we have finished reading one ID we have to check if the I-Button is still connected!

This accesses the I-Button and verifies that it is on the 1-wire. Returns a value of 1 if the selected part is on the 1-wire and 0 otherwise.

Int FAR PASCAL TMROM (int Handle, BYTE FAR *GB, LPINT ROM):-

Transfer the ROMID from the internal buffer maintained by the driver to the Rom array int the application. Moreover, it is need to check

If (ROM (0) <>129). It is important that we check for the family code of the I-Button ID that we read so that we do not intercept other types of the button. That is check for DS1410E RomID and ignore it if found.

4.0 SYSTEM DESIGN

System Design:

System design provides the understanding and procedural details necessary for implementing the system recommended in the system study. Emphasis is on the translating the performance requirements into design specifications. The design phase is a transition from a user-oriented document (System proposal) to a document oriented to the programmers or database personnel.

System design goes through two phases of development:

a) Logical Design

b) Physicl Design

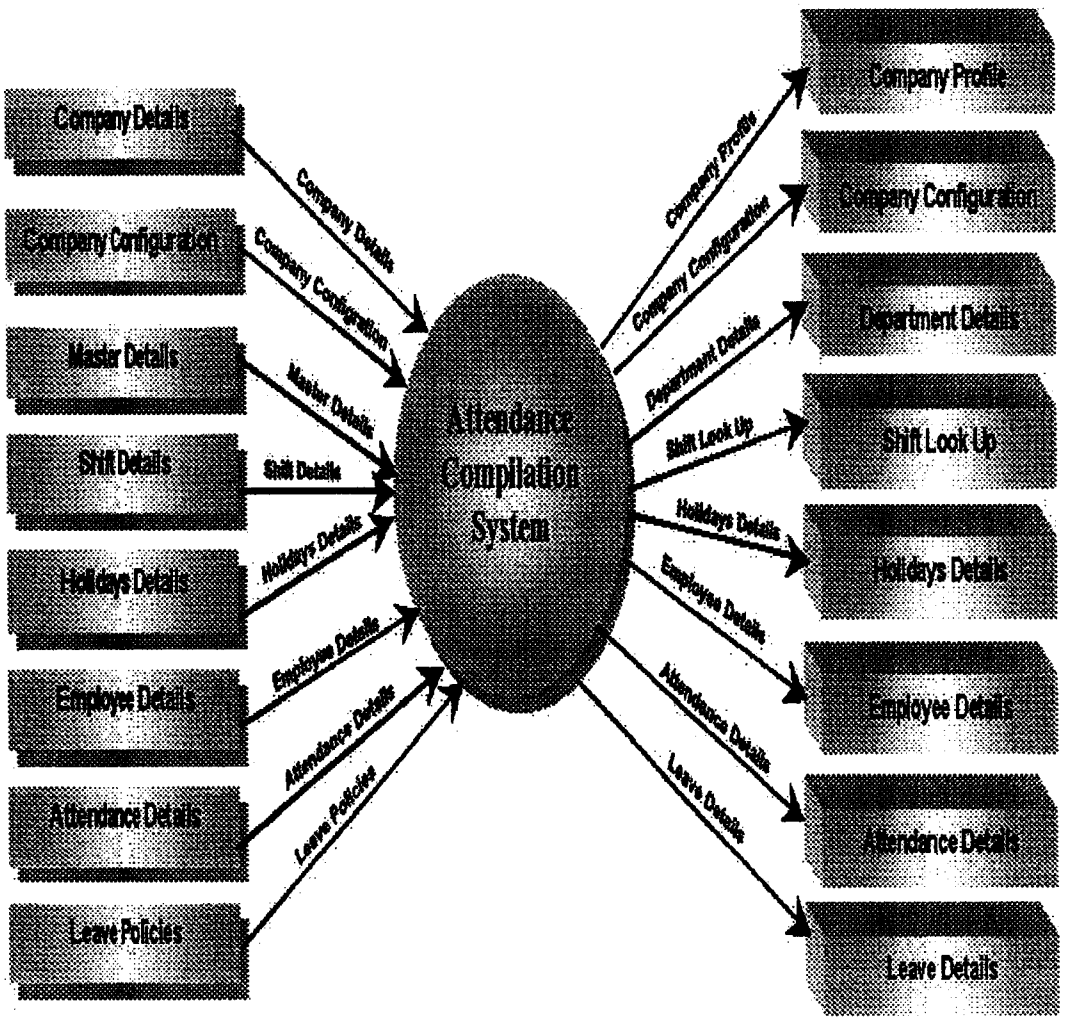
A data flow diagram shows the logical flow of the system. For a system it describes the input (source), output (destination), database (data stores) and procedures (data flows) all in a format that meets the user's requirement. When analyst prepares the logical system design, they specify the user needs at a level of detail that virtually determines the information flow into an out of the system and the required data resources. The logical design also specifies input forms and screen layouts.

The activities following logical design are the procedure followed in the physical design e.g., producting programs, software, file and a working system. A design specification instructs the user about what the system should do.

