# Development of a basic Group Support System (GSS) and assessing the impact of its implementation in Bangladeshi organization

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# DECLARATION

I, Arpita Urmee, University ID: - 05341001 have completed all the modules of our proposed Thesis, “Development of a basic Group Support System (GSS) and Assessing the impact of its implementation in Bangladeshi organization” for Official work, Under CSE 400 course based on the result found by me and my thesis partner.

I therefore declare that this project has been published previously neither in whole nor in part of any degree except this publication.

Signature of Supervisor

Signature of Author

# ACKNOWLEDGEMENT

Firstly, I'm grateful to almighty Allah for providing the strength and energy to start such a project and finally finish it successfully.

I thank all those individuals who have contributed, both personally and professionally, sometimes valuable and irreplaceable to my path through BRAC and to the completion of this work.

I thank my supervisor Md. Zillur Rahman, for his ideas, suggestions, comments, profound professional insight, and the time he shared with me. Without his support, co-operation and resources it would be a day dream to complete my research in this due time. I very much appreciate the participation of the other member of my thesis.

My thanks to the staff and faculty of the department of Computer Science and Engineering at BRAC University who were extremely accessible and never felt short of help, advice, or an answer.

I would also like to thank all my friends, who helped me so much in simply believing in my capability to achieve this degree.

Last, but no means least, thanks to my family for supporting me in all my pursuits. The awareness that their love and thoughts were with me from beginning to end helped immensely in the completion of this thesis.

# Abstract

A significant technological change for many organizations over the next several years will be the advent of computing and communication networks. Local and wide-area networks will affect communication both within and outside any given locale. The ability to communicate is needed to perform services, share knowledge and skills in an increasingly complex business environment, and to increase consensus on controversial decisions. Recent management science research on the effect of computer networks on group communication has shown that the use of the technology opens up opportunities to improve interactions among individuals working together by using Group Support System (GSS). One of the most heralded features of GSS is its ability to democratize group processes. But in Bangladesh the communication system between the offices personnel is not very strong. In our survey we have found some lacking like low organizational efficiency, lack of proper reporting in work place, lack of proper monitoring etc. are very common in Bangladeshi organizations. After survey we designed and developed a basic GSS to bridge the gap between the ideal situation and the current situation. We implemented this system in several Bangladeshi organizations and tried to evaluate the impact of its implementation. The implications of these findings for research on GSS use are examined, and directions for future research are offered.

Task management is a new technology for office work environment. This system offers the facilities for efficient and better working atmosphere. Our goal is to develop a system, which would be able to convert the manual method of an office management system into a

computerized system. It will contain all the necessary information of office personnel maintaining the hierarchy of the office and also upgrade the daily activities. It will be a network based system. The interface is same for all users but the working environment is different. Each user will have individual password so that no one can invade anyone's personal space. The system will also provide a better time management. By the help of this system the user will also be able to keep track of their documents and manage them efficiently. This system will provide a great opportunity for office management system.

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# CHAPTER 1

# INTRODUCTION

A Group Support System (GSS) is a set of techniques, software and technology designed to focus and enhance the communication, deliberations and decision making of groups. The thousands of GSS experimental studies and field studies that have been conducted in the past two decades demonstrate that GSS is successful in improving the efficiency, reliability and quality of the group decision-making process in meetings. This paper aims to explore the application of GSS to support Value Management (VM) so as to improve the implementation of VM in Bangladesh's industry. This paper introduces a conceptual GSS framework to illustrate how the discussion, information, collaboration, and decision analysis support of this framework can be applied to overcome the problems in GSS studies, and what their benefits are.

## 1.1 What GSS is

Over the last decade, members of teams in organizations have had an increasing number and variety of information technology (IT) tools to support their work. One such category of IT tools is computer-based group support systems (GSS), also referred to as groupware and electronic meeting systems.

These systems enable teams of knowledge workers to collaborate and make decisions regardless of time and distance boundaries. There has been much ongoing research on the subject of GSS and the conditions under which these systems result in superior outcomes relative to traditional face-to-face group work.

While a substantial number of studies have investigated the efficacy of GSS for idea-generation brainstorming tasks, relatively few studies

have explored the utility of such systems for tasks involving conflict resolution. The widespread availability and decreasing costs of information and communication technologies have led to the development of Group support systems. Computer-mediated teams used a web-based systems designed for the types of tasks employed in the experiment. The results reveal that the outcomes are similar to those of conversation performed face-to-face in the context of the task used in this study. Results also reveal that the computer-mediated teams significantly outperformed face-to-face teams in the idea-generation task.

## 1.2 Benefit of GSS

Computer-mediated communication offers a number of advantages relative to face-to-face communication in the context of group decision-making. The primary advantages are parallel communication, the potential for anonymous input, and the group memory feature of group support systems (GSS). A large number of studies have found electronic brainstorming using a GSS to be more effective than face-to-face brainstorming.

Whether GSS-mediated communication is more effective than face-to-face communication for tasks other than idea generation is an open question and is the subject of the current study.

Moving beyond the use of computer-mediated communication for brainstorming, there is a growing body of literature on decision making. The implication is that GSS-mediated communication may be very effective when used by groups to perform tasks which do not

require information rich communications, including planning tasks, creativity tasks involving generating ideas, and intellective tasks involving solving problems with correct answers. However, for tasks requiring richer communication of interest or performing a task, face-to-face communication should be more effective. Electronic group support systems for university learning are best understood in the “big picture” of the rapidly emerging global distributed multimedia technology. The current process of diffusion of the GSS technology developed for business considering the quite different roles of collaborative work in the two environments.

## 1.4 Current practices in Bangladesh and the drawbacks

In general every office has a management system, which ensures the smooth operation of the official work. Ordinarily this system is practiced manually. Though every organization applies GSS, still the process is not practiced efficiently. Due to manual method of office work, the practice of GSS fails to serve the organization of Bangladesh properly.

The current practice of office work in Bangladesh is done by hand most of the time. Nowadays the use of computer has increased but still the basic function of an office is still maintained manually. Normally all the information is kept using pen and paper. As an example, the record of employee attendance is kept using log book where each member of staff writes down their arrival time. But using this system there are probability of mistake and wrong handling. This process is also very much time consuming. Again most of the time all the documents of an office are recorded on paper, which is risky as the papers can get lost

or mishandled. This procedure requires lots of space to store the files and if a past record is needed, searching becomes a lengthy process. Usually in a manually handled management system, daily task is not stored properly. In general it is difficult to keep track of the entire task done in a day as they are written down on paper. There's risk involve in this process, as all the information’s are stored on paper there is chance of incorrect data entry or misplacement of data. This type of situation can occur as most of the time the information of the work done during the day is not recorded in regular basis. Again as the process of data entry is done using pen and paper, it take up lots of space and makes search process difficult and also consume a large amount of time. In a manual system the interaction between the employer and the employee is not easy. Suppose a task is assigned to an employee and the employer wants to check the progress of that task personally then he/she will have to call the employee and would have to set a meeting with him/her. This will waste a good amount of time of both the employer and the employee. Clear and transparent communication lacks in this system. If the employee wants to reach the authority directly then it is difficult for him. Generally all the office arranges meetings monthly of fortnightly to evaluate the performance of the office personnel. For this all the record of the official documents are needed. As the documents are kept using pen and paper there are chances of misplacement or mishandling of information. Again to assemble all the past record all the staff has to engage themselves in colleting files and papers which is very much time consuming. All this makes evaluation of employee work performance a tough and difficult task.

So we can see that the common approach of GSS of an office gives us a satisfactory result but not an excellent one. Our goal is to develop a system that will help the management to progress toward excellence.

To accomplish our goal we needed to understand how the management of an office works and how GSS is being practiced. What are there priorities and which sector they think that they should improve to ensure a well structured and organized office. For this purpose we conducted a survey in several offices. From the survey we got the idea of an ideal situation of an office.

### 1.4.1 Survey 1

Considering the present situation of your office, please respond to the questions below by putting a tick mark on Y/N box where Y means YES and N means NO. If you have any comments please write them inside the comment box.

| ***Statement*** | ***Y*** | ***N*** | ***Comment*** |
|---|---|---|---|
| 1. Do you feel that the current system for checking the attendance of the employees of your office is efficient enough? | | | |
| 2. Is the existing communication process between the employer and the employee adequate? | | | |
| 3. In your opinion do you feel the employees can reach the top management easily and regularly using the existing system? | | | |

| ***Statement*** | ***Y*** | ***N*** | ***Comment*** |
|---|---|---|---|
| 4. Do you think the current way of preserving records of the office documents is appropriate and safe? | | | |
| 5. Is there a chance of loosing documents using the current system? | | | |
| 6. Can the top management evaluate the status of the performance of their employee properly using the existing system? | | | |
| 7. Do you feel that the current system is providing you a proper time management? | | | |
| 8. Are you using manual technique for your office? | | | |
| 9. Do you feel a computerized system would serve you better? | | | |

### 1.4.2 Ideal situation

Working environment of maximum offices is not ideal, the reason behind this is those offices do not have proper facilities to evaluate work performance and lack of proper GSS. To conduct background research we have talked to some offices owners to know their views about proper office environment. Based on the survey result we were able to comprehend the ideal situation of an office that would

encourage the staff member of an office to improve their lacking and increase the efficiency of their performance. Those are:

1. Attendance, late entry, overtime is considered as important factors for paying salary.

2. Clear and transparent communication between employees from top level to low level should be maintained. Like if any top level employee assigns any task to low level employee and if that employee does not understand the task, s/he should ask question.

3. Documentation of office works should maintain in the database because it is easy to retrieve and upgrade the data.

4. Top management should easily monitor the lower level employees work process.

5. For government offices it would be helpful if all the files are maintained in computer database because in government offices file collection is huge and it is difficult to remember the collection time and submission time of the files.

6. If the system is automated then the time overhead of transferring files would be reduced by a great deal like there would not be any transferring time manually.

7. If the system is automated then the time overhead for assignment tasks to lower level employees would be reduced.

## 1.5 Proposed method

From the background research we got the picture of the current practices of GSS in Bangladeshi organizations and also understood what is needed to improve the current situation. Basically in our country the actual concept of GSS is not that clear. So we focused on a part of basic GSS to develop our software. With this understanding we conducted another survey where we proposed some situation and asked the participants to give their opinion.

