

An Interactive Participatory Solution to Distance Learning

A Thesis

Submitted to the Department of Computer Science & Engineering

of

BRAC University

By

SHAFIQ SHSAMSUR RAZZAQ

Student ID: 01101028

In Partial Fulfillment of the

Requirements for the Degree

of

Bachelor of Science in Computer Science & Engineering

February 2005

DECLARATION

This is certified that I, Shafiq Shamsur Razzaq bearing University ID 01101028 completed some modules of our proposed DL System (Speaker Profile System, Reminder System and report System) under CSE-400 course and I therefore declare that this thesis is based on the results found by myself. Materials of work found by other researcher are mentioned by reference. This thesis, neither in whole nor in part, has been previously submitted for any degree.

Signature of
Supervisor

Signature of
Author

ACKNOWLEDGMENTS

At first, I should thank Almighty Allah for enabling us in the completion of our project in time. We were assigned to implement a new system that can be an interactive solution to distance learning. I have tried to present my study in this paper. I would like to express our gratefulness and thanks to our respected thesis supervisor Dr. Yousuf M. Islam for giving us the opportunity to work on real life activity. His dynamic guidance at all stages of work encouraged us to accomplish our work successfully. I would like to thanks our thesis moderator Zillur Rahman. His comments and support in providing resources enabled us to finish the project on time. We always fell that we are under guidance of highly qualified and experienced personal. I would like to thank BRAC University CSE department and Savar campus students for giving us overall support and co-operation.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	iii
LIST OF TABLES.....	vii
LIST OF FIGURES.....	viii
ABSTRACT.....	ix

CHAPTER I.INTRODUCTION

1.1 History of Distance Learning	2
1.2 Theories and Philosophy of Distance Education	3
1.3 Education Problems in Bangladesh.....	4
1.4 Distance Learning in Bangladesh.....	5
1.5 Problem with Distance Learning (DL)	7
1.6 Solution Abroad.....	8
1.7 Review of Papers Distance Learning.....	10
1.8 Current Technical Problems.....	13
1.9 The Efficiency of Mobile Technology and Television.....	16
1.10 Our Solution.....	18
1.11 Benefits of Our Solution.....	19
1.12 Goal of Our Project.....	21

CHAPTER II. PROJECT INITIALIZATION AND PLANNING

2.1 Test Plan.....	22
2.2 Description of the Functionality of the Whole System.....	29
2.3 Block Diagram of Designed Modules	30
2.4 My Modules:	32
2.5 Functionality of My Modules.....	34
2.6 Expected Benefits of My Modules.....	35
2.7 Information Gathering Plan.....	36
2.8 Scope.....	38
2.9 Risks and Rewards.....	39

CHAPTER III. ANALYSIS

3.1 Information Gathering.....	40
3.2 Context Diagram.....	41
3.3 Data Flow Diagrams of new logic system	43
3.4 Structure English representation of process Logic modeling.....	46
3.5 Use case diagram.....	48
3.6 Sequence diagram.....	60
3.7 Class Diagram.....	65

CHAPTER IV. DESIGN

4.1 Entity Relationship Diagram (ERD)	67
4.2 In Depth Systems Design.....	68

4.3 The Process of Database Designing.....	69
4.4 Final Set of Normalize Relations.....	70
4.5 Designing Tables.....	71
4.6 Tables for Database.....	72
4.7 Designing forms, interface and report.....	76

CHAPTER V.SYSTEM IMPLIMENTATION

5.1System Development.....	79
5.2 Actual Testing.....	82
5.3 Visual Documentation of Actual Testing	85
5.4 Analysis of Actual Testing.....	90
5.5 T-test Analysis.....	92

6. LIMITATIONS.....	95
---------------------	----

7. CONCLUSION.....	96
--------------------	----

REFERENNCES.....	97
------------------	----

APPENDICES

A. Test Document for Participant.....	101
B. Questions of Actual Testing.....	104
C. Log File.....	107

LIST OF TABLES

Table 2.1: System testing input and output.....	23
Table 2.2Responsibilities of the Team Members.....	31
Table 2.3 In scope and out of scope	38
Table 5.1: List of registered participants.....	83
Table 5.2 Program Information.....	84

LIST OF FIGURES

Fig 1.1: The use of different delivery technologies in 2002	5
Fig 1.2: Average growth of mobile subscribers in Bangladesh	15
Fig 2.1: Data flow and interface of Excel sheet testing.....	23
Fig 2.2: Distance learning virtual classroom test set up.....	27
Fig 2.3: Modules of the entire Real-time Interactive DL System.....	30
Fig 3.1: Context Diagram of Current Distance learning system.....	41
Fig 3.2: Context Diagram of Proposed Distance learning system.....	42
Fig 3.3: Level –0 DFD	43
Fig 3.4: Level-1DFD Decomposition of Process 3.0.....	44
Fig 3.5: Use case diagram of Reminder system.....	48
Fig 3.6: Use case diagram of Report system.....	52
Fig 3.7: Use case diagram of Speaker Profile system.....	57
Fig 3.8: Proposed Distance Learning System sequence diagram (1).....	60
Fig 3.9: Proposed Distance Learning System sequence diagram (2).....	61
Fig 3.10: Proposed Distance Learning System sequence diagram (3).....	62
Fig 3.11: Proposed Distance Learning System sequence diagram (4).....	63
Fig 3.12: Proposed Distance Learning System sequence diagram (5).....	64
Fig 3.13: Proposed Distance Learning System Class Diagram.....	65
Fig 4.1: E-R Diagram of Reminder, Report Speaker Profile System.....	67
Fig 4.2: Program Information Form.....	76
Fig 4.3: Speaker Profile Form.....	77
Fig 4.4: Main Interface.....	77

ABSTRACT

Education is a basic need for socio-economic transformation and advancement of a country. In this paper we present a solution for our current distance education process. We find distance education to be an effective candidate for educating people of all classes in society taking in to consideration rural Bangladesh. In developing countries like Bangladesh, access to modern technologies is very limited due to limited resources. In distance learning the use of technology is a vital issue – however technology used should be extensively and widely available in Bangladesh. In our country both the television network and the ever-expanding mobile network is countrywide. We propose the SMS (Short Message Service) technology of mobile phone to solve the interactivity need of distance learning. We have tried to identify the factors that lie behind distance learning in our country. Then we suggest some measures to be taken to make the distance learning interactive. We have put our theory into practice and have tested the proposed system of distance learning. Using a t-test we have shown that our proposed method of distant learning is almost as effective, if not better than face-to-face learning in a real classroom.

CHAPTER I

INTRODUCTION

Education is necessary for national development. It is an essential part of human resource development. Improving and expanding education are essential part of any national development policy. In addition to allowing more students from different background, environments and geographical settings without requiring the uses of limited on-site space, distance learning (DL) system offers the educational institutions more returns. DL system is a cost-effective way for mass education. On the other hand, especially in the developing countries like Bangladesh, students who cannot go to school due to insolvent economic condition can have education through DL. However, when comparing with conventional forms of education the condition of distance education requires considerably greater planning, larger upfront infrastructure costs and more complex student, administrative support systems and use of latest technology. The recent advances in information technology have been responsible for extensive acceptance of distance education. Quality distance education needs appropriate mix of technology, contents, processes, and faculty talents. To deliver quality education using available technology is the core of distance education definition. Institutions in Bangladesh struggle with quality issues of their programmes.

1.1 History of Distance Learning

Distance Learning is an instructional experience in which the learner and the instructor are in separate physical locations for the majority of the instructional activities. Distance education is planned learning that normally occurs in a different place from where takes teaching and as a result requires special techniques of course design, special instructional techniques, special methods of communication by electronic and other technology, as well as special organizational and administrative arrangements.

Distance learning is not a new event. It has a long history. During the 1960s, the British Open University in Great Britain developed off-campus teaching systems, using a combination of broadcast and correspondence study systems. Later, many US universities and universities around the world followed the Open University model to reach millions of adult educators. In 1892, Penn State and University of Wisconsin were the first universities to develop a program of correspondence study. The correspondence model later evolved into Independent Learning Program. Distance learning offers education without boundary, without time and geographical limitations.