4.1 STRUCTURED DESIGN

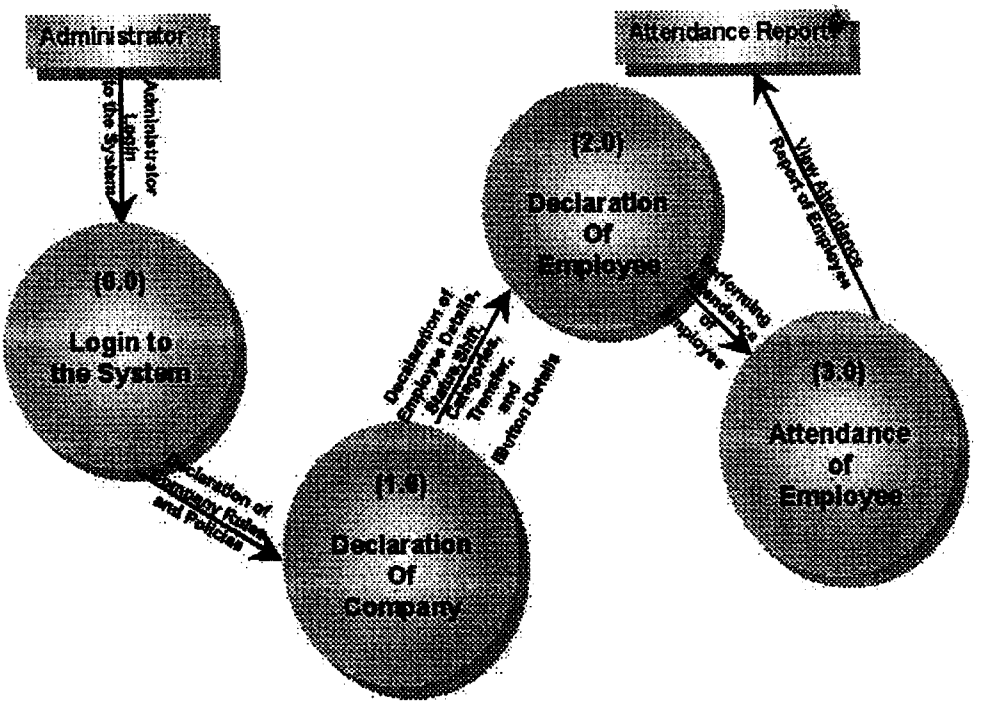
Creating the software system design is the major concern of the design phase. Structured design methodology (SDM) views every software system as having some inputs that are converted into the desired outputs by the software systems.

Context flow diagram:

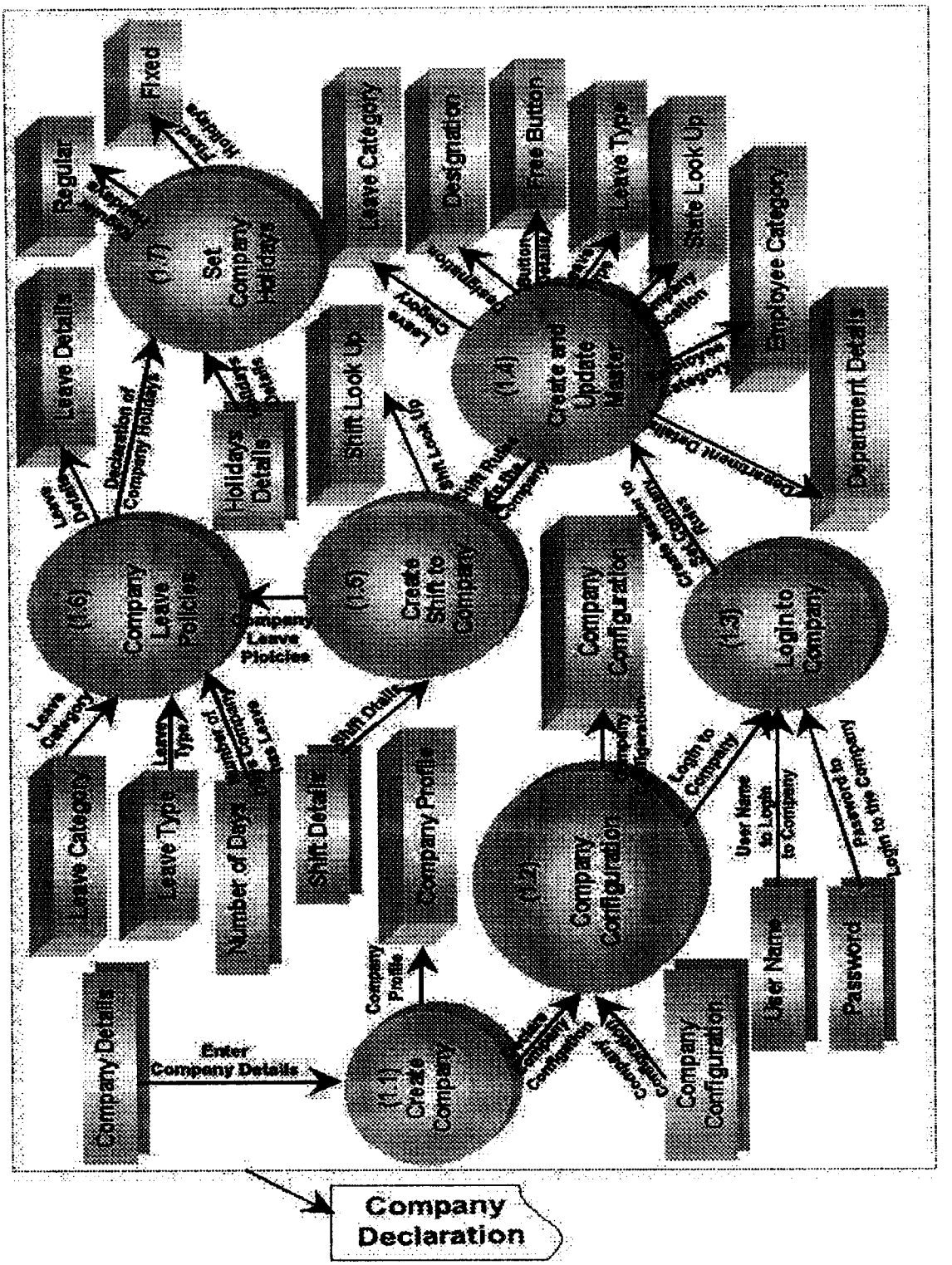


4.2 PROCESS DESIGN

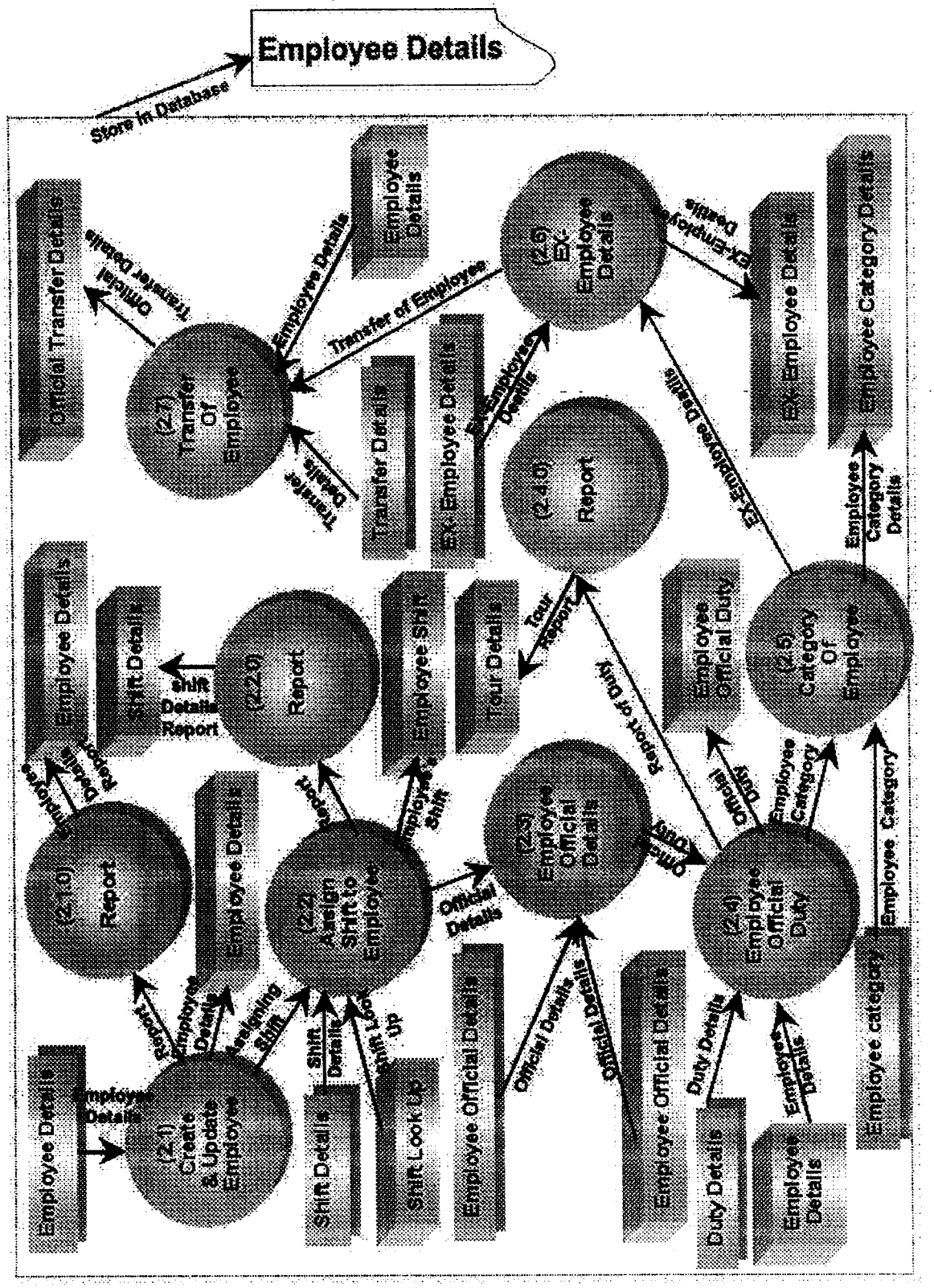
DATA FLOW DIAGRAM (0TH LEVEL):



DATA FLOW DIAGRAM (1ST LEVEL):



DATA FLOW DIAGRAM (2ND LEVEL):



4.3 INPUT – OUTPUT DESIGN

Input Design:

The input design is the link that ties the information system into the user's world. Input specifications describe the manner in which data enters the system for processing. Input design features can ensure the reliability of the system and produce results from accurate data, or they can result in the production of erroneous information.

Input Design consistes of

- Developing specifications and procedures for data preparation.
- Steps necessary to put data into a usable form for processing.
- Data entry, the activity of putting data into the computer for processing.

Objectives of Input design

Five objectives of input design focus on

- Controlling the amount of input required
- Avoid delay.
- Avoiding errors in data.
- Avoiding extra steps.
- Keeping the process simple.

Input stages have several activities to be carried out as part of the overall input process. They include some or all of the following.

Data recording (i.e., collection of data)

Data encapsulation (i.e., transfer of data)

Data conversion (i. e., controlling the flow of data)

Data transmission (i.e., transporting the data)

Data validation (i.e., checking the input data)

Data correction (i.e., correcting the errors)

Input format was designed, after a careful discussion with users. It was attempted to cover all user requirements. Designed format were given to user for any suggestion and final approval.

Various data items were identified and wherever necessary were recorded. As the data, concerning of ACS is voluminous in nature and number of case will grow dynamically in future, proper care was taken for accuracy and consistency of data.

Input designs are aimed at reducing the chances of mistakes of errors. As the human beings are prone to errors, there is always a possibility of occurrence of chance of errors. Adequate validation checks are incorporated to ensure error free data storage. Some of the data validation checks applied is as following:

- Redundancy of data is checked. It means the record of primary key does not occur twice.

- Primary key field of any table must not be left blank.
- Wherever items are coded, input code is checked for its validity with respect to several checks.

- Utmost care has been taken to incorporate the validation at each stage of the system. E.g. when entering records into employee information table for employee, it is checked that whether the corresponding employee exists in the employee information table etc.,

Enough messages and dialogue boxes are provided while design screen, which guides user at the time of any errors, or at time of entry. This feature provides a user-friendly interface to native users. It can be emphasized that input deign of ACS system is so designed that it ensures easy and error free data entry mechanism. Once one is sure of input data the output formatting becomes a routine work.

Output Design

The logical design of an information system is analogous to an engineering blue print of an automobile. It shows the major features and how they are related to each other. The detailed specification for the new system was drawn on the bases of user's requirement data. The outputs inputs and databases are designed in this phase.

Output design is one of the most important features of the information system. When the output is not of good quality, the users will be averse to use the newly designed system and may not use the system.

There are many types of output, all of which can be either highly useful or can be critical to the users, depending on the manner and degree to which they are used.

Outputs from computer system are required primarily to communicate the results of processing to users; they are also used to provide a permanent hard copy of these results for later consultation. Various types of outputs required can be listed as below:

External Outputs, whose destination is outside the organization.

Internal outputs, whose destination is with the organization.