### 1.5.1 Survey 2

Suppose your office management system is getting converted to an automated set-up and the following options are offered to you, please respond to the questions below by putting a tick mark on Y/N box where Y means YES and N means No. If you have any comments please write them inside the comment box.

| ***Statement*** | ***Y*** | ***N*** | ***Comment*** |
|---|---|---|---|
| 1. Would you prefer to keep the record of the attendance status of the employees of your office regularly and in a computerized system? | | | |
| 2. Would you prefer a system that will give you the opportunity to directly check the employee status and evaluate them according to their work performance? | | | |

| ***Statement*** | ***Y*** | ***N*** | ***Comment*** |
|---|---|---|---|
| 3. Do you think the process of storing the office document in a computerized database system is a better option? | | | |
| 4. If the documents are stored in a computer, do you feel it will be safe and chances of loosing valuable data will decrease? | | | |
| 5. Do you think it will be easier to acquire data using computer system?<br>6. If a system offers you the facility to get in touch with each employee instantly would you prefer it?<br>7. Do you think in case of time management a computerized system is better than manual system? | | | |

The above survey was based on the options that we included in our software. Maximum number of participants of the survey agreed with the new situation. This encouraged us to move forward with the development of the software.

**The design of the software:**

The proposed system is a basic GSS system. This system offers the communication bridge between all the office personnel. The monitoring facility provided in the system helps to increase efficiency of office work. As the system is a computerized system all the records are

saved in database, which prevent data loss. Information's are stored in computers so the time management increases and lacking of proper time management can be avoided.

The software is developed based on the hierarchy system of an organization. There is top level, mid level and bottom level hierarchy. Basically all the interfaces are almost same for all level of hierarchy. There are some extra features included depending on the hierarchy. The database updating process, staff directory, search options are same. But the notice section is different. In the notice section the top level can only compose and sent notices, mid level receives, compose and sent notices and the bottom level has the option to only receive notices.

# CHAPTER 2

# METHODOLOGY

## 2.1 Methodology

We started with initiating a team that would work together and then we decided on what we should work. Then we have to follow the SDLC process for system development.

### 2.1.1 Phase 1: Project Identification and Selection:

- Learn how the system should works.
- Review the system for solving prevailing drawbacks.
- Determine the requirements for the proposed system.
- Structure the system requirements using Context diagram, DFD's of different level.
- Build Conceptual Data modeling; build E-R Diagram (Entity Relationship Diagram).

### 2.1.2 Phase 2: Project Initiation and Planning:

#### 2.1.2.1 Project Initiation:

- Build up the project initiation team
- Developing a plan to get the project started

#### 2.1.2.2 Project Planning

- Defining clear, discrete activities and the work needed to complete each activity
- Make Baseline Project Plan (BPP)
  - ✓ Scope
  - ✓ Benefits
  - ✓ Costs
  - ✓ Risks
  - ✓ Resources

- Outlines work needed to be performed
- High-level description of system
- Lists all work to be performed

#### 2.1.2.3 Assessing Project Achievability

- Operational:

By implementing the software in an organization we can test the operational aspect of the proposed system. After the user uses the new system, a comparison between the old system and the new system can be done. From the comparison we will be able to determine if the proposed system is effective or not.

- Technical:

The needed technical support for the proposed system is computer. The organization must own computers and the computers must be connected with each other using LAN (Local Area Network).

### 2.1.3 Phase 3: Analysis:

Gather information on what system should do from many sources. Information collected from users, Existing documents and files, Computer-based information, Understanding of organizational components, Business objective, Information needs, Rules of data processing, Key events, Gather facts, opinions and speculations, Be neutral, listen and Seek a diverse view, Problems with existing system, Opportunity to meet new need, Reasons for current system design, Prototyping, build rudimentary version of system is built, Quickly

converts requirements to working version of system. Once the user sees requirements converted to system will ask for modifications or will generate additional requests.

### 2.1.4 Phase 4: System Design:

Design the logical database. Need to consider all inputs, outputs and every data element on the E-R Diagram. Finalize the prototyping that meet all the requirements. Based on that prototype design the physical database, use the relational database model. Design the forms and reports. Finalize the Interfaces, Dialogues and design specification.

### 2.1.5 Phase 5: Implementation:

Code the system according to the design specification. Test the system and after the successful testing install the system. Prepare the Documentation for the System.

## 2.2 Block diagram of the overall system

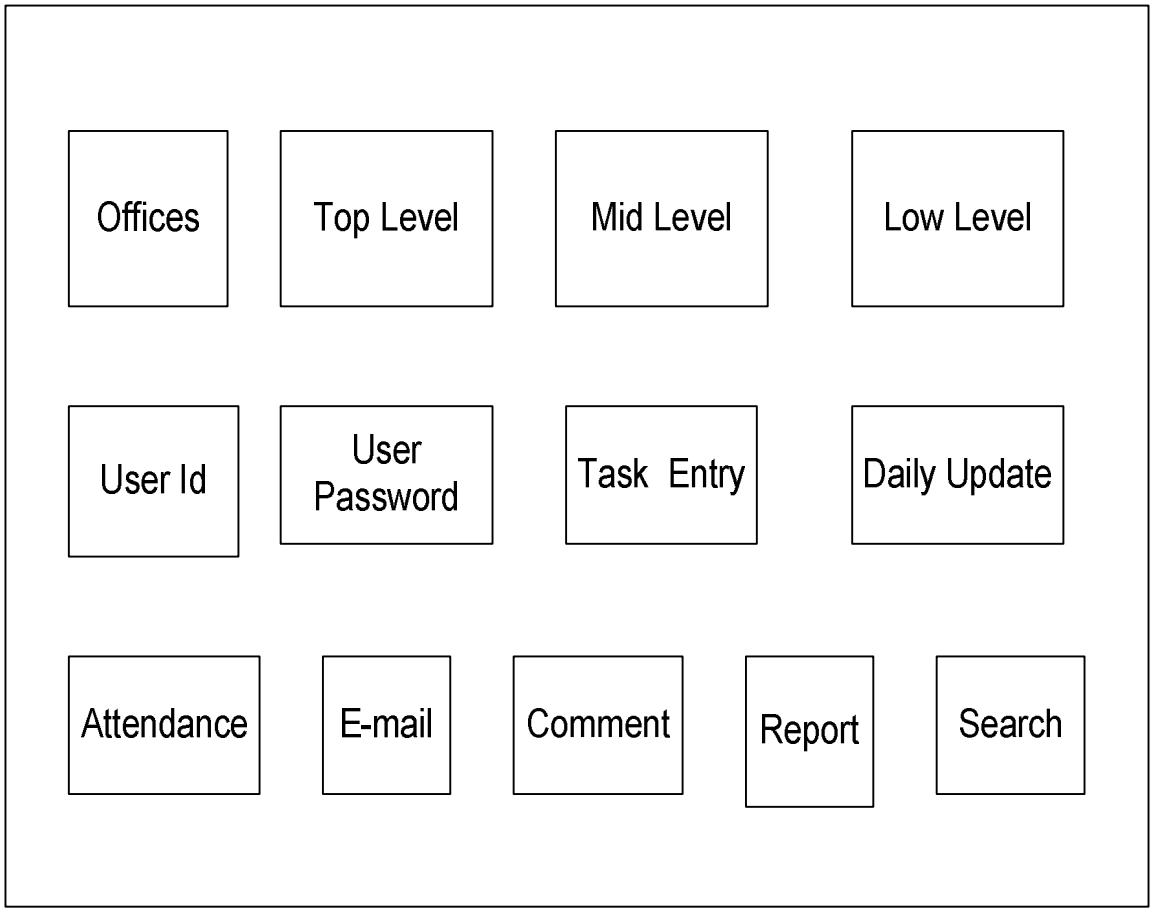


Fig: **Block diagram of overall system**

This block diagram contains the main attribute of our software. This software has three hierarchies. Each person has their own user id and password for log in. A person has to enter their daily official task and update their task. They can also prepare their weekly or monthly or yearly report. If they want they can easily find out their old document by back tracking. This software also gives the facilities of e-mail and comments option.

# CHAPTER 3

# SYSTEM DEVELOPMENT

One of the important parts is to build the system so that it would be user friendly and handy. The system that will send and receive the notices, check it whether the format is correct or not, preparing the data that will send to each other.

## Building the system:

For making the system handy, we choose the format like: the users only have to send the notice and the server will distribute the notice to the mid level and level users. Recursively after solving the task the mid level and low level users send the results to the top level users.

But before doing all those things the system should have to make sure that the users should get their individual interface, that's why we have develop the system that will provide for each user: individual interface, using user name and password module.
Our developed system's notice module will not only send and receive the notices but also the resource of the task management and update the result.

## 3.1 Context Diagram

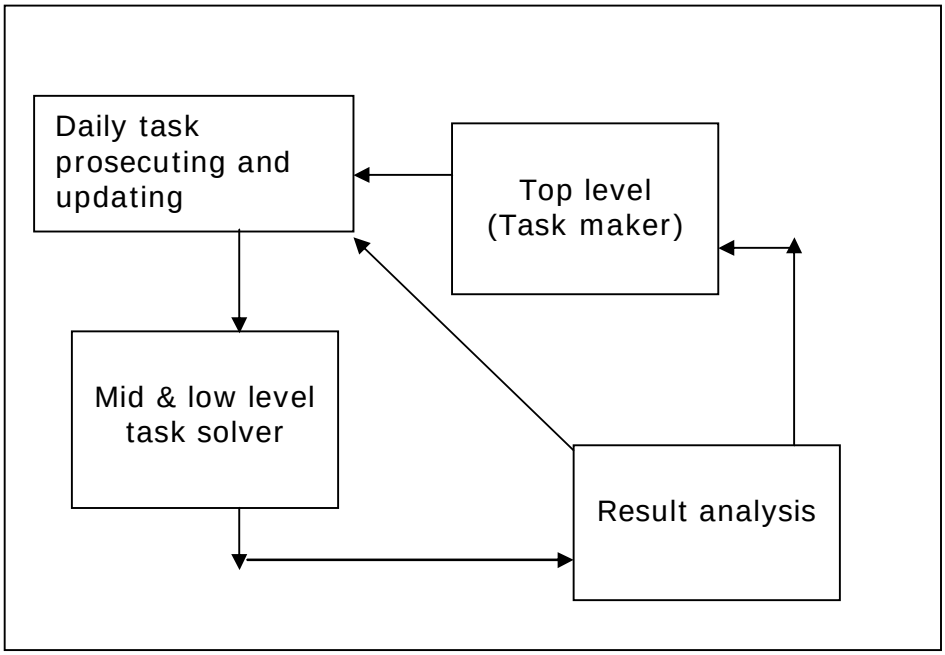


Fig: **Context Diagram**

Here the context diagram has four modules, daily task prosecuting and updating module and result analysis module are the system process that is those work will with in the system and the top level and mid low level module will work on the system.