1.2 Theories and Philosophies of Distance Education

The theoretical basis on which instructional models are based affects not only the way in which information is communicated to the participants, but also the way in which the participant makes sense and constructs new knowledge from the information, which is presented.

Until recently, the dominant view has been the traditional, information processing approach, based on the concept of a computer performing formal operations on symbols. The key concept is that the speaker can transmit a fixed body of information to participants via an external representation. The learner perceives, decodes, and stores it. The learner then develops his/her own image and uses it to construct new knowledge, in context, based on his own prior knowledge and abilities [9].

According to this viewpoint, both social and physical interactions enter into the definition of a problem and the building of its solution. Though this theory is totally different in nature, effective designers usually start with practical knowledge: objects, events, and practices. Then, with a firm theoretical grounding, they develop a presentation, which enables learners to construct appropriate new knowledge by interacting with the instruction. Distance education systems now involve a high degree of interactivity between speaker and participants, even in rural and isolated communities separated by perhaps thousands of miles [9].

1.3 Education Problems In Bangladesh

Bangladesh is a developing country. Most of the people live in rural area. 80 percent of around 140 million people live in 86,000 villages. Bangladesh has high population density (over 800 persons per square kilometer), high population growth rate (1.5 per cent per annum), endemic poverty (per capita GNP about \$ 240) and high rate of adult illiteracy (65 per cent) [9]. However, in recent years some innovative programmes of basic education have been initiated in the country to tackle the overwhelming problem of illiteracy. Numbers of junior and secondary level institutions are 5694 and 16,562 as well as 922 colleges, 347 professional institutes and 1562 mid level technical and vocational institutes [10]. But most of the schools, college are in urban area. The structure and accommodation of these schools and colleges are not adequate. Presently, 10 percent of children do not enter primary school at all. These children are from hard-to-reach poor family. Forty percent of those who enter primary education don't complete the five years cycle. Mostly the village people are illiterate and they do not want to admit their children to schools. For that reason the growth rate of education is low. Bangladesh fails to provide equal access to quality secondary education and outcomes. Most of the quality type institutes are established in the urban areas and increases day by day. As a result most of the people do not get the opportunity for good education. Another problem mostly we face in rural education sector is the absence of qualified and experience teachers. Nobody wants to go to rural areas. Now in the rural areas most of the teachers are less qualified and inexperienced. So, people of rural area cannot get proper education. In view of the large number of children and adults who remain uncovered by present education system, it is felt that some innovations are needed in primary education to provide quality education at low cost which would ensure high attendance and retention as well as a high rate of success.

1.4 Distance Learning In Bangladesh

1.4.1 Bangladesh Open University

Bangladesh Open University (BOU) is an institution for distance education designed for those who intend to improve upon the level of their education or professional skills by studying at home or at places of their work. It meets the need for education of all classes of people particularly those deprived of education in conventional institutions. Bangladesh Open University offers a wide variety of formal and non-formal programmes through printed materials electronic media like radio, television, audio and videocassettes, telecommunication and tutorial services. The Six schools of Bangladesh Open University (BOU) offer Masters, Bachelor, Diploma and Certificate programs. Besides these programs, BOU also offers non-formal programs through different delivery technology are like Radio, TV and Video Tape. BOU mostly depends on Correspondence Model-print based delivery technology and non-print delivery technologies are used as a supplementary component of print based delivery.

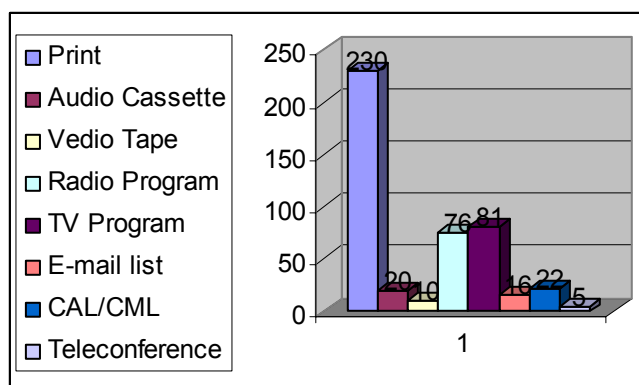


Fig 1.1: The use of different delivery technologies in 2002 [6].

The use of other delivery technologies Comprised of 20 courses including audiocassette (8.7%), 10 courses with videotape* (4.3%), 81 courses with television program of 40 minutes (35.2%), 76 courses with a radio program of 20

minutes daily (33%), 22 courses including the use of Computer Managed Learning (CML) and Computer Aided Learning (CAL) (6.5%), 16 courses with an e-mail list (7%) and 5 courses with a teleconference (2.1%). As Bangladesh is a developed country, Bangladesh Open University has not yet used any on-line technologies as a delivery technology [6].

1.4.2 Newspaper

Newspaper is one kind of distance learning now days in our country the daily, weekly and monthly newspaper, magazine publish SSC, HSC level lessons. Actually it published subject related lesson, question and answer. But the participant has to read and understand the lesson by own way. There is no way to communicate with the presenter. The presenter does not get any feedback.

1.5 Problems with Distance Learning (DL)

We find out some problems with distance learning in our country.

Pre-recorded telecast: Now in Bangladesh Open University (BOU) 81 courses with television program of 40 minutes. All of the programs are pre-recorded. The presenter delivers his/her speech once and the session is recorded.

No interaction: All of the programs are pre-recorded. So, the basic problem of BOU is there is no interaction between presenter and the participants. The participant gets their result and evaluation of their performance after sitting for an exam. There is no way of following progress through individual classes.

No feedback: There is no connection between presenter and participants. The presenter does not get any feedback from the participant while he/she delivers any speech. Neither does the student get a chance to ask any question. So, there is no evaluation of the participants' or of the presenter's performance.

1.6 Solutions Abroad

Internet: The most common uses of the Internet are e-mail and World Wide Web access. E-mail allows users to leave messages for anyone else who has a computer or similar device connected to the Internet, and is a highly useful communication method due to its wide availability and flexibility.

Electronic Campus: The Electronic campus is a delivery solution for distance learning. Online Education Ltd has experience in Hong Kong in addressing these deficiencies by providing a format or "learning environment", by which working people may gain recognized qualifications, namely the "ELECTRONIC CAMPUS". The University of Derby similarly has recognized the need to produce electronically delivered distance-learning programmes to the working population, initially through CD ROM technology and lately through the world -wide web [5].

Web-Based Training: - offering materials and consulting for educators developing web-based training courses.

Chat room: The chat room is a solution for distance learning .The presenter and the participants log in to same chat room. The presenter writes down the speech and the participants are watching through web. If participant has a question he/she can ask questions through chatting [2].

Telecourses: involves viewing videotaped lectures. Exams are either proctored or administered in a take-home format. As with correspondence courses, telecourses offer flexibility to the participants. In addition, participants can view video presentations that assist in explaining the written material. However, as with correspondence courses, telecourses and participants have no interaction, which may cause student to feel isolated.

Video Conferencing: This technique is now being used worldwide. The ability to offer specialized instruction to students in remote locations is possible over existing infrastructure. Through Video Conferencing, a teacher can expose participants to people, places, and experiences without the traditional restrictions of time limitations or geographical barriers. For a Video Conferencing purpose we need high bandwidth. But it is expensive for our country.

1.7 Review of Papers Distance Learning

Before starting our project we read some papers and gather information about distance learning. Some of the important paragraphs are given bellow:

1.7.1 Computer aided learning

Most of the recent interest in the educational use of computers focuses on CAI (Computer Aided Instruction) and not CST (Computer Skills Training). But for CAI it needs at lest some of level computer literacy. CAI infrastructure is expensive and may take recourses from other educational tools. The transition to CAI is disruptive, and any benefits of CAI take time to develop. The benefits may not be reflected in Math and languages scores. It has been found that it requires a degree of motivation from the learner. It is better if the learner is a mature-learner [1].