Operational outputs, whose use is purely with in the computer department e.g., program listing etc.

Interactive outputs, which involve the user is communicating directly with the computer, It is particularly important to consider human factor when designing computer outputs. End user must find outputs easy to use and useful to their jobs, without quality output, user may find the entire system unnecessary and avoid using it. The term "Output" in any information system may apply to either printer or displayed information. During the designing the output for this system, it was taken into consideration, whetther the information to be presented in the form of query of report or to create documents etc.

Other important factors that were taken into consideration are:

- The End user, who will use the output.
- The actual usage of the planned information.
- The informatin that is necessary for presentation.
- When and how often output is needed and their format. While designing output for project based Attendance Compilation System, the following aspects of outputs designing were taken into consideration.
- The outputs (i.e., well formatted table outputs in the screen itself) designed are simple to read and interpret.

- Format of each output was another important point taken into consideration. Output media, for each output appropriate media is decided whether it will be displayed on screen or will be taken to printer or both.
- Other output design related specifications, i.e.,how frequently the outputs will be generated, how many pages or sheets approximately it

will keep, what is its planned use and output distribution to users are also taken into account.

These were a few major designing issues, which were taken into consideration, while deciding the output specifications for the system. As direct beneficiary of reports are the user community, they were consulted constantly at every level. Formats and screen design for various reports were identified, taking into account the user requirements. Before finalizing these were given to users for any improvement and suggestions. End users issues taken into consideration were readability, relevance and acceptability.

Once all the output reports to be generated by ACS system were identified, they were given to users for their acceptance. For prototyping various outputs, final outputs were created with dummy data, before they were finalized.

Output Sources:

Output contents originate from these sources:

- Retrival from a data source.
- Transmission from a process or system activity.
- Directly from an input source.

The information produced in an output can be presented as

- Tabular contents
- Graphic format
- Using Icons

Output Definition:

The output should be defined in terms of:

Types of outputs

- Content-headings, numeric, alphanumeric, etc.,
- Format-hardcopy, screen, microfilm, etc.,
- Location-local, remote, transmitted, etc.,
- Frequency-daily, weekly, hourly, etc.,
- Response-immediate with in a period, etc.,

Data items

The name given to each data item should be recorded and its characteristics described clearly in a standrd form:

- Whether alphanumeric or numeric.
- Legitimate and specific range of characteristics.
- Number of characters.
- Positions of decimal point, arithmetic design, etc.

4.4 DATABASE DESIGN

BUTTON RE-ISSUE

FIELD NAME	DATA TYPE	SIZE
Employee Name	Text	20
Old Button ID	Number	20
New Button ID	Number	20
Issue Date	Date/Time	General Date

COMPANY CONFIG:

FIELD NAME	DATA TYPE	SIZE
Mini work Hr s in Day	Number	10
Maxi work Hr s in Day	Number	10
Mini work Hr s in Week	Number	10
Repeat touch time	Number	10
Queue start interval	Number	10
STD Login time	Date/Time	Time
STD Logout time	Date/Time	Time

Elapse	Yes/No	Yes/No
Encash	Yes/No	Yes/No
Carrie forward	Yes/No	Yes/No
Allow employee photo	Yes/No	Yes/No
Allow logo print	Yes/No	Yes/No
Histroy Transfer	Yes/No	Yes/No

LEAVE APPLICATION:

Field Name	Data Type	Size
Emp Name	Text	20
Date of Application	Date/Time	General date
Leave Category	Text	15
Leave Name	Text	20
Start Date	Date/Time	General Date
End Date	Date/Time	General Date
Approved	Yes/No	Yes/No

ATTENDANCE:

Field Name	Data Type	Size
Emp ID	Number	Integer
Button ID	Text	16
Early Login	Date/Time	General Date
Latest Logout	Date/Time	General Date
No Login	Number	Integer
No Logout	Number	Integer
Login Date	Date/Time	General Date
Status	Text	1
Tot Wrk Hrs	Date/Time	Time
Date	Date/Time	General Date
Logout Date	Date/Time	-

5.0 SYSTEM IMPLEMENTATION & TESTING

5.1 SYSTEM IMPLEMENTATION

System implementation is the stage of the project when the theoretical design is tuned into a working system. If the implementation system stage is not carefully controlled and planned, it can cause chaos. Thus, it can be considered the most critical stage in achieving a successful new system and in giving the users a confidence that the system will work and be effective.

The implementation stage in a system project is its own right. It involves

- ✓ Careful planning.
- ✓ Investigation of the current system and the constraints on implementation.
- ✓ Training of staff in the newly developed system.

Documentation:

Before implementing the system two important documents should be prepared.

1. User Manual
2. System Manual

USER MANUAL

Explain action in detail, to the user about the guidelines and procedures to use various function such as

How to Login into Attendance Compilation System:

This system is for the user who works on the windows 9x system. User wants to enter into ACS system; he must type his username and password and use his ibutton id. Then only he enters into the system.

For first time, the administrator password is given to the user. He has all rights to do all activities in the system. The first time user name, IbuttonID and password is

UserName :
IbuttonID :
Password :
Retype Password :

The administrator login has rights to create new user and change other users' password etc., Users themselves can change their passwords only. For that they must knew their old password. If the users forgot their password, then they have to ask their password to administrator only. If employee missed their ibutton, that employee should inform administrator. Administrator issues another button and banned process of missed ibutton.

How to Log Off

The user can log off by pressing iButton or logout menu.

How to use Help

The user can use the context sensitive help by clicking Help menu . By clicking Help menu, it displays several links about the topics. By choosing any of the links below according to your need, the help will be shown for you.

List error messages and the appropriate action to be taken:

The error messages are given when the user enters the inappropriate values.

The details of error messges are given in the help file that what type of error occurs and when it occurs.

SYSTEM MANUAL

It explains all the aspects on design, which is useful mainly for the further maintenance of the system.

User training and Demonstration

After the successful completion of acceptance testing, the system is ready to use. In order to put the system into use, the following activities should be carried.

- Preparation of User and System documentation
- User training Kit
- Conduction user training with demonstration and hands on

General training is given to the user. The main aim of the training is to furnish the user with a working knowledge of the newly developed system. The users are trained to newly developed system. The user manuls are circulated to users.