## 3.2 DFD (The data flow diagram)

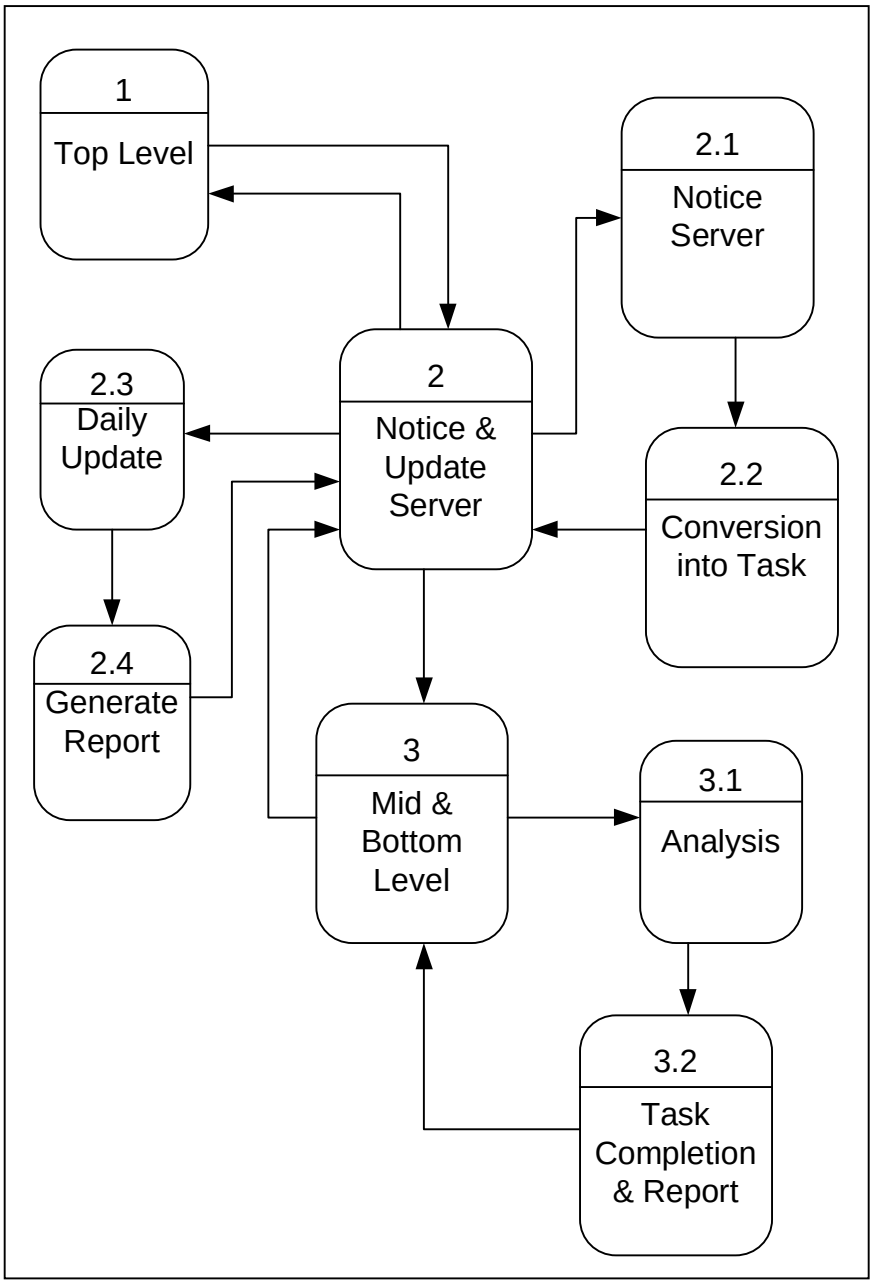


Fig: **The data flow diagram**

### 3.2.1. The Zero level DF diagram decomposition

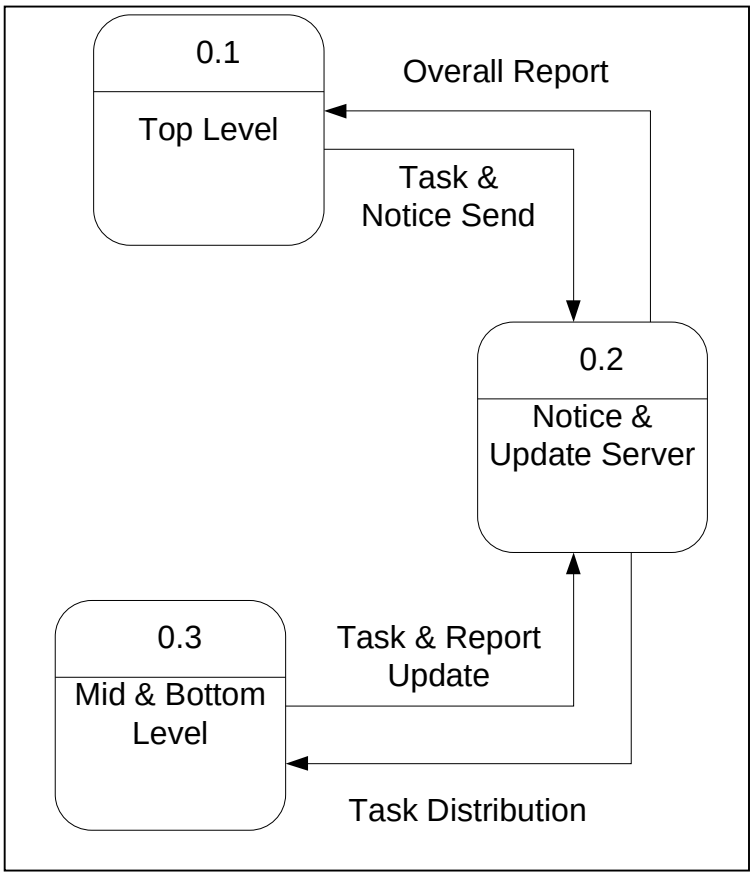


Fig: **The zero level diagrams**

### 3.2.2. The level One DF diagrams decomposition:

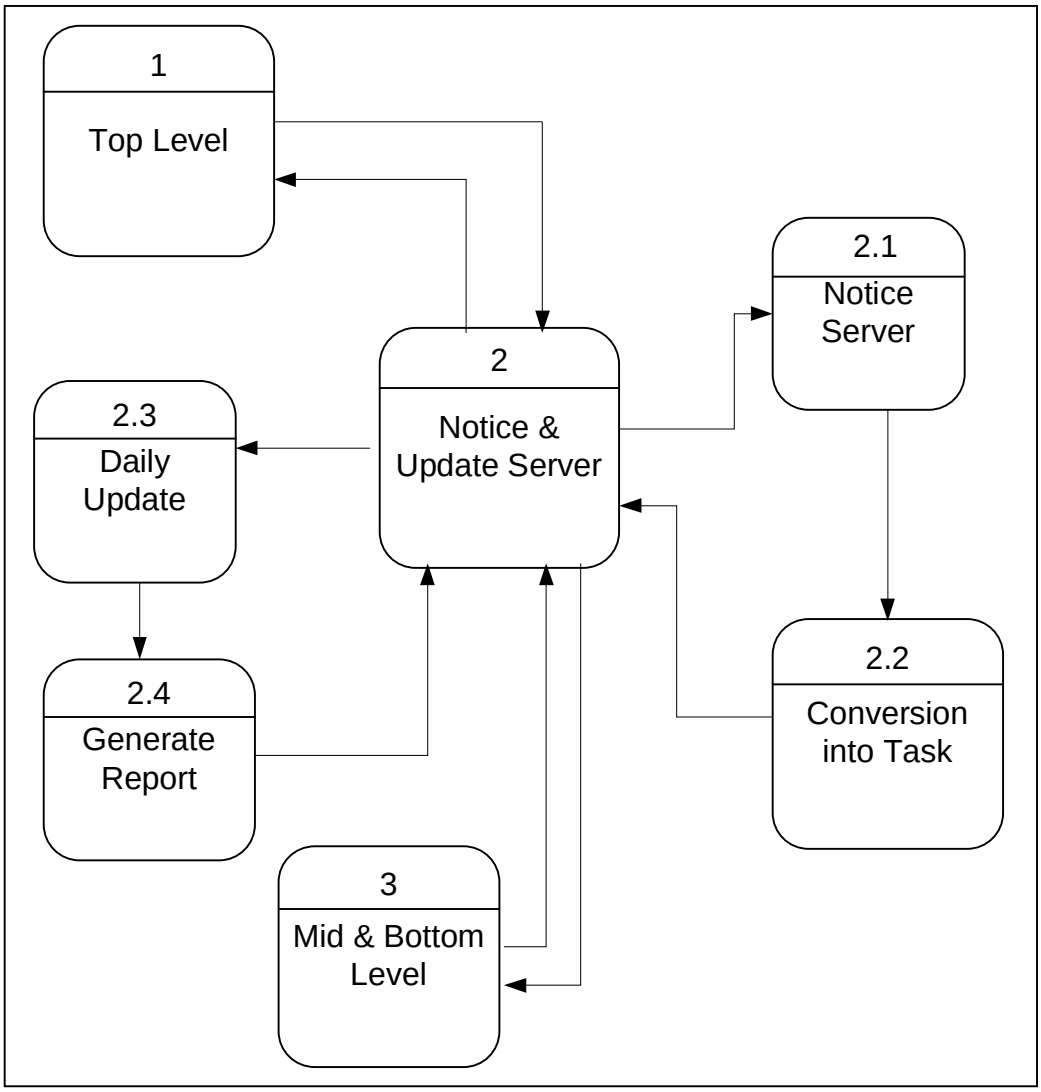


Fig: **level 1 decomposition**

## 3.3 Entity Relationship Diagram:

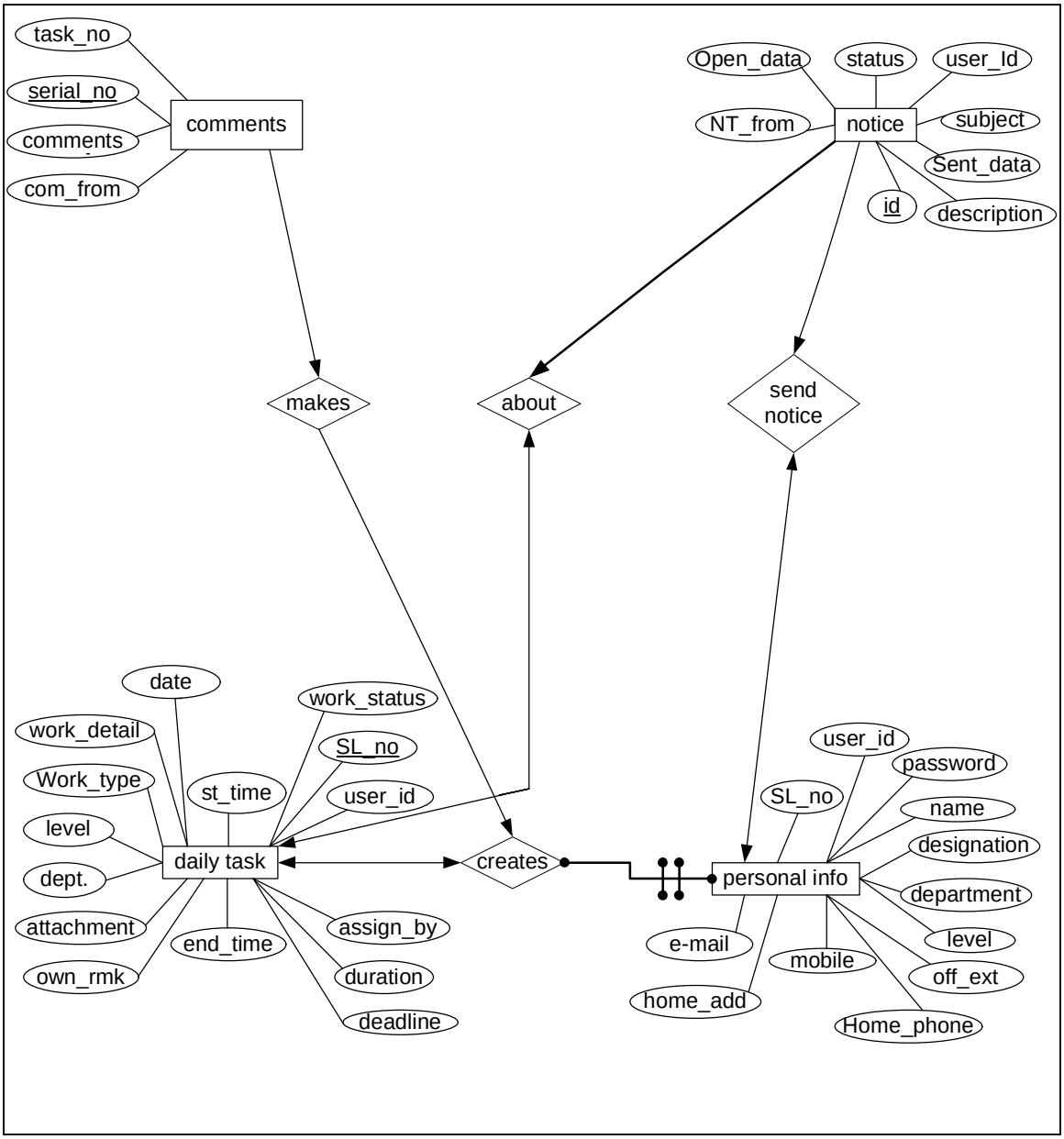


Fig: **Entity relationship diagram**

## 3.4 Description of the Software:

### 3.4.1 System Environment:

The software is database oriented software. To develop the software we used Wamp5 which includes MySql (version: 4.1.10a-nt - extension: mysqli), PHP (version: 5.0.4) and Apache (version: Apache/1.3.33 (Win32)). Currently the software is LAN (Local Area Network) based. For that the organization need to have all the computers connected with each other using networking. There has to be a sever computer which will hold the main database and several client computers. The server computer is not accessible without the permission of the top level management. All the office personnel will use client computers to utilize the software. The information saved by the user will be stored in the main server.

Here the users have their own separate interfaces. They have their personal user id and password.

By applying separate user id and password system the security of office work is provided. People, outside the office can not access the office documents. Even staff of the office can not access each others interface as there exists password system.

The software is built in a manner where the time and date changes regularly and automatically. No one can enter yesterday's task information today. They have to update their work status regularly, which encourage staff to finish their task on time.

All the information of the task is updated and saved regularly, so when it is time for report generation it becomes easier to track down the required information.

### 3.4.2 Initial interface:

Fig: **Login interface**

From this interface the user will login using their respective User ID and Password. From this interface the user can also go to the Password Change and Office Staff's Directory interface by simply clicking on the respective button shown at the bottom of the Login interface.

Fig: **Password change**

In this interface the user can change their existing password and assign a new one.

Fig: **Password Change**

For that first the user has to enter their user id, and then enter their old password and al last enters the new password. After that the user has to click on the Change button.

Fig: **Password Change**

After changing the password the login interface will appear and remind the user that the password has been changed.