1.7.2 Using internet as a tool for distance learning

Online education has changed the interface of education with a revolution in learning technologies. It is a revolution, which has made education conveniently available to millions around the world. In US more than 10 % of students and 80% of institutions are engaged in online education [3]. Within the world of knowledge dissemination and learning this unprecedented trend will bring many changes. Teaching an online course is a challenge. Online learning and teaching have placed new demands on students and teachers. In the online mode the students are not in a classroom and the teacher is not managing the class face-to face. Opportunities to create a captive class environment through charisma and threat are virtually absent. The expression of personal emotions is reduced to a few symbols and notations for the online classrooms. Verbal and non-verbal communication is severely limited to the ability of the technology. To provide successful online education it is essential to understand how some of these limiting factors affect the learners, educators and the programs. The

effectiveness of learning management systems depends on its ability to identify the learning dimensions that are responsible for a learner's performance improvements [2].

1.7.3 M-Learning

In late 2001, an experiment was undertaken to test the effectiveness of different styles of two-way SMS campaign for a youth brand in the UK. The Learning Technology Research Group (LTRG) at Kingston University has interests in the effective use of multiple media in teaching and learning, and is also actively engaged in the effective use of mobile telephony as a medium to support this.

The purpose of the experiment was fourfold:

- To evaluate the effectiveness of SMS as a data collection mechanism for the youth brand
- To compare different data collection processes
- To produce guidelines for future SMS activities
- To compare email, SMS and the web as ways of announcing SMS campaigns

This research has profound implications for (mobile telephony) m-learning developers and researchers. These results demonstrate that it is possible to take mobile phone user on a complex "journey"; i.e. where a series of interactive SMS exchanges may be required to achieve completion of a task or goal. Participants will take part, and will actually complete the task in question. Response time data from the experiment allows us to plan expected completion times for actions by participants, and integrate that into our design considerations [3].

1.7.4 Few key words from papers learning reference

1. Online education has changed the interface of education
2. To evaluate the effectiveness of SMS as a data collection mechanism for the youth brand
3. In US more than 10 % of students and 80% of institutions are engaged in online education.
4. Online learning and teaching have placed new demands on students and teachers.
5. In the online mode the students are not in a classroom and the teacher is not managing the class face-to face.
6. To provide successful online education it is essential to understand how some of these limiting factors affect the learners, educators and the programs.

1.8 Current Technical Problems:

However these solutions are not suitable for Bangladesh. We do not full-fill all the possible steps. We have some limitations:

1.8.1 Internet experience:

In our county, the Internet facility is not well established. The Internet network is properly dependent on the telecommunication system. The telecommunication network is not countrywide. We also need individual computers for Internet purpose. Estimates during computer show that the users of computers are now about one million. A small percentage of these are in rural areas. Internet based solutions are therefore not currently suitable for rural Bangladesh.

1.8.2 E-learning environment:

E- Learning is not well introduced in our country for distance learning. It is again dependent on Internet and computer users.

1.8.3 Video conferencing:

The Video conferencing requires high bandwidth. Some of the major cities like Dhaka, Chittagong and Sylhet have high bandwidth connections. Such connections are not available throughout our country. The price of high bandwidth is expensive.

1.8.4 Shortage of computers:

In our country, we have a large population. However, we have only 1 million computers

If the solution can use the following two things, it may be an acceptable model for Bangladesh. If the solution would use:

- Television
- Mobile Phone

Television:

BTV is available throughout Bangladesh. Every village has at least one TV set. The people of rural area do watch BTV. Inexpensive Chinese-made TVs have captured the Bangladesh market. Due to this the number of TV sets at rural area has increased.

Mobile phone:

Most of Bangladesh is now under the mobile phone network. Several companies provide mobile phone services. The SMS service charge is around two taka.

-Grameen Phone is largest mobile company. Now it has 2 million of subscribers. The mobile network of Grameen is now countrywide.

-Aktel has about one million subscribers. It is now trying to improve its network and trying to increase its subscriber base.

-City Cell has about half million subscribers. It is expanding its network in countrywide and trying to increase its subscribers.

-Bangla Link has taken over Sheba with a subscriber based of just under 400,000.

-New companies, i.e. BTTB, etc are going to make their mark in the market. It is therefore expected that the subscriber base will increase day by day. All the mobile companies are set to increase their subscriber base. In about five years time the total mobile subscriber base is expected to be about seven million. One important thing now is that the subscriber of any company can send SMS to another company's subscribers.

Average Growth rate:

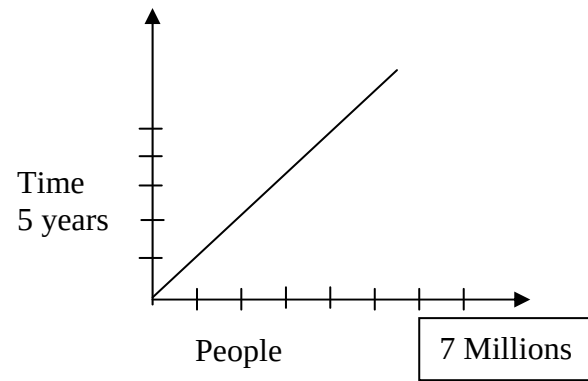


Fig1.2: Average growth of mobile subscribers in Bangladesh [6].

1.9 The Efficiency of Mobile Technology and Television

Presently there are several ways to achieve our goal using different available technologies, e.g., text chat, audio chat, video conferencing, and conference calls. Video conferencing and conference calls have one major limitation. It does not support “distributed” learning, it is good for only point-to-point delivery. In some situations the cost of delivery and the ease of use influence the choice of technology.

In this proposal we propose to use mobile phone technology to offset some of the constraints of technology complexity and cost considerations. In Bangladesh, as an example, there are over 3.5 million mobile cell phone users whereas there are about 1 million computer users. Preferring mobile phone technology to computer/Internet has therefore distinct advantages in Bangladesh. Mobile phones have a Short Messaging Service or SMS that allows text of maximum 160 characters to be sent in one short burst worldwide between sets. Such text can be easily interfaced with a computer that can then process the text as desired. As such, the mobile set can serve as a (somewhat limited) remote input and output device for a computer.

The participants would of course need individual mobile sets. The SMS messages would directly interface with a central server that would process the messages and show processed output to the presenter of the live show. Satellite television now allows broadcasts to reach any part of Bangladesh, in fact almost anywhere in the world. In Bangladesh, even small villages now have at least one television set – the broadcasts being viewed by many people simultaneously in villages. Using the television as the medium for “live” telecast of a presentation makes good sense. Thus, an inexpensive mode of communication can be afforded by the combination of mobile technology with satellite television.

Currently, among those that offer distant learning works is Bangladesh Open University. These courses are pre-recorded and aired at various time slots

catering for different audiences. However, there is no data on how many people actually watch the aired courses or the rate of success. If the same presentation is delivered “live” allowing viewers to interact using both the SMS service and when necessary aired conversation between selected viewers, the interactivity of a face-to-face class can be simulated. This way the presenter can get feedback on the degree of learning taking place during a session. When appropriate, multiple-choice questions can be aired, where the chosen answer will be sent by SMS to the service center. A computer server can plot a bar graph of the answers and show the presenter the responses to each question. At the end of a session, viewers may also send in questions, which will be answered “live”.

1.10 Our Solution

- The program will be live telecast. The participants would be able to see the presenter in front of them
- The lesson session will be Question based. The presenter gives questions at suitable intervals.
- Participants respond by SMS. Actually they send their answer to a central server.
- A computer plots graph of the answers. The presenter can see the percentage of all possible answer.
- Presenter/computer randomly selects participants and makes a conversation regarding the selected answers via mobile phone, which all the viewers can hear and watch.
- In the last 10 minutes of a live show, participants can send in their queries and question by SMS .The presenter can browse the question and give answer on air.
- System sends daily result at the end of the class.
-

1.11 Benefits of Our Solution

- When the Program will be live telecast then it will be as through the participants are seated in front of the presenter. Those who do not answer questions would get a message from the server when they do not respond to a question. Participants would get a feeling that they are being watched. This will help to create an almost actual classroom environment. The participants would get a feeling of participation and be forced to follow the class. They would feel that the presenter could see them individually as well as the audience coverage would be large.
- Our suggested lesson session will be question based. To be able to answer questions the participant would have to pay attention to presenter and try to understand the class. The participants will get a feedback of the correctness of their answers immediately as a bar graph of the answers will be displayed with the correct answer highlighted.
- Participants send their answer through SMS. The answers are immediately logged. For this reason the presenter can see the number of participants who have answered the questions.
- When the system plots a graph for a particular question then the presenter can seen the ratio of the answers. This provides feedback from the participants.
- By making calls to the participants, the presenter can discuss the question and try to understand the point of view behind the participant select of the answer.