5.2 SYSTEM TESTING

TESTING

The philosophy behind testing is to find errors. The common view of testing is that it is performed to prove that there are no errors in a program. However, it is virtually impossible to prove that no program will be free and clear of errors. Therefore, the most useful approach and practical approach is with the understanding that testing is the process of executing a program with explicit intention of finding errors that is, making the program fail.

Verification is performed by executing a program in a simulated environment. It is sometimes called Alpha Testing. Validation is the process of using the software in a live environment in order to find errors. It is called as Beta Testing.

TESTING STRATEGIES

There are two general strategies for testing software. There are follows

1. Code Testing
2. Specification Testing

Code Testing:

This examines the logic of the program. To follow this test, cases are developed such that every path of the program is tested.

Specification testing:

Specification testing examines the specifications starting what the program should do and how it should perform under various conditions.

Then test cases are developed for each conditions and combinations of conditions and to be submitted for processing.

System Testing:

System testing is the stage of implementation, which aims at ensuring that the system works accurately and efficiently before actual operation commences.

No program or system design is perfect; communication between the user and the designer is not always complete or clear, and time is usually short. The result is errors and more errors. The number and nature of errors in a design depend on several factors:

- Communication between the user and the designer.
- The programmer's ability to generate a code that reflects exactly.
- The system specification.
- The period for the design.

Why system testing?

Testing is vital to the success of the system. System testing makes a logical assumption that if all the parts of the system are correct, the goal will be successively achieved. Inadequate testing or non-testing leads to errors that may not appear month later.

This creates two problems:

The time lag between the cause and appearance of the problem.

The effect of system errors on files and records with in the system.

A small system error can conceivably explode into a much larger problem.

Effective testing early in the process translates directly into long-term cost saving a reduced number of errors.

Another reason for system testing is its utility as a user-oriented vehicle before implementation. The best program is worthless if it does not meet the user needs. The system should be tested properly to see whether it meet the user needs. The system should be tested properly to see whether it meets user requirements.

Testing is carried at the following states during development.

1. Function Level
2. Module Level

Function Level testing is carried out during individual program development to test the functionality of the entire system and the efficiency of the system, while working with large volume of data.

Individual modules were checked for system and programming errors. Whether the module is doing the intended work according to the requirement specification is also tested with help of sample data.

Module testing was carried out with under mentioned objectives:
Module interface has to be tested after compete development.

- To test whether all the features provided in the module are performing satisfactorily.
- To check if on receipt of erroneous data appropriate error message are generated.

After the completion of the above-mentioned testing, acceptance testing is carried out. Acceptance testing is running the system with live data by the actual user. Acceptance testing, issues like performance, user friendliness etc., are considered.

6.0 CONCLUSION

The development of a computerized system to be used in an organization needs careful and complete study of the policies and practice in an organization and a through understanding of the technology used, including the present system. The analysis stage must consider the major operational areas and the justifiability of a computerized information system.

The requirements determination phase must attempt sincerely to the user standing of all the related areas under consideration, such as how operations are performed, who performs them, the frequently of occurrence, the underlying problems and the possible solutions, etc.,

Therefore, this phase analyses is the supplication thoroughly and identifies goals and constraints for the system design.

Implementation, testing and evaluation are an important and crucial movement in the development of any information system. The operator should be totally satisfied with the working of the system.

All the above-mentioned steps have been thoroughly taken care and implemented in "ATTENDANCE COMPILATION SYSTEM", project undertaken for the outmost satisfaction of Mastermind Software Technology Solutions, Bangalore.

7.0 FURTHER ENHANCEMENTS

As changes always necessary, in future it applies to software development also. However, these changes should be appreciable in nature. These appreciable changes will make the software to flight for its survival in the competitive market. Hence, it is necessary to think about future enhancements at present.

This project is developed for single user environment. This may be modified or developed for a multi-user environment for that we can develop the perfect with networking features. This also includes that it can be accessed to any part of the world through Internet.

It would be easy to go through the project with the help of Internet and produce an instant result.

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APPENDIX

DEFINITION, ACRONYMS & ABBREVIATION

In this document the following terms are defined which should be read with the meaning specified, unless implied by the context.

HRMS

Human Resources Management System.

OTHRR

One Touch Human Resource Register

PRESENCE PULSE

The ibutton pulses the data line low to tell the master that it is on the line and is waiting to receive a command.

SYNCHRONIZATION

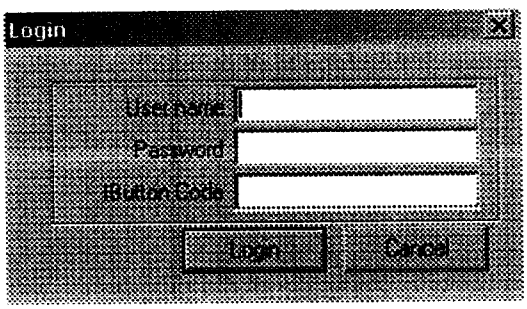
It is the process of allowing a single digital signal to be processed by the software at a time.