This is Our Staff's Official Information

| S.No | Name | Designation | Department | Phone Ext. | Email |
|---|---|---|---|---|---|
| 1 | Saleh Z Rahman | MD | IT | 107 | zrahman76@softalkonline.com |
| 2 | Abu Naser MD.Sharif | AGM | Administration | 109 | naser@softalkonline.com |
| 3 | Abu Naser Md.Sharif | AGM | Marketing | 109 | naser@softalkonline.com |
| 4 | MD.Shahriar Shipon | Progect Manager | IT | 115 | shipon@softalkonline.com |
| 5 | N.A.M Aurangzeb | Manager | Accounts | 103 | namaur@gmail.com |
| 6 | Md.Khaled Bin Farid | Acc. Executive | Accounts | 116 | khaled-farid05@yahoo.com |
| 7 | Kamrul Rashid | Grapics Designer | IT | 115 | rubel_rashid@yahoo.com |
| 8 | Md.Ziaul Haq | Web Developer | IT | 114 | zia@softalkonline.com |
| 9 | Md. Nur Alam | Web Developer | IT | 115 | |
| 10 | Md. Shah Alam | Executive | IT | 114 | shehan@gtlbd.com |
| 11 | Md.Rahatul Islam | Sr.Executive (Corporate | Marketing | 111 | polu_rpt@softalkonline.com |

Fig: **Office Staff's Directory**

This interface shows thee preliminary information of all the office personnel in hierarchical order. The entire user can access this interface from the main interface or from their respective interfaces.

The basic interface of the software is same for all users. However, the software is developed keeping in mind the hierarchal order of existing official system. Therefore the software has similar interface for all users with some separate approach.

### 3.4.3 Top level hierarchy:

The top level user can observe and state their opinion on the daily task of the mid level and low level user. Also can assign new task and view the detail information of the office personnel. This way top level management can evaluate the office performance.

Fig: **User Menu**

This interface appears after the user logs in. From this interface the other features of the software becomes accessible.

### 3.4.3.1 Input and View Your daily task

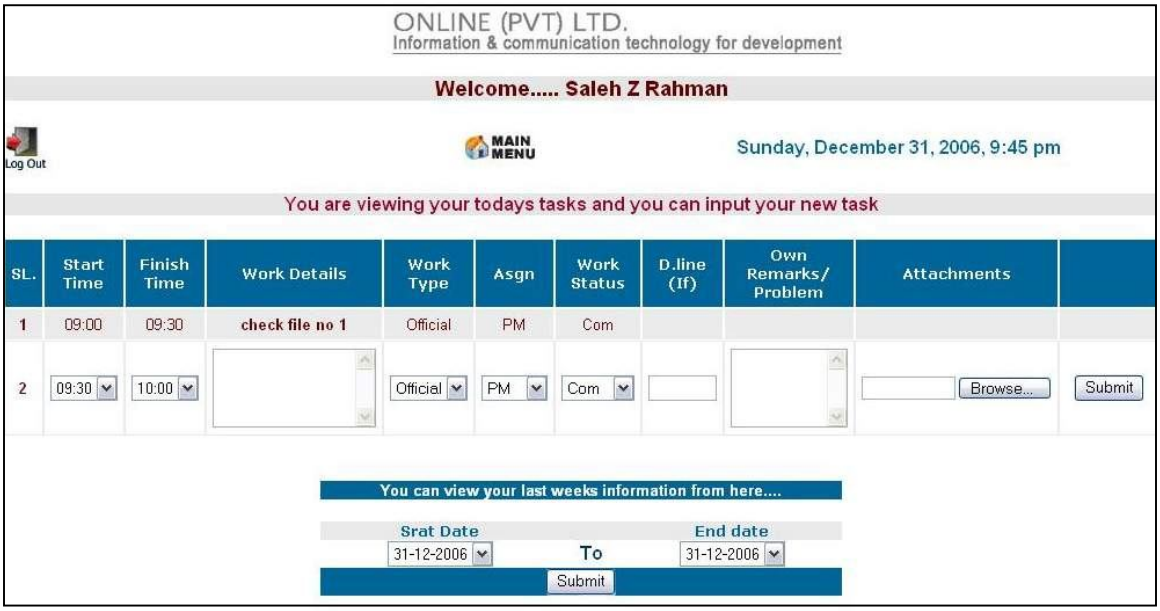


Fig: **Input your Daily Task**

In this interface the user enters the task he/she has done in a day. There is a start time and finish time which records the starting and finishing time of a task. In the work detail box the information of the task is written down. There is a dropdown menu containing type of the task. In the drop down menu the options are Official, Personal and Others. Similarly there are two more dropdown menus with options. If the task has a deadline the time is mentioned in the D.line box. If there is any problem encountered or remarks needed it is entered in the Own Remarks/ Problem box. If any attachments required then the user can attaché using the Browse button which will get the desired file from the computer and at the end by clicking the submit button all the process is saved the database.