- Example of use: Countrywide training of health workers can be easily conducted in this manner. The current cost and time of a countrywide tour for the purpose of imparting training can be compared.
- The presentation methodology ensures a structure delivery.

1.12 Goal of Our Project

This project will produce an automated system that will be effective for distance learning and will a real time interactive solution for distance learning.

What are the defining features and benefits of this product?

- The system will monitor the participants and remind the participants for particular information.
- The system will send to participants' daily progress report through SMS.
- The system will be secure and only allow users with the proper permissions to edit, delete.
- Our system will be flexible and easy to use for end users.

CHAPTER II

PROJECT INITIALIZATION AND PLANNING

The project initiation and planning is a critical activity in the life of a project. The objective of this process is to transform a unclear system request into a tangible system description clearly outlining the objective's test plan, feasibility issues, benefits, costs and time scheduling for the project.

2.1 Test Plan

We have first made a test plan for our proposed system. The purpose of our testing is to confirm that the system satisfies all requirements. We have also tested our system's live performance. At first we designed and implemented a prototype using Excel sheets for testing the data flows and logic of our proposed system. In the Excel sheet we had to insert data manually and we tested the sequence to data flows. After Excel sheet testing we have found some problems.

All the modules did not activate automatically. We had to press a button to activate a module. Then we have modified a function to activate all modules automatically. Later we added an option so that the presenter can set and start timer after the question is visible on the screen. We have used logs to identify problems, and for modifications during testing. We have tested system and performance according to our test plan.

A	B	C	D	E	F	G
Mobile No	Student Name	Course Id	Course name	Date	Permission	Registration
017179702	Kamal Hosssain	CSE101	COMPUTER FUNDAMENTAL	29/02/2004	REGISTERED	reg 1
01112345	SHAKIB ZAMAN	CSE102	PROGRAMMING FUNDAMENTAL	16/03/2004	REGISTERED	reg 2
011034567	SHOEB AHMED	CSE101	COMPUTER FUNDAMENTAL	23/03/2004	REGISTERED	reg 3
0171730911	Khhalaguazzamar	cse102	programming fundamental	08/04/2004	REGISTERED	reg 4
A	B	C	D	E	F	G
Mobile No	Student Name	Course Id	Course name	Date	Permission	Registration
017179702	Kamal Hosssain	CSE101	COMPUTER FUNDAMENTAL	29/02/2004	REGISTERED	reg 1
01112345	SHAKIB ZAMAN	CSE102	PROGRAMMING FUNDAMENTAL	16/03/2004	REGISTERED	reg 2
011034567	SHOEB AHMED	CSE101	COMPUTER FUNDAMENTAL	23/03/2004	REGISTERED	reg 3
0171730911	Khhalaguazzamar	cse102	programming fundamental	08/04/2004	REGISTERED	reg 4

6		
7		
8	Prepair Question	
9		
10	Show Absentee	
11		
12	Show Question	
13		
14	Participant List	
15		
16	Home Work	
17		
18		

Fig 2.1: Data flow and interface of Excel sheet testing.

2.1.1 System testing

We have carried out system testing into two segments: Unit testing and system testing.

-Unit testing tests each component of the system individually—each computer program, input preparation, the handling of errors and rejections

Table 2.1: System Testing input and output

Test item	Proper input	Expected output	Improper input	Expected output
To know about a program	Info.prog1	Polynomial Equation, Start 5/6/2004, End 15/6/2004, 50 Lectures.	Info prog1	System does no reply any message

If program does not exit.	Info.prog1	The program id does not exit; please check your program id PROG1	Infoprog1	System does not reply any message
Fro participant registration	Reg.prog1.karim.BRAC University.	You have successfully registered for prog1.	Reg.prog1 karim BRAC University	System does not accept registration
If a program's set is fill up then system reply	Reg.prog1.karim.BRAC University.	Sorry no seat available for this course, Try Again next time PROG1	Reg.prog1 karim BRAC University	System does not accept registration
If a participant already registered	Reg.prog1.karim.BRAC University.	You have already taken PROG1.	Reg	System does not accept registration
If a participant fail to register a particular program the system reply	Reg.prog1.karim.BRAC University.	You are late for Registration PROG1	Reg..bu	System does not accept registration
Ten minutes before start a class our proposed reminder system replies	The participant should be registered.	PROG1 class is about to start within 10 minutes.		

For participant's attendance:	attn	BRAVO you are in the class .	Attn.reg	System does not accept attendance
If a participant fails to send attendance	attn	you are late for Attendance.	attna	System does not accept attendance
If a participant sends attendance twice	attn	You are attending the class.	att	System does not accept attendance
-If a student did not give an attendance	The participant should be registered.	You are absent for 12-08-2004 Class of PROG2		
At class time if a participant do not give a question answer	The participant should be registered.	: You did not attempted Ques No 1		
If a participant send a answe	Q1a	System accept the answer	Q1aa	System does not accept Answer
If a participant send a answer twice	Q1a	You have already sent answer	Q1 a	System does not accept attendance
At the end of a class our Report system	The participant should be registered and	1/12/2004s Result: - H.T 0, Attendance		Message is send

send a progress report to the participants.	give attendance	10, Ques Mark 0, Ans Mark 0, Attmp 0, Not attmp 2"		
---	-----------------	--	--	--

-System testing provides as integrated test in which test data is processed by the input operation and then through the entire system. At first, we tested individual modules. After that we have integrated all the modules and tested them by the test data. The sequence of integrated testing is given bellow:

At first insert program information
Insert Speaker information
Program schedule
Create question bank for the program
Get information about the program
Participants Registration process
Check reminder about participants alert.
Check participants attendance
Check attendance validation
Check participants question answer receiving process
Check participants question answer validation
Check monitor system about alert message for not given the attendance
Check monitor system about alert message for not given question answer
Check daily progress report at the end of the class.

2.1.2 Performance testing:

We have planned for performance testing of our proposed system. Actually we wanted to verify our system and try to analyze the performance of our system. We have planed performance testing at Savar.The environment of the class given bellow. Video