DEBOUNCE

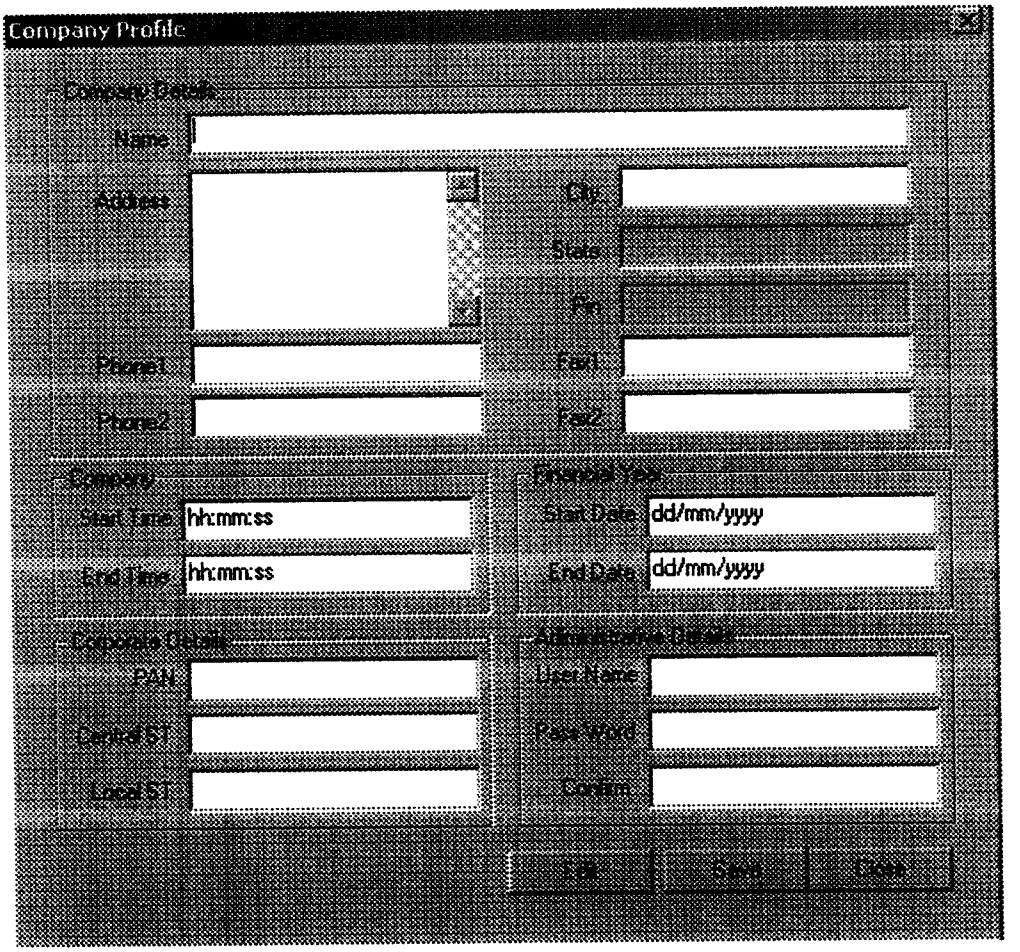
It is the process of not allowing the digital signal to be processed when two or more ibuttons are pressed at the same time.