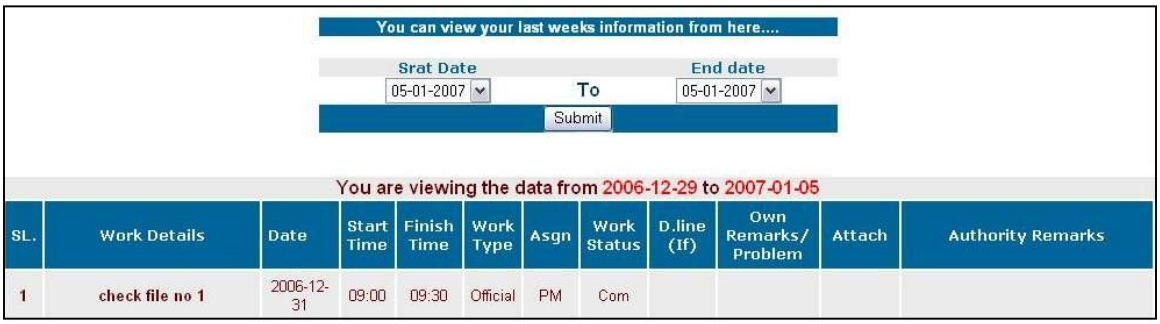


Fig: **View your Daily Task**

If the past entry has to be accessed then by selecting the start and end date the user can view his/her past records. After the user selected the date the entry of that date will appear.

### 3.4.3.2 Search User by Department

Fig: **Search User**

This interface allows user to observe the performance of the office personnel. The user can see the records of all departments at once or select respective department. The user has to select the date also.

Fig: **Search User by Department**

By clicking on the dropdown menu the user can select the department. After selecting the department the user has to select the starting and ending date. Then the user clicks the Search button.

Fig: **Search User by Staff**

After selecting the department a new dropdown menu appears which contains the mane of the staff members of that department. The user

has option to search the department in total or select particular staff member.

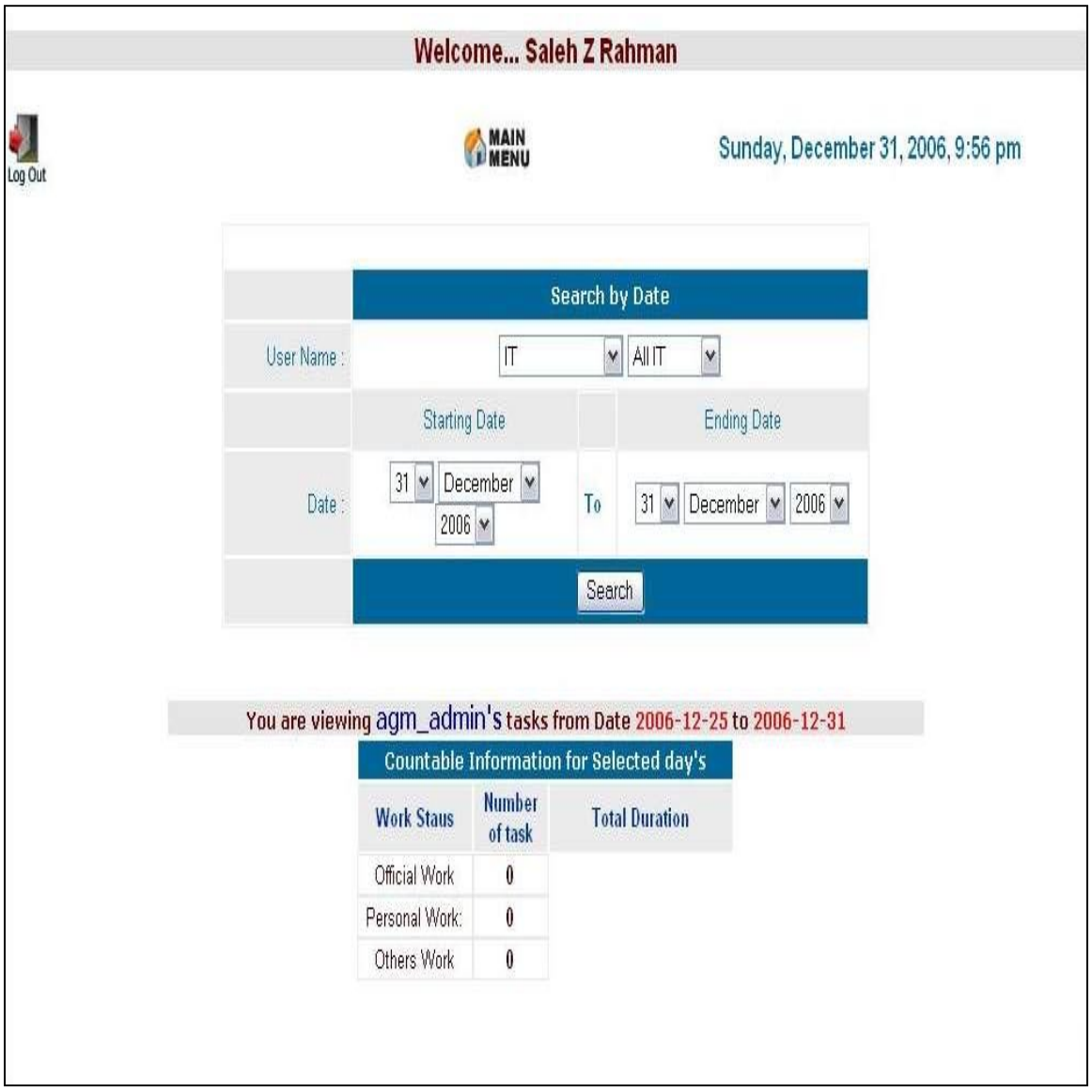


Fig: **View of the work status**

This interface shows the works status of the selected department/staff member of the office.

### 3.4.3.3 Notice

Fig: **Notice**

Here the user can sent notice to the other office personnel. As this is the top level hierarchy, the user only can sent notices. By clicking on the Compose button the user enters the interface where writes the notice.

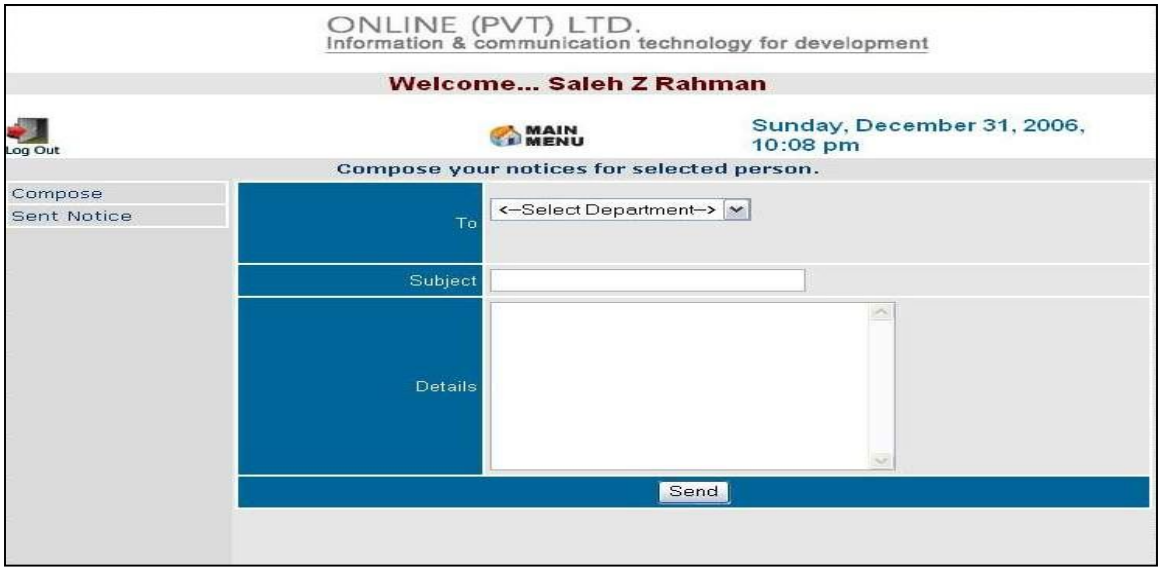


Fig: **Compose 1**

This is the interface where the user composes the notice and sent it to the other personnel of the office.

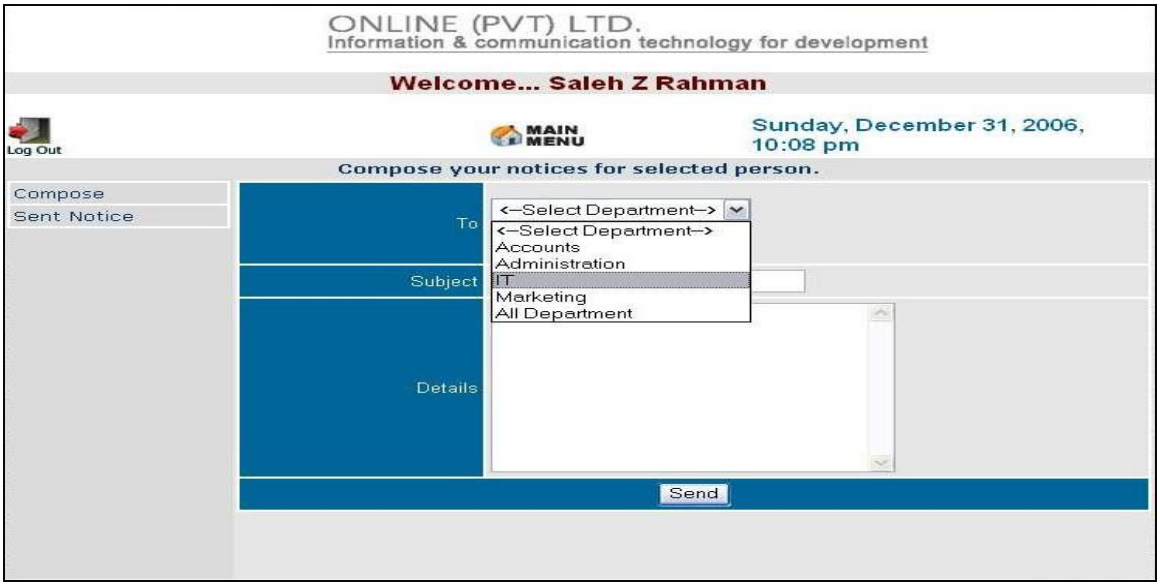


Fig: **Compose – selecting department**

By using the dropdown menu the user can select a particular department or all departments to sent notice.