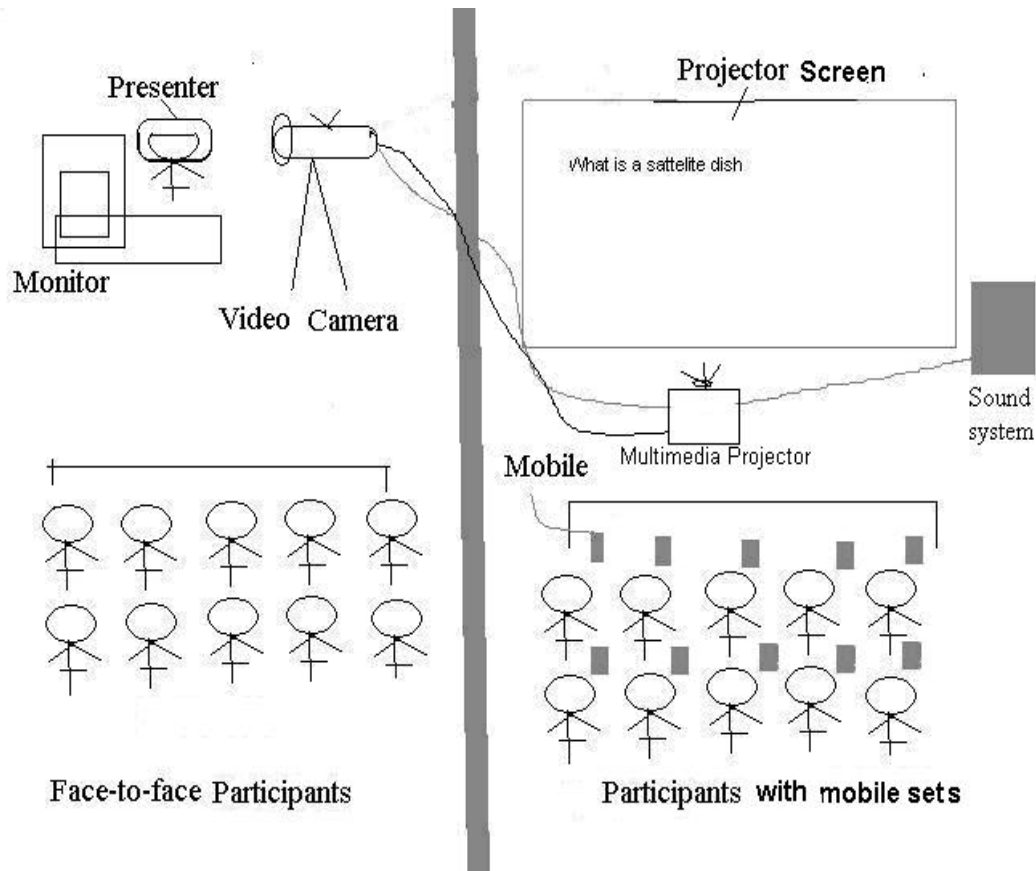


Fig 2.2: Distance learning virtual classroom test set up

We have compared the results of distance learning classroom with face-to-face classroom set up as shown in fig-4. We also tested the technological support and performance of the technology that we have used. We used T-test to evaluate

the difference between the classroom settings. The presenter made a test lesson with some multiple-choice questions for a taking a lesson in Quadratic functions. To evaluate the effectiveness of the real-time interactive distance learning system a pre-test and post-test was designed for the students both in the face-to-face classroom and in the distance-learning classroom.

The detail tests are attached in Appendix.

1. Pre-test:

- Face to face
- Using SMS

2. Post-test:

- Face to face
- Using SMS

To compare the results of the real-time interactive distance learning classroom with the results of the face-to-face classroom we applied a t-test to pre-test and post-test separately in both cases.

The results of the t-test show that the level of the students in both the groups during the pre-test was the same. The post-test results show that the learning achieved by the interactive real-time distance learning is comparable to that of the face-to-face classroom.

2.2 Description of the Functionality of the Whole System

The participant who is willing to take the course can get information by sending a SMS from a mobile phone to our system. Then he/she will get information about the course. If the participant is satisfied with course information then the participant has to register for that particular course.

In the system each participant will be identified with his/her mobile phone number. The lesson material is kept in system database. The speaker will deliver his/her speech through Television channel and the participants can join this class session by watching the live telecast. There is a reminder system, which will remind the participants about their class time. An alert SMS will be sent to all registered student just 10 or 15 minutes before of a class. Such as "Course CSE 471, lecture 10 will start from 12 P.M. 16/08/2008". The participants have to send attendance via SMS. The system reply after getting the attendance. There is also a Question Answer system for participants. The question type will be multiple choices. The Speaker will be able to select question from question bank and the question will be show in the Television screen. The Participants have to send the answer using SMS through their own mobile phone. They may send answer like "Q1B" which means Question 1 answer is B. Question will be displayed till the end of the lecture. The student will get 1 mark for the right answer and their result will be updated. The Presenter will discuss all answers that are sent by the students. There will be a graph showing a bar graph of all student answers. The Presenter will be able to see the list of students who have chosen a particular answer by clicking on a particular bar. Options will be available to talk to a particular student through mobile phone and presenter may ask the reason of choosing an answer. The system also identifies the students who don't answer questions and send them alert message. The Report system calculates participants' attendance and marks. At the end of the show participants will get an SMS of their daily progress result.

2.3 Block Diagram of the Designed Modules of the Full Real-time Interactive Distance Learning System:

To perform the above functions, the following models were design:

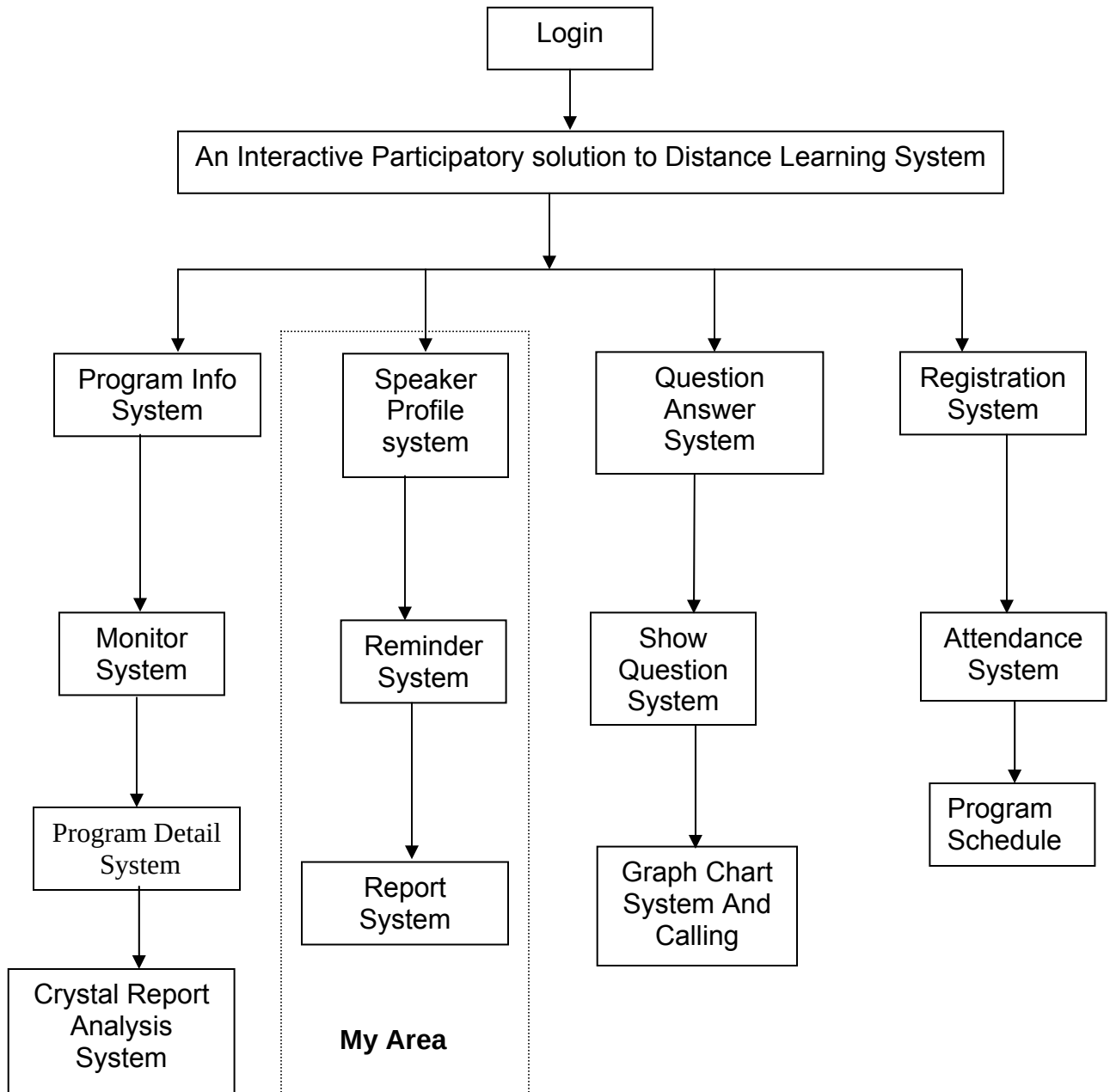


Fig 2.3: Modules of the entire Real-time Interactive Distance Learning System

This was a group project. We had four team members. Our advisor asked us to design the whole system together and then divide the responsibilities of work up

into different modules and at the end to integrate all the modules and establish the proposed system. We wanted to focus on distance learning and build a system that will provide an opportunity to make the lesson sessions interactive with monitoring of progress of the student throughout a class and during a course. The 'live' presenter should be able to get feedback from the participants immediately and adjust his/her presentation accordingly.