SAMPLE SCREEN FORMATS

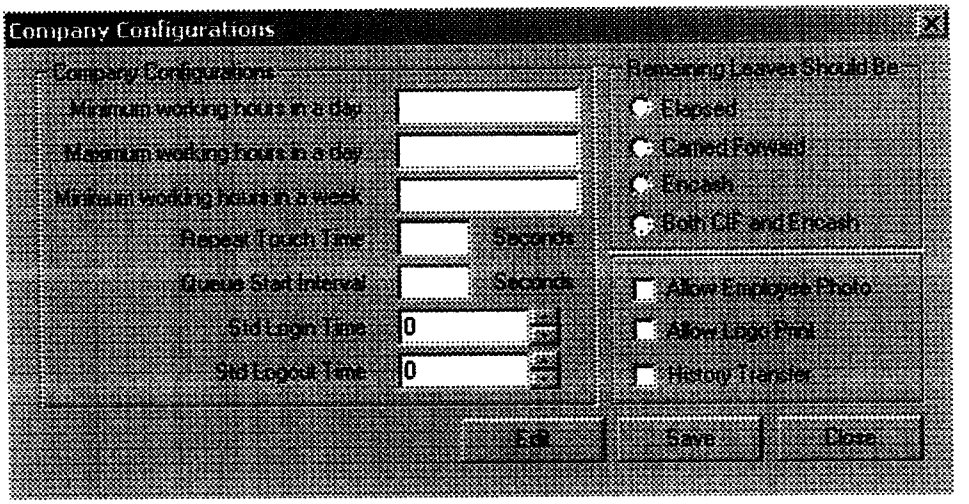
LOGIN FORM



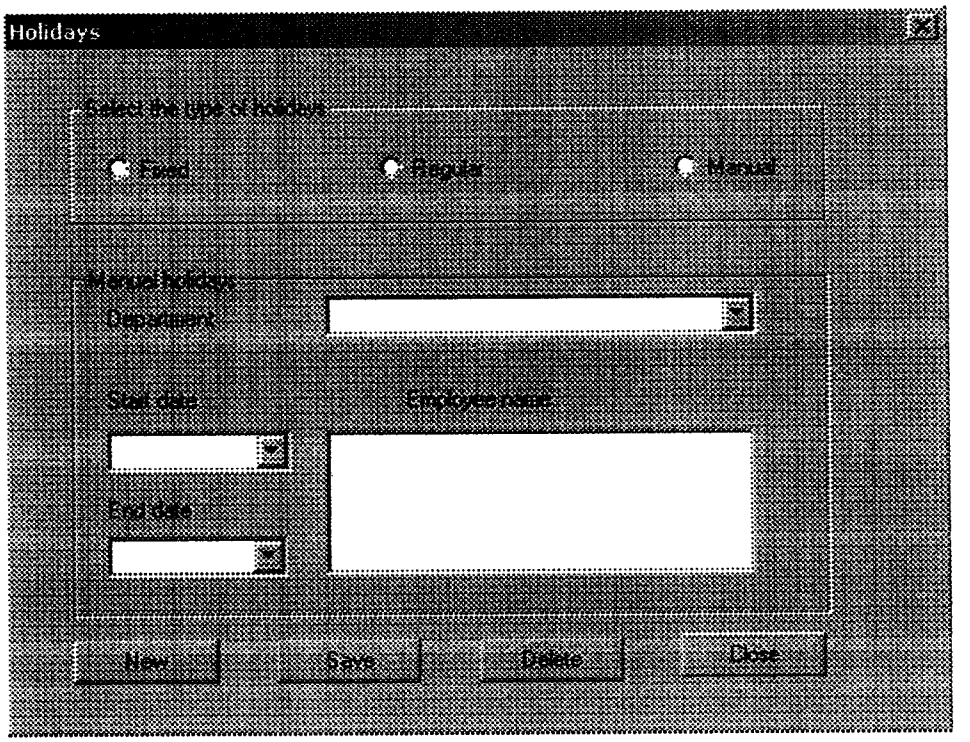
COMPANY PROFILE



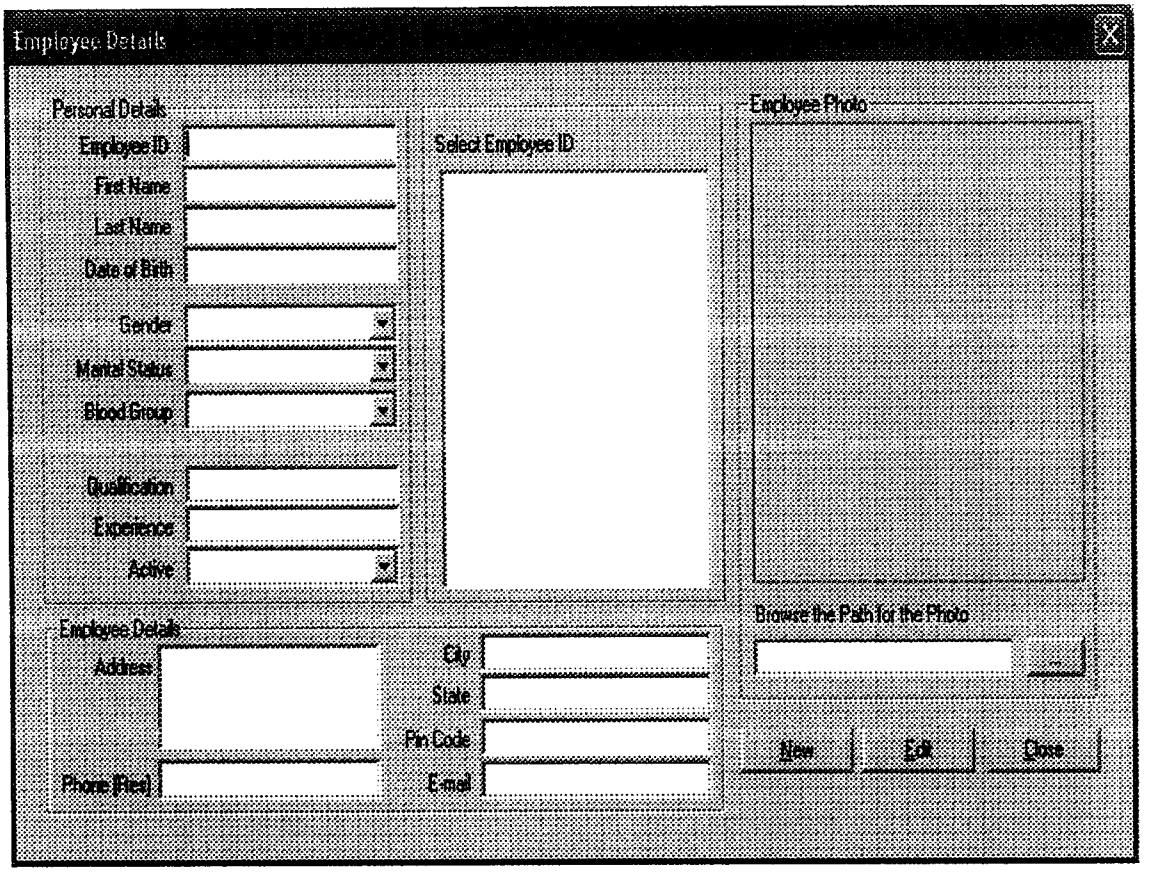
COMPANY CONFIGURATIONS



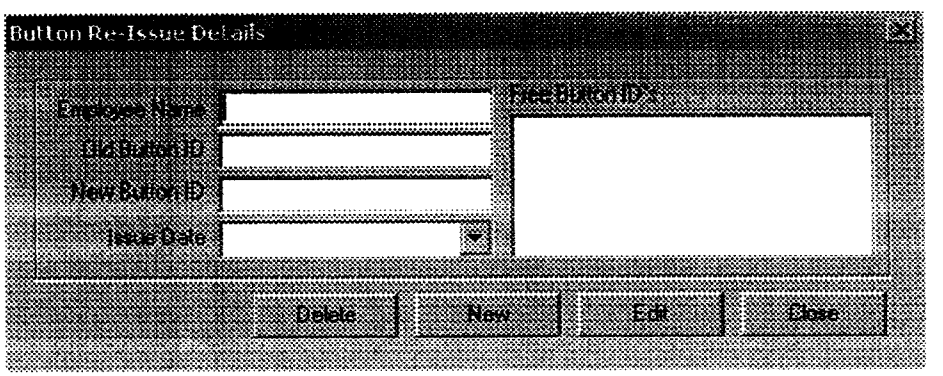
HOLIDAYS



EMPLOYEE DETAILS

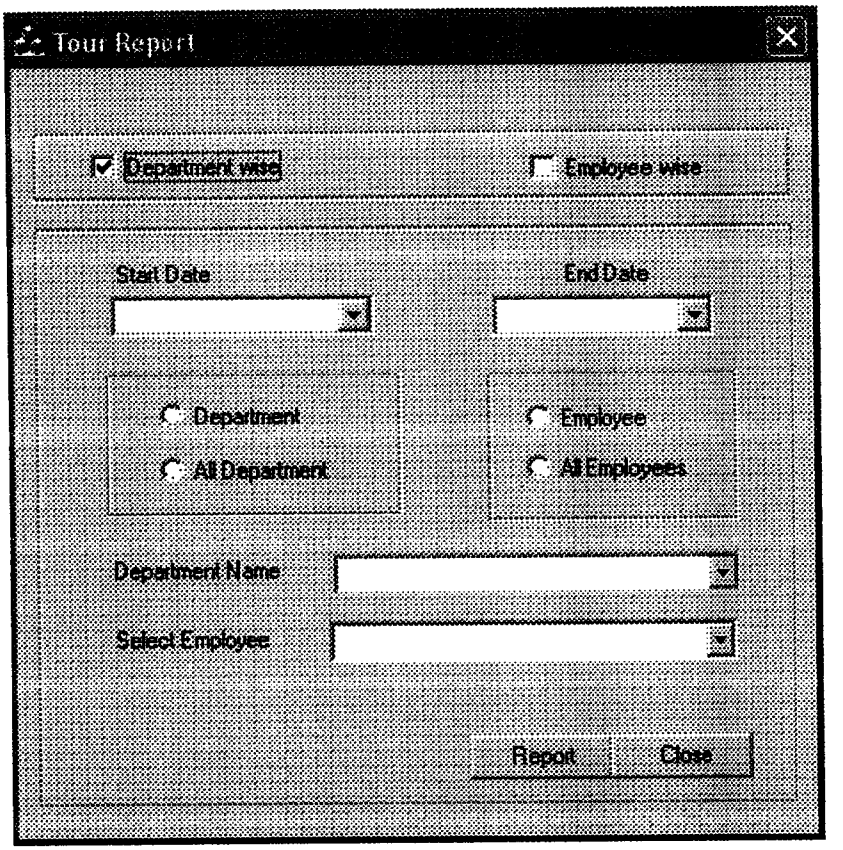


BUTTION RE-ISSUE

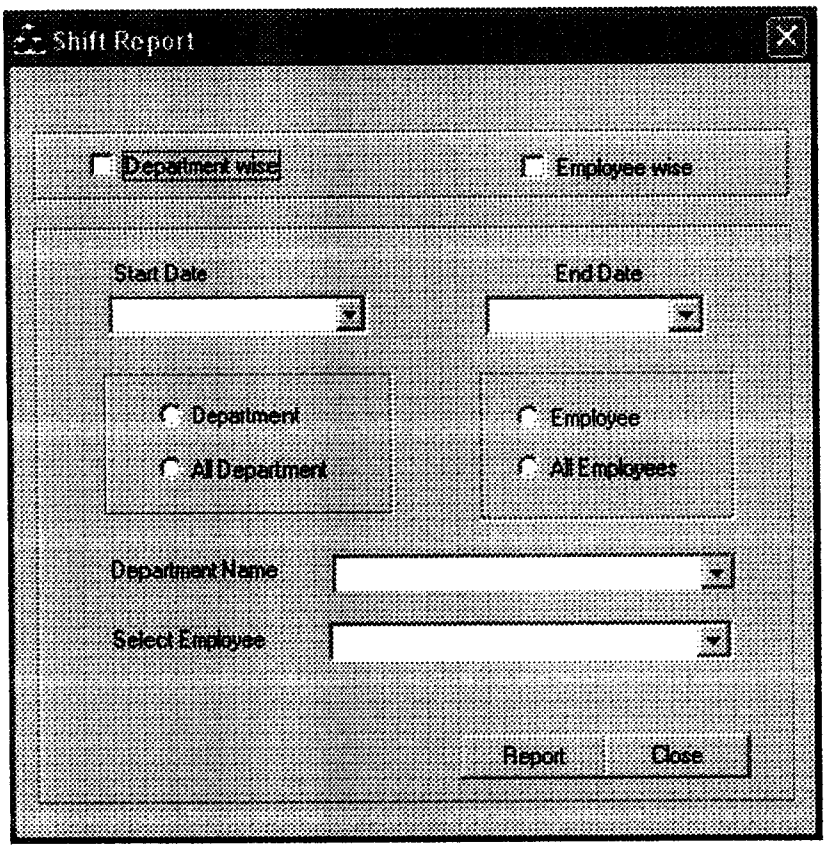


➢ REPORTS

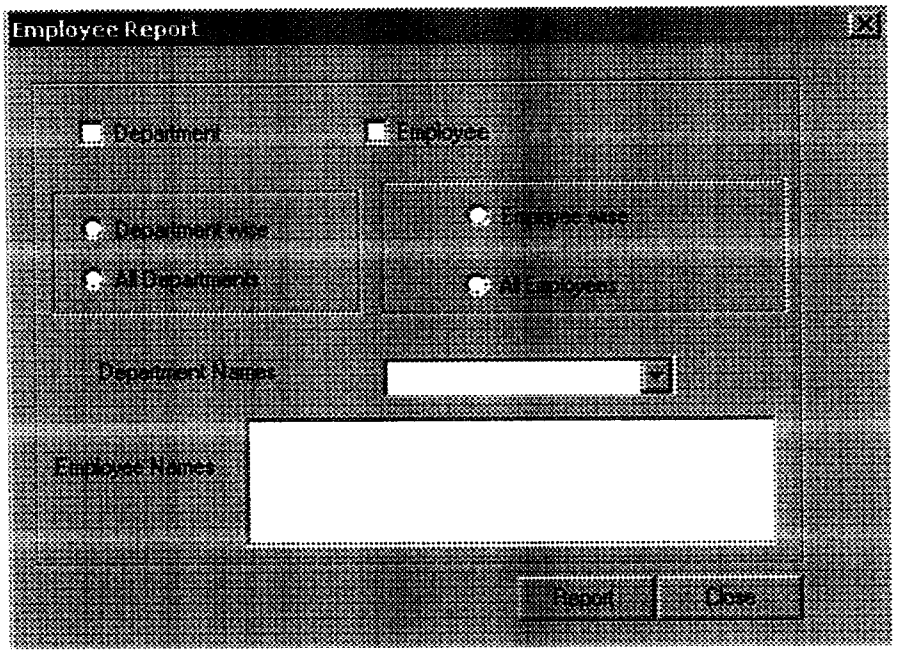
TOUR REPORT



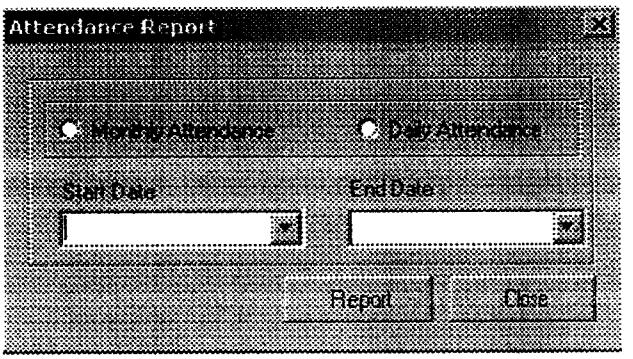
SHIFT REPORT



EMPLOYEE REPORT



ATTENDANCE REPORT



OVER TIME REPORT