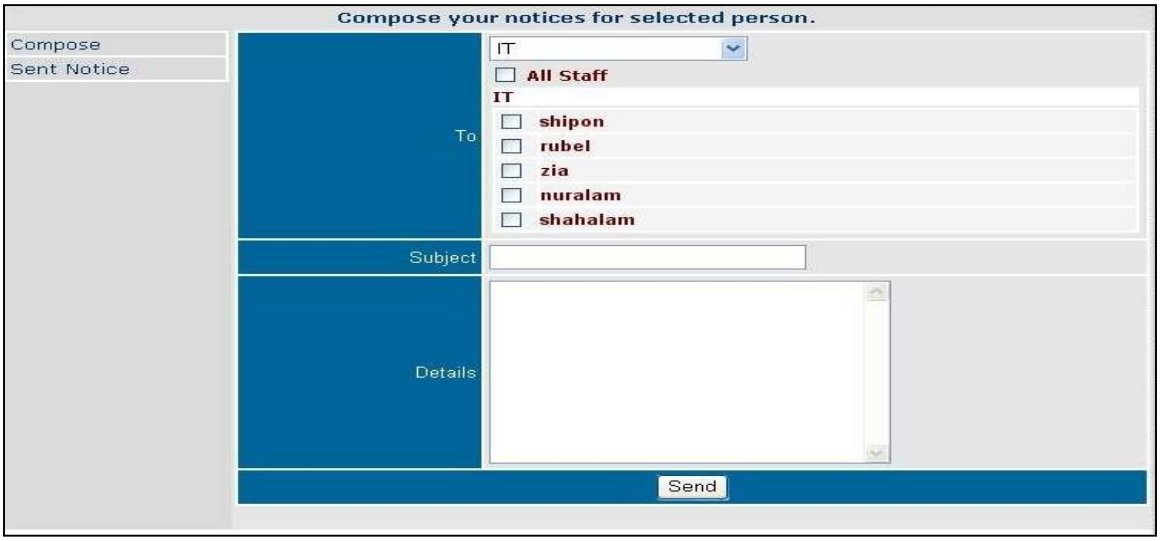


Fig: **Compose – Selecting staff/Department**

After the user selects a department he/she can either send the notice to all the staff of that department by clicking the All Staff option or send notice to a particular staff by clicking their name.

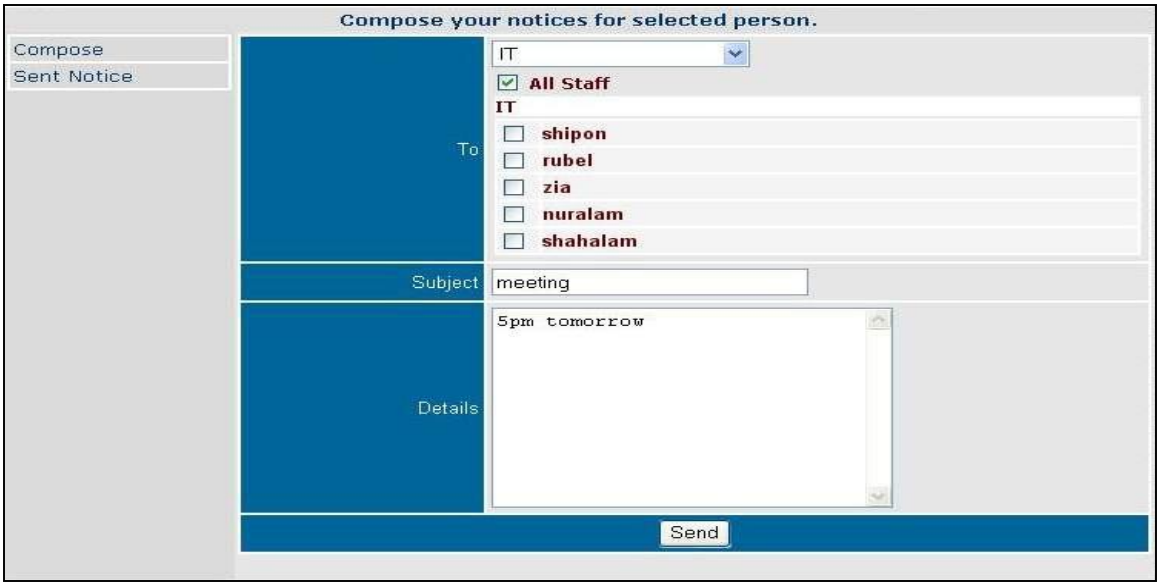


Fig: **Compose 2**

The user writes down the content of the notice in the Details box, puts the subject of the notice in the Subject box and selects the department. Then the user clicks the Send button.

Fig: **Compose- Sent successful**

After the user sends the notice this interface notifies him/her whether the process was successful or not.

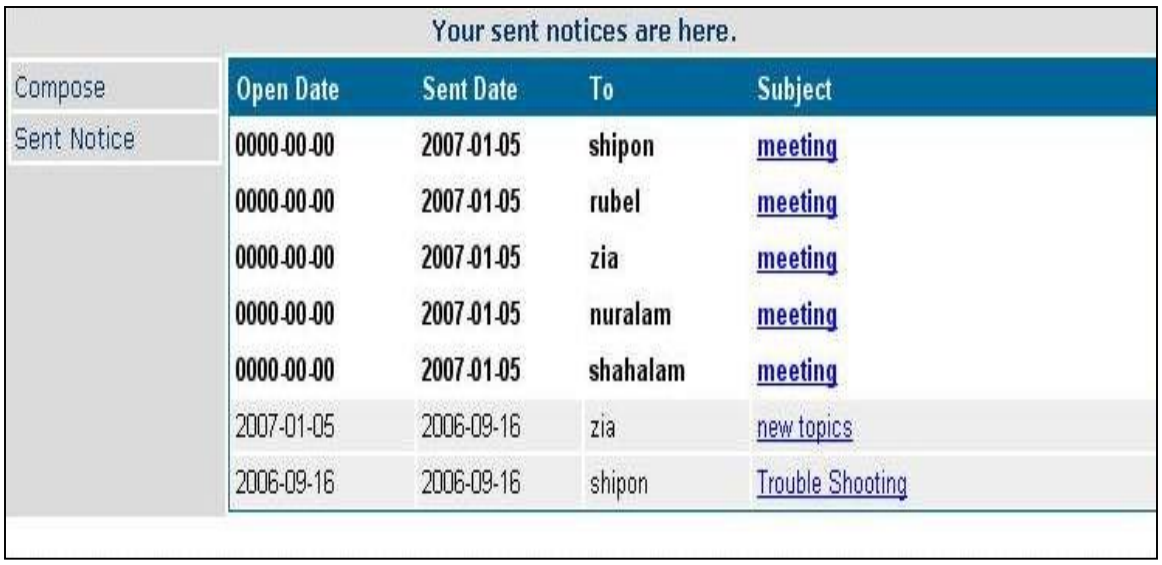


Fig: **Sent Notice**

After sending the notice the user can check if the other office personnel have read the notice or not. Notices that are still unread remains highlighted. This option is available to only to the high level and mid level management.

### 3.4.4 Mid level hierarchy:

Mid level management has the authority to evaluate the work performance of the bottom level user. The mid level user can observe and state their opinion on the daily task of the bottom level user. Also can assign new task and view the detail information of the bottom level office personnel.

Fig: **User Menu**

This interface appears after the user logs in. From this interface the other features of the software becomes accessible.

### 3.4.4.1 Input and View of User

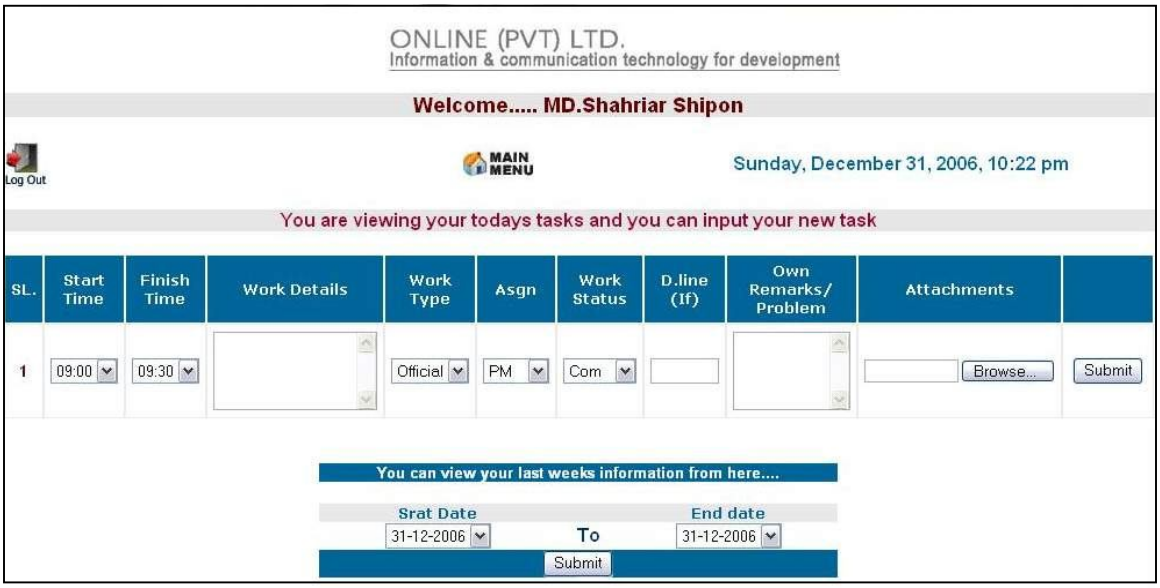


Fig: **Input your Daily Task**

In this interface the user enters the task he/she has done in a day. There is a start time and finish time which records the starting and finishing time of a task. In the work detail box the information of the task is written down. There is a dropdown menu containing type of the task. In the drop down menu the options are Official, Personal and Others. Similarly there are two more dropdown menus with options. If the task has a deadline the time is mentioned in the D.line box. If there is any problem encountered or remarks needed it is entered in the Own Remarks/ Problem box. If any attachments required then the user can attaché using the Browse button which will get the desired file from the computer and at the end by clicking the submit button all the process is saved the database.

Fig: **View your Daily Task**

If the past entry has to be accessed then by selecting the start and end date the user can view his/her past records. After the user selected the date the entry of that date will appear.

### 3.4.4.2 Search User by Department

Fig: **Search User**

This interface allows user to observe the performance of the office personnel. The user can see the records of all departments at once or select respective department. The user has to select the date also.