The overall responsibilities and modules are given below:

Table 2.2 Responsibilities of the Team Members

Shoeb Ahmed	Login
	Registration system
	Attendance system
	Program Schedule
Shafiq Shamsur Razzaq	Speaker Profile system
	Reminder system
	Report system
Shakib Zaman	Program Info System
	Program Detail System
	Monitor system
	Crystal Report Analysis System
Khalequzzaman	Show Question System
	Question Answer System
	Graph Chart System And Calling

2.4 My Modules:

2.4.1 Reminder system

The reminder system reminds the participant about class time. The reminder system prompts the participants to attend the programs. For example: An alert SMS will be sent to all registered participants 10 minutes before the start of any class belonging to a course. Message will be such as “Course CSE 471, lecture 10 will start from 12 P.M. 16/08/2008”. The system has the schedule of all courses. Whenever a presenter confirms a lecture, a trigger will be activated. It records the course and schedule (Course Information) of the course and starting time. Then it will search the database (Register Information) for the registered student of that particular course. A timer is always on for the reminder system. It always checks the course schedule and registered participants. Finally it will send message to all registered participants. There were some problems found during testing. The problem was related with sorting participants list. The log file was analyzed and after that the program was modified to remove the problems.

2.4.2 Daily & Final report

The Report system generates the daily and course final reports. It is important to give feedback to the participants to promote motivations in distance learning. The participants can evaluate his/her performance at the end of the class. This would motivate the participant to be more attentive from next class or be pleased that he/she has done well. At the end of the class a trigger is activated and the participants I get an SMS of their daily results and at the end of the course the final result. In the database, we will have four parts for the marking of a student. The first Database keeps attendance record, the second keeps bonus point record; the third will keep point for the right answer and the forth database keeps

the sum of above three databases. During unit testing a problem was found with adding marks of the individual participant. Thus the report system was modified

2.4.3 Speaker profile system:

The administrator selects the presenter for a particular program. The presenter's profile is kept in the database. One presenter is assigned for one program. The presenter is responsible for updating question bank. Only The Speaker information is needed to generate a program's final report.

2.5 Functionality of My Modules

The System should be automated extensively so that -

1. There is strict security system in accessing the information.
2. Authentication facilities should be provided for every domain users to restrict unauthorized modification or accessing into the system.
3. The system should generate a list of participant registered enrolled in for the system along with the program information.
4. The system should generate the list of participants for a particular course.
5. The Presenter Profile system should keep the Presenter personal information
6. The Presenter should be able to view the detailed information of the participants; programs on often and should be able to edit the participant's information.
7. The administrator must be able to view or check all the registration information along with the authorized registration and confirm that a participant's registration has been accepted.
8. The Reminder system should send an alert message to the participant before starting a class.
9. The Report system should generate participants' daily progress and final results.
10. The Reminder system should send the daily progress report at the end of every class.

2.6 Expected Benefits of My Modules

2.6.1 Tangible

1. A larger number of distributed participants get reminder service in less time
2. Minimization of data loss or error. Because all the information are kept in one system.
3. Our proposed system is automated and no attendance sheet for taking attendance. So Less paper works
4. Documentation flexibility (any format of reports can be made).Like the system can generate any report by the user requirements.
5. Presenter and participants' interaction will be effective. Because the Presenter will get the participants feedback instantly.
6. Participants will also get immediate feedback from Presenter.

2.6.2 Intangible

1. Presenter does not need to take roll call for attendance and Presenter can verify participants' performance with having to check answer scripts. So, Less pressure on Speaker
2. The participants get daily progress report the end of daily class. So the participants will get higher satisfaction and it encourages the participants for the next class.

2.7 Information Gathering Plan

2.7.1 Understand the current system:

2.7.1.1 Document analysis:

- Some documents that describe the current distance learning in our country have been read. The learning process was reviewed.
-

2.7.1.2 Understand system interface issues:

- Behavioral and structural models for the reminder process, program information, speaker profile, result and report were created

2.7.2 Identify improvements

After reading the references the current distance learning process was understood. Some problems of current distance learning education were identified

2.7.2.1 Problem analysis

- The key factors of the current learning process were identified.

2.7.2.2 Root cause analysis

- The BOU programs are mainly video based. In comparison with a face-to-face classroom the problem of manual distance learning education system were identified

2.7.2.3 Duration analysis:

- The amount of time it takes to process inputs in the current process were identified.

2.7.2.4 Activity-based costing

- The major processes or steps and costs associated with current system were identified.
- Include “Activity-based Costing” in the questionnaire session

2.8 Scope

Table 2.3 in scope and out of scope

In Scope	Out of Scope
Building an automated application for use with standard server.	Building a new server or application server.
Working with the exiting operating system.	Working with uncommon operating system.
Security in the form of user accounts, passwords, and permissions	Special security against hackers. Finding or patching security holes in existing software components.
One simple sample look-and-feel and instructions for end users	Our own high-quality look-and-feel. A library of look-and-feel options.
Database and server load and data volume that can be handled by one computer.	Managing a cluster of servers.
Mobilesets, Data cables and blue tooth technology.	Mobile company mode
Live telecast by video camera ,multimedia projector with sound system	Live Television
Exiting BRAC University Students	Non Geographical distributed students.

2.9 Risks and Rewards:

2.9. 1 What are the main risks of this project?

- There is a potential conflict between the goals of a high-quality appearance and one that is completely customizable. We can only succeed if the presenter and the participant interact with one another and the presenter can get feedback instantly
- There were significant technical difficulties in building the automated application. Because the system would run in real time and the entire event occurs automatically. There would be a time calculation and events that depend on the timer.

2.9.2 What are the main rewards if this project succeeds?

- If we accomplish the elements of our plan, our automated system will enhance existing distance learning systems by allowing the generation of real-time interaction between the presenter and participants. The system will also remind and monitor participants in real-time.

CHAPTER III

ANALYSIS

3.1 Information Gathering

First, we read some articles on distance learning and current trends. We tried to find current systems worldwide and find out what is lacking in the current system of distance learning in Bangladesh. We collected some documents and reports. This list of articles read and web sites visited were given in *Reference*. These materials helped us to analyze the current systems. We also observed current system functionality. We tried to find out current system requirements and define what our proposed system requirements would be. We also found out about the operation and issues of the current system and needs for system that we want to develop. This we did by preparing a sequence of activities that would go on better a Presenter and participants.

3.2 Context Diagram:

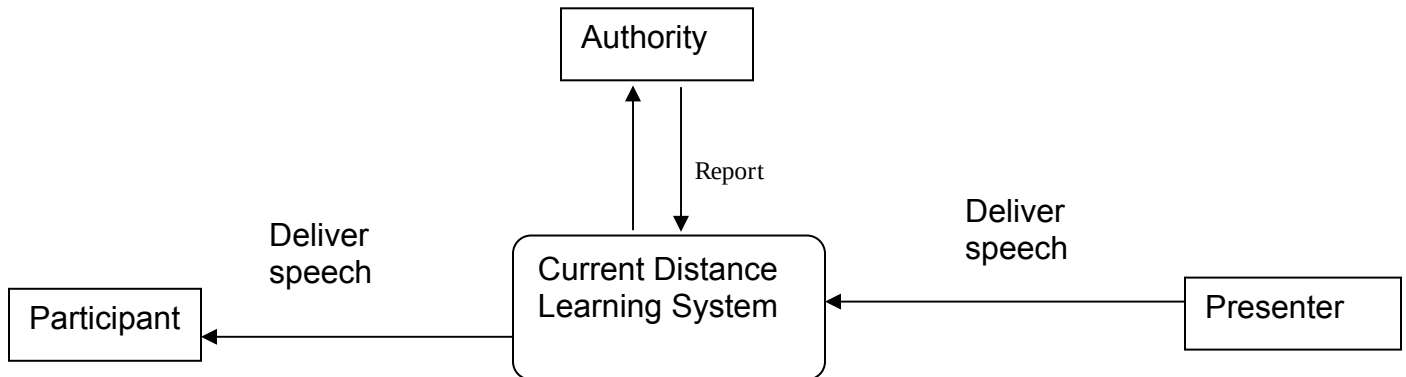


Fig 3.1: Context Diagram of Current Distance learning system

The authority selects the date and time for a particular program. At first the Presenter speech is recorded. After that it is announced and broadcasted on TV. The participant has to find the schedule from TV or newspaper for the program's date and time. On that day the recorded speech is broadcast and the participants listen to the presenter's speech. At the end of a program all reports of broadcasts delivered are generated by hand. Actually every thing is done manually. There is no interaction between Presenter and the Participants. It is a one-way delivery.

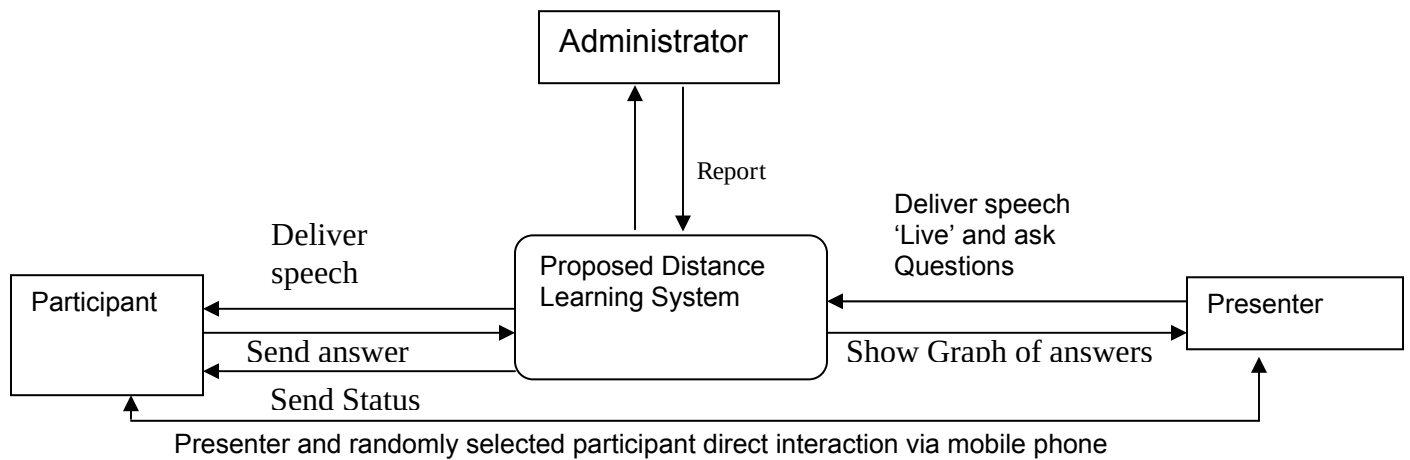


Fig 3.2: Context Diagram of our proposed Distance learning system

The administrator sets the schedule for a particular program. The program will be live telecast on TV. The presenter sets questions for participants and participants have to choose and send answers within a few minutes via SMS. The system graphs the answers. Then there will be presenter and randomly selected participant conversation via mobile phone. The system shows correct answers and the status of the individual student. The participants have to concentrate on lecture because of live telecasting and immediate response on their answers.

3.3 Data Flow Diagrams of New Logic System

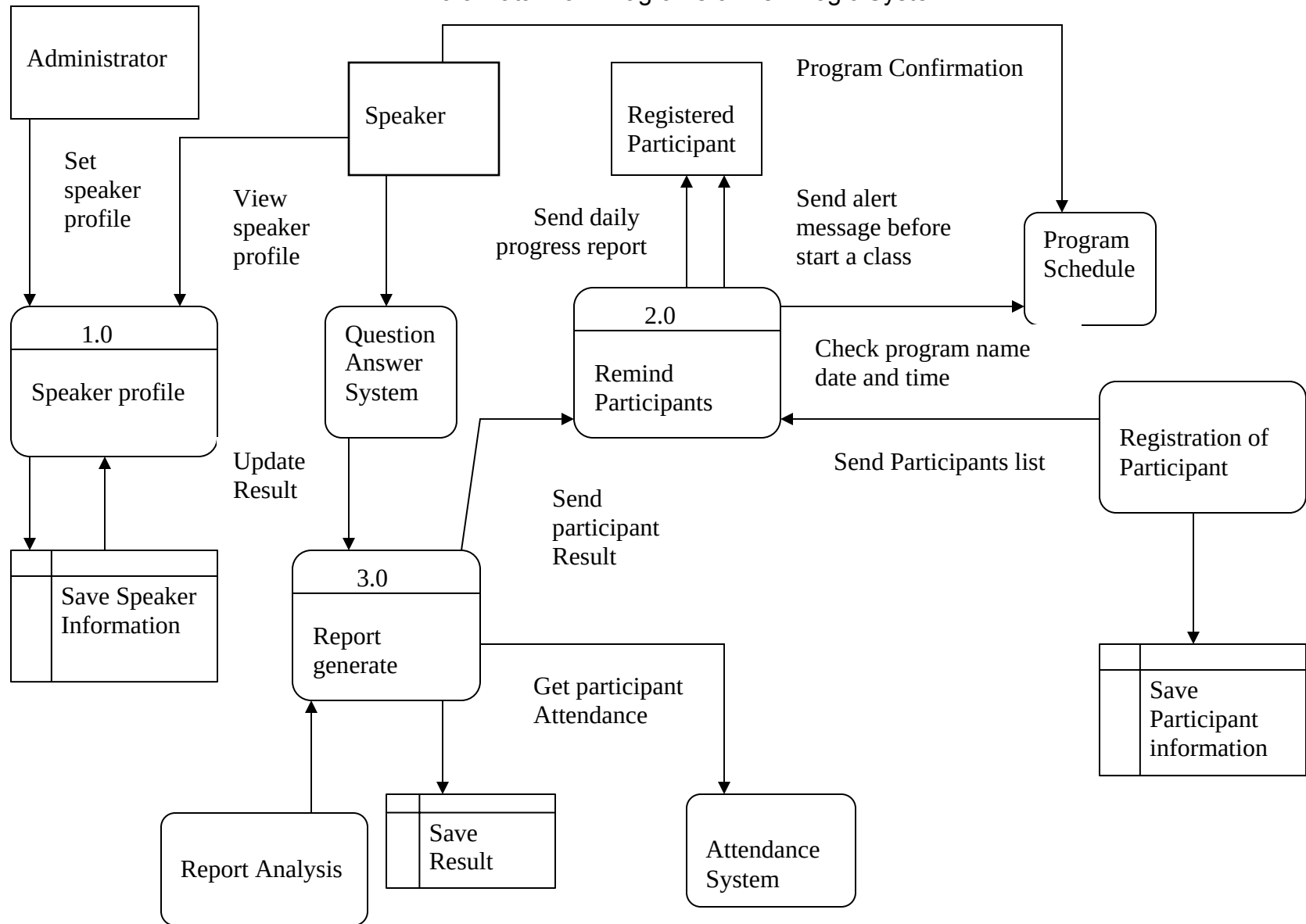


Fig 3.3: Level-0 Data Flow Diagram

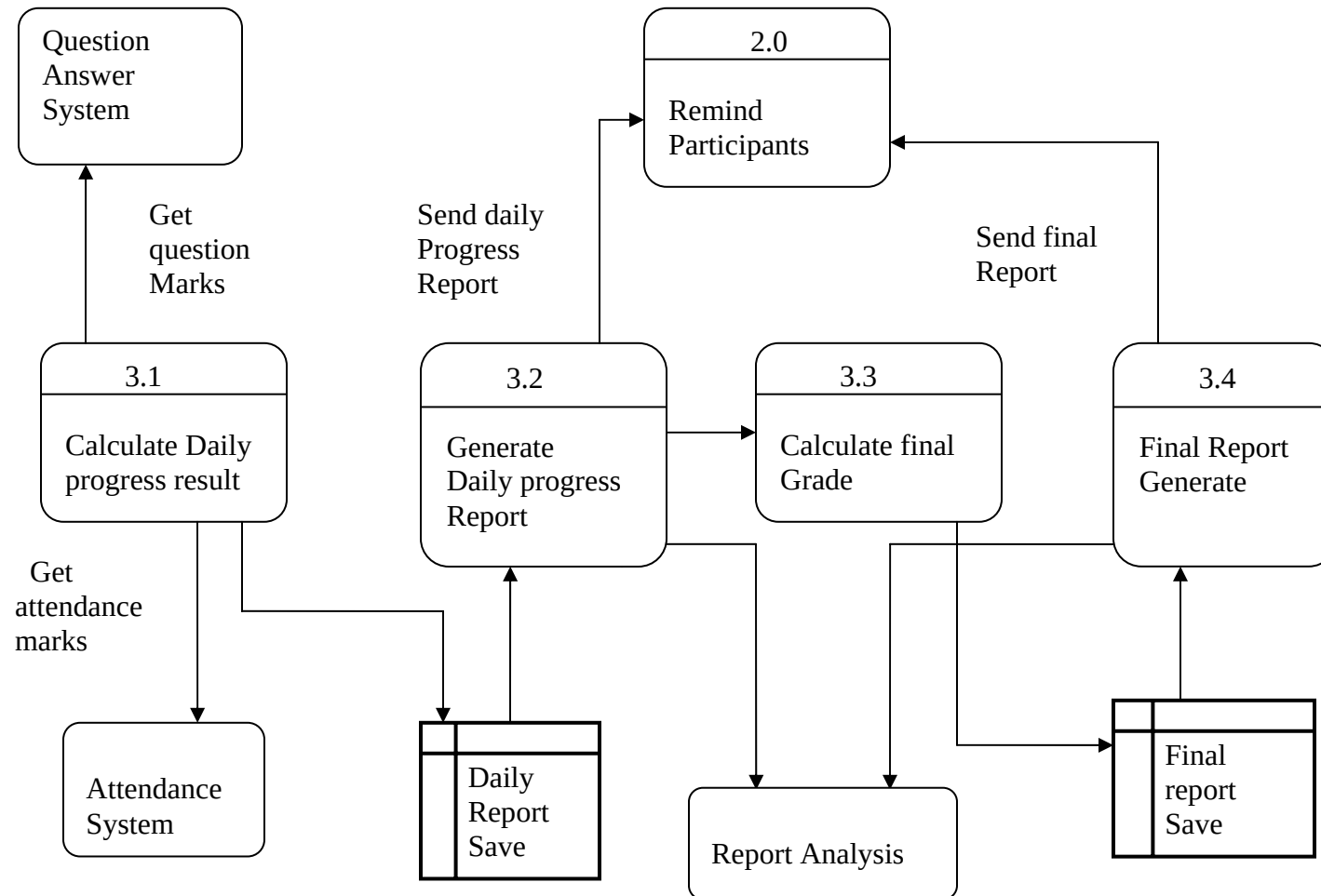


Fig 3.4: Level-1 DFD Decomposition of Process 3.0

Description of each DFD component

The data flow diagram is a visible tool for process modeling and can be used to model systems that are either physical or logical. Data Flow diagrams can also be used in the analysis for a process called gap analysis. The data flow diagram ensures data consistency.

At level-0 DFD the authority selects a presenter for a particular course. Then administrator puts the presenter's information. Registration system sends specific participant's information to reminder system. Reminder system finds course schedule from schedule system. For a specific date and time Reminder system sends SMS to the participants for that day's class. At the beginning of a class attendance system send participants id to result system to update attendance marks. At the class time report system collects the participants' id that are send as an answer for a particular question. After that report system generate participant's daily result. At the end of class the Reminder system send participants daily progress result via SMS.

At level-1 DFD we have broken down report generation process in to two parts. One is daily report generation and the other is final report generation process. The daily report generates process deliver participants' daily progress report. The final report generates a course's final report and is delivered at the end of a course.

3.4 Structure English Representation of Process Logic Modeling

3.4.1 Remind the students

An alert SMS will be sent to all registered student just 10 or 15 minutes before of a class. Such as “Course CSE 471, lecture 10 will start from 12 P.M. 16/08/2008” as specified by the administrator. The Server will have the schedule of all courses. Whenever a teacher will confirm a lecture, a trigger will be activated. It will mark the course and schedule (Course Information) of the course and starting time. Then it will search the database (Register Information) for the registered student of that particular course. Finally it will send message to all registered student.

3.4.2 Beginning of a class

Live telecast will begin. Teacher will show particular days plan and the way he/she will continue with his/her lecture and the topic he/she will cover in that particular day. If the class is not the first class then the teacher will ask for the given home task that he/she gave in the previous class. The presenter can also take a quiz based on the home work previously given. All lecture information will be kept in Database (Lecture Information).

3.4.3 Daily & Final report

Finally the instructor will show the graded results to the students. Students can see bar graph of answer along with the correct answer.. The students will get a SMS of their daily results and as well as combined result. In the database, we will have three parts for the student marks. One Database will keep bonus point

record; one will keep point for the right answer and finally the combination of those two databases against each student.

3.4.4 Presenter profile:

The authority selects the presenter for a particular program. The presenter's profile kept in the database. One presenter s assigned for one program. The administrator maintains presenter information.

3.5 Use Case Diagram:

3.5.1 Use case: make default list process

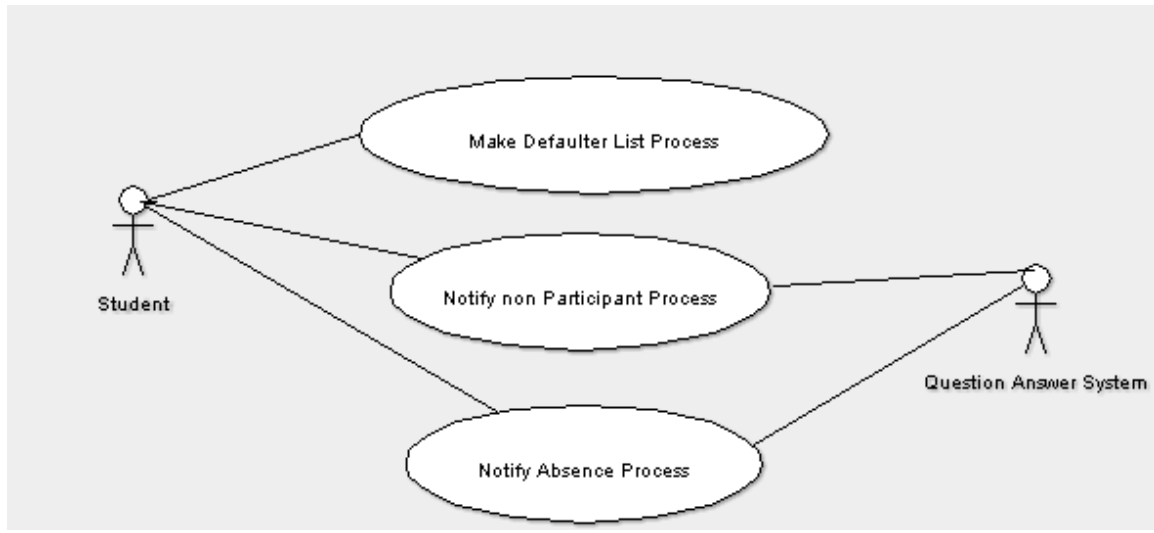


Fig 3.5: Use case diagram of Reminder system

Primary Actor: Participant, Question Answer System.

Stakeholders and interest:

- Participant: wants to participate in desired courses.
- Question Answer System: wants to deliver about the information send the Participant those are not participating question answer session.

Preconditions: Participant should be registered

Success Guaranteed