Fig: **Search User by Department**

By clicking on the dropdown menu the user can select the department. But as this is the interface of a mid level user he/she can only access his/her own department. After selecting the department the user has to select the starting and ending date. Then the user clicks the Search button.

Fig: **Search User by Staff**

After selecting the department a new dropdown menu appears which contains the mane of the staff members of that department. The user has option to search the department in total or select particular staff member.

Fig: **View of the work status**

This interface shows the works status of the selected department/staff member of the office.

### 3.4.4.3 Notice

Fig: **Notice**

The mid level user has the option of receiving as well as sending notices. The user can send notice to the staff of his/her department. If

the user receives any notice then it is stored in Inbox. When the user has to sent notice he/she can so it by clicking on the Compose button.

Fig: **Inbox**

Here the user has received a new notice which is highlighted. And there exists an old notice also.

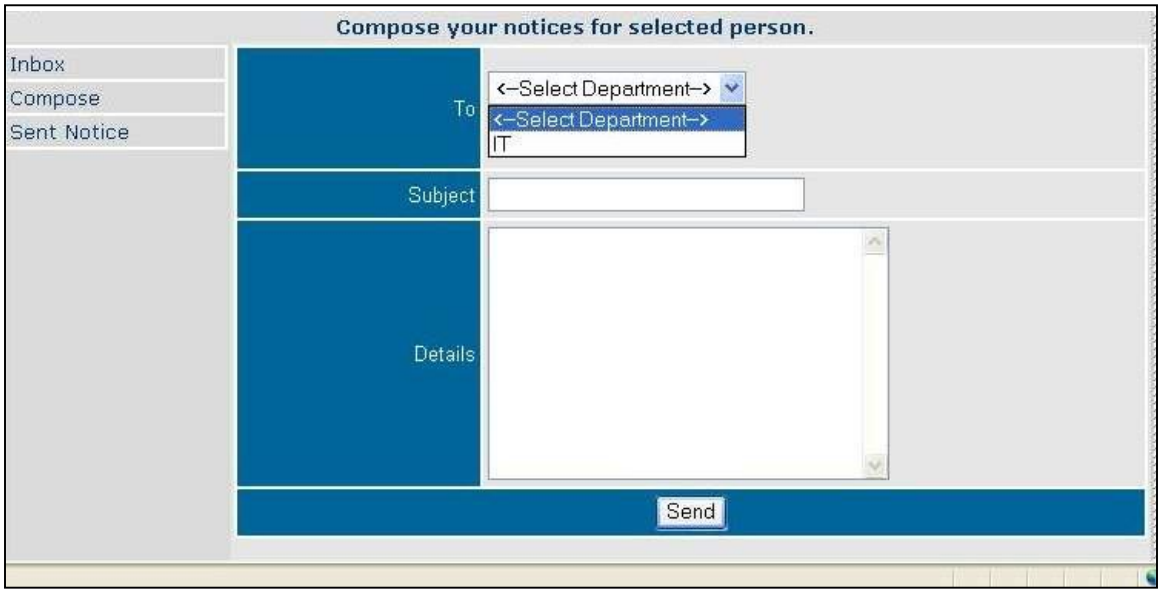


Fig: **compose**

The mid level user can sent mail to its respective department only.

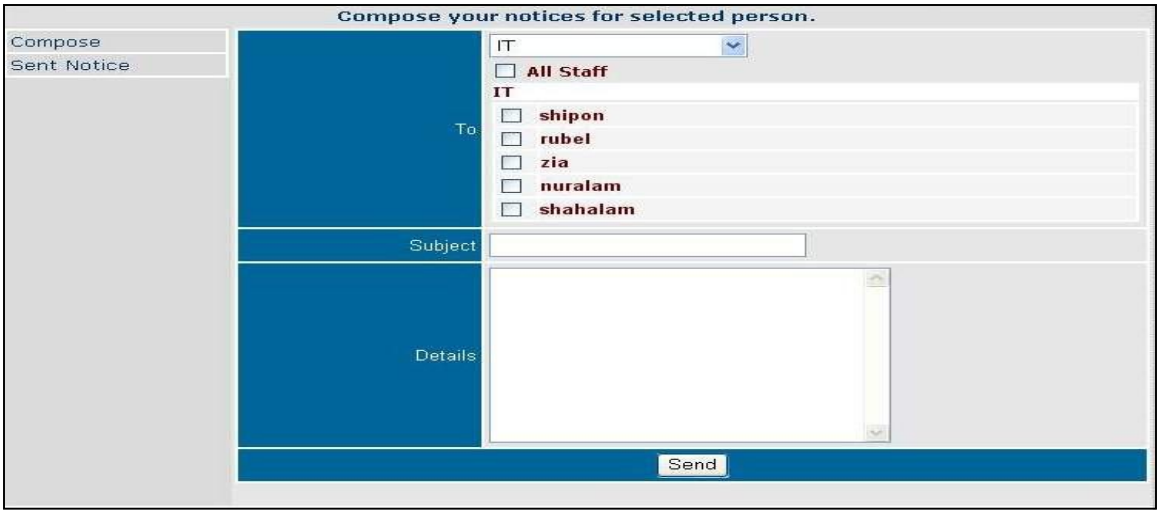


Fig: **Compose – Selecting staff/Department**

After the user selects a department he/she can either send the notice to all the staff of that department by clicking the All Staff option or send notice to a particular staff by clicking their name.

Fig: **Notice Sent**

After sending the notice the user can check if the other office personnel have read the notice or not. Notices that are still unread

remains highlighted. This option is available to only to the high level and mid level management.

### 3.4.5 Bottom level hierarchy:

The Bottom level user has the option to enter there daily task and receive notices from higher authority.

Fig: **User Menu**

This interface appears after the user logs in. From this interface the other features of the software becomes accessible.

### 3.4.5.1 Input and View of User

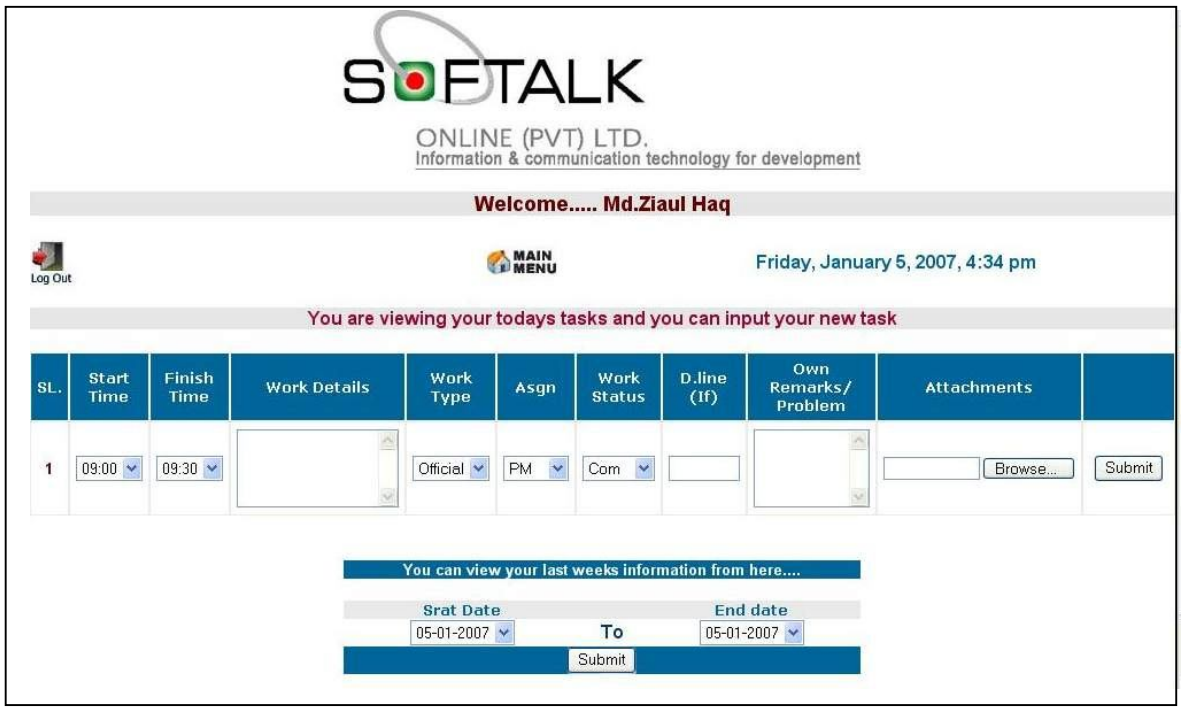


Fig: **Input your Daily Task**

In this interface the user enters the task he/she has done in a day. There is a start time and finish time which records the starting and finishing time of a task. In the work detail box the information of the task is written down. There is a dropdown menu containing type of the task. In the drop down menu the options are Official, Personal and Others. Similarly there are two more dropdown menus with options. If the task has a deadline the time is mentioned in the D.line box. If there is any problem encountered or remarks needed it is entered in the Own Remarks/ Problem box. If any attachments required then the user can attaché using the Browse button which will get the desired file from the computer and at the end by clicking the submit button all the process is saved the database.

Fig: **View your Daily Task**

If the past entry has to be accessed then by selecting the start and end date the user can view his/her past records. After the user selected the date the entry of that date will appear.

### 3.4.5.2 Notice

Fig: **Notice Interface**

The bottom level user only receives notice from his/her higher authority. The received notice is shown in the inbox section.

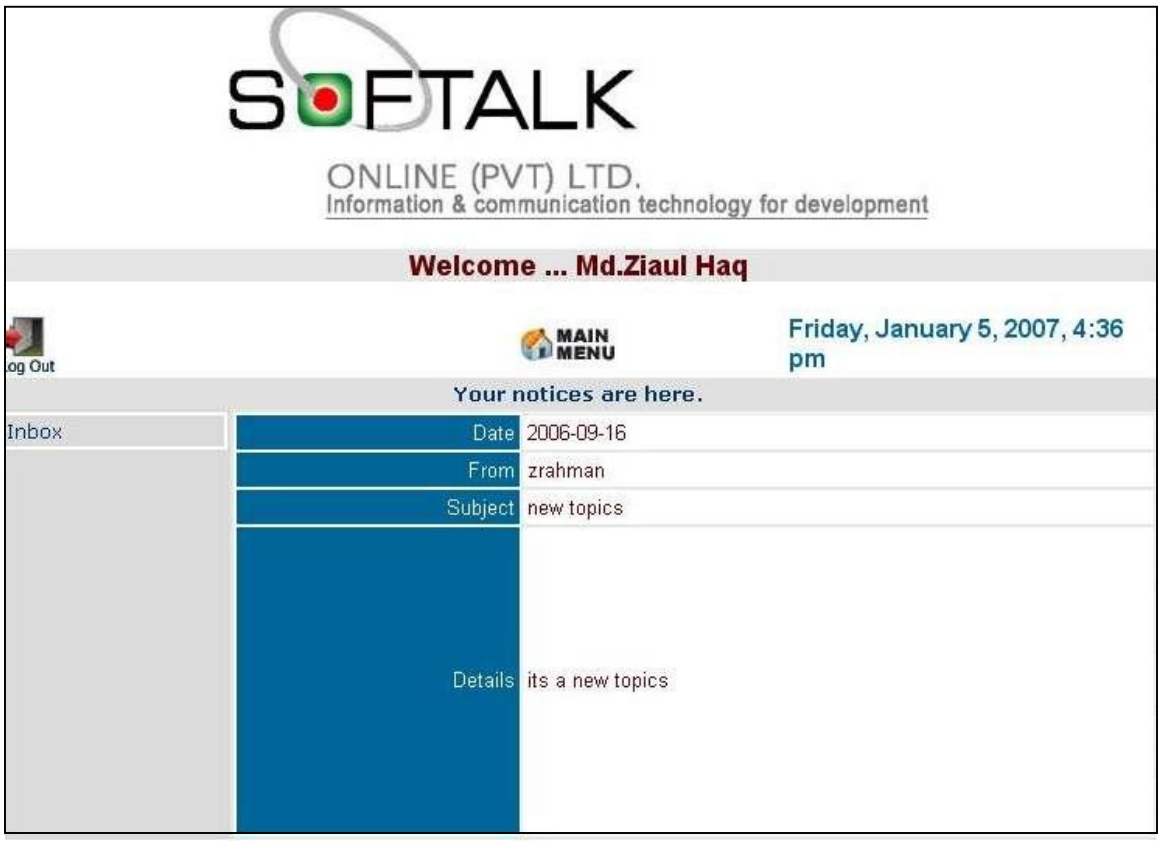


Fig: **Inbox**

By clicking on the received notice the user access this interface where he/she can read the notice.

# Chapter 4
# System Testing

We developed this software to improve the office task management system and to implement a proper GSS in an office. Our target is to make this software useful for all kind of organizations. Keeping that in mind we approached different type of organizations with our proposal. At the end we were able to show and implement our software in four organizations, one of them is Government Office, another one is news service provider and in two software firm.

First we fixed appointment with the organizations separately for meetings. There we presented our software and explained the function of the software. Being impressed with the presented software they agreed to implement the software in their organization for trial. They used the software for two weeks straight. The responses we got from the users are mentioned bellow:

## 4.1 Positive features of the proposed method

The organizations we approached were each different from one another. There were a government office WARPO (Water Recourse Planning Organization), a news service provider organization ABBAS and two software developing firm Ananda Computers and SofTalk.

Though all these office uses computer regularly, they do not use it to practice basic GSS. The practice of GSS is very feeble as it is done manually or ignored in total. After we explained the basic concept of the proposed system and demonstrated the software they agreed to try our software and after they used our proposed software for two weeks, they detected the lacking of their previous system. They were able to compare the outcome of their office performance before and

after using the software. At the end of the second week we sat with each organization and asked for their responses.

As the features of the software mainly focus on the basic operation of an organization, the response of the four organizations were similar. So we present the responses of all four organizations combined bellow:

- Using the software ensured the regular and timely attendance of the employee as the software keeps record of time. They were able to track if any employee were late or not easily.

- Employees were able to report their daily work status more accurately as the software provides the option to update the daily task on time.

- Generating report became easier and required less time using the software. All the information needed to a generate report were already saved in the database. So the employees could easily gather the information from the computer database using the search option. This helped to save a lot of time.

- The authority could send notice to the staff easily using the software. In the previous system the they had to post the notice on a notice board and all the office personnel had to check the notice by getting from there seats. This consumed time. The software provides the option of notice sending which makes sure that all the office personnel receive the notice on their computer.

This ensures the proper time management and also makes sure that no one misses the notice.

- As all the records are kept in the database of the main server using computer chances of data loss decreases.

## 4.2 Some Metrics of the proposed method

After testing the effectiveness of our software we measured the metric of our proposed system in contest to the existing system. Next we discuss the metric of our software:

### 4.2.1 Maintenance (TV, Automobile, Refrigerator, computer, etc)

Suppose in a TV repair shop a repair man approximately repairs 4-5 TV in a day. Some of the problems are major which takes longer time to fix and minor problem takes less time. In general it is difficult to keep track of how many repair job a person has done in a day. Normally the records are kept manually using pen and paper. There's risk of incorrect data entry or misplacing the data. This can happen because most of the time the information of the work done during the day is not entered in the log book regularly.

Again as the process of data entry is manual there will be many log books. So if they need to track down past record it'll consume a huge amount of time. So we can see the manual process has many risk and also is very time consuming.

Using the Task Management Software the above problems can be easily handled. The software is LAN based. This allows both employer and employee to be linked. This software offers a very good time management system. It is developed in a certain way so that information must be entered in daily basis. This ensures that the data entered are correct are chances of mistake is reduced. As all the information is kept digitally, they can easily find out their past record by using search option. Authorities can easily ensure whether the employees are doing their job properly or not using the software.

### 4.2.2 Product:

In a shop there may be different kind of product such as soap, tissue paper, shampoo, biscuits, etc. Sells man daily sell their manufactured goods to the customer. Normally when they sold anything they gave a cash memo to the customer and keep one copy for their record. So they have to write the name of all products which they sold to a customer, sometimes it takes many times because it has done manually. In this process there is a possibility of lose records. They also can't keep track of how many product a sells man has sold in one day.

If every shop uses this software then any sells man sell their product without facing any kind of problem. Because they save their lots of time and there is no chance of losing records. By using this software a person can also take a look of their past records. So they can figure out that profit is increased or decreased.

### 4.2.3 Coordinator (DCO, PA, Phone Operator, Receptionist, etc)

The duty of DCO is to inform faculty whether they have any meeting or any conference in university and also send pen, papers and other stuff to the faculty. So it is difficult to keep in mind that is there anyone left or not. He or She also receives phone calls from faculties because they may need to know some information. Each time he or she write down his or her daily activity manually which consumes lots of time.

Using this software the above problems of DCO can be easily solved. This software is LAN based which allows DCO and faculty to be linked. So if there is any meeting then DCO can easily send an email to the faculty which take a very few time. Because in this software there is an email and group email option. If faculties need anything they can also send an email to DCO. It is developed in a convinced way so that daily work of DCO must be entered in daily basis. This ensures that there is no chance of information lost. As all the information is kept digitally, they can easily find out their past record. Task management software also can be web based if they want. Because when any faculty go abroad to attend a conference then he or she can also use this software.

### 4.2.4 Software Develop

To develop any software it'll take some days for a software developer. In these days they face some problems. There are some steps for development. At first he or she makes a mind map. Then he or she starts developing their software. Each step they may face some error. Some error can be solved at that moment but some take few time. And each step he or she should tests their software because if they

test after developing the software then it'll be hard for them to figure out the particular problem. They have to write down their problem in a paper. So it is difficult for understand that how much work they completed in one day and how much time it was taken to develop a software.

Every software developer should use this software to overcome the above problem. Then he or she can gather knowledge about the error and the solution of that particular error. Because when they develop new software and if they face the same problem and if they forgot the solution they can find out that solution by back tracking. Because in this software there is option of back tracking from which we can figure out that how much time it was taken to develop any software.

### 4.2.5 Club:

There are lots of club like computer club, drama club, photography club, etc. Many people join in many clubs. There are different activities for different club. So it is very tough to write the name of all members manually and also hard to keep in mind when, where and which time there will be meeting for which club. And there is a chance for any member to miss a meeting because we have to inform each and every member of a club.

So if we use this software then there will be no problem. We can inform every member through email that there will be a meeting. It also consumes our valuable time. By this software we can see how many members are regular and how many are irregular.

## 4.3 Future improvements: Changes in design as recommended by the user

As we mentioned earlier we approached four different types of organization, because our goal is to develop software that is usable by all sorts of organization. Keeping that in mind we asked for suggestions from the organizations that used our proposed software in a trial basis, so that we can improve the software and make it useful for all type of organizations.

Based on the suggestions given by the users we plan to add some more features to our software. The features that we are hoping to include are mentioned bellow:

1. The users suggested that it would be more convenient if there was an option for the top and mid level management to check the entire employee attendance in one page.
2. The proposed system dose not allows the user to enter new staff details. They feel that there should be an option for the user to update employee information database.
3. In the software only mid and bottom level employee has the option of receiving notice. The users suggested that there should be an option where the high level management can receive mails from the mid and bottom level management.
4. There should be a calendar option because when employees go abroad for official purpose then he or she can write on that calendar to inform the office that he or she will not be able to present the next few days for their leave.

5. This is LAN based software, so if it will web based then it will be helpful for them whom go abroad for a time being.

6. They also think there should be an option of overtime. Because if any employee were absent for few days then can easily cover their pending work by doing overtime.

7. They want to include basic salary of an employee in employee database. Because salary of an employee may be vary person to person.

8. They think there should be bonus options which encourage an employee. The employee who was sincere, hard working and devoted to work he or she will get the bonus.

9. They also want an Edit button so that they can edit employee database.

# Chapter 5
# Conclusion

Due to globalization, today each and every country of this world is competing with each other. To survive in this competitive world each organization must practice GSS (Group Support System) properly and make sure that they are utilizing time properly. Bangladesh is one of the participants of this world wide competition. To participate and survive with in this competitive world Bangladesh must practice GSS in all sorts of organization accurately and ensure proper time management.

The purpose of our thesis was to study the current practice of GSS in Bangladeshi organization and to come up with a new idea to implement basic group support system through software to make the system more efficient and effective. Keeping that in mind we developed the software and put it in field test as mentioned earlier. We received great appreciation from the user. The user also provided us with some suggestions which will help us to improve the software more in future. Our main goal was to detect the current practice of GSS in our country and the status of its implementation and to come up with an improved and computerized method of GSS. We hope that the proposed system will enable teams of knowledge workers to collaborate and make decisions regardless of time and distance boundaries.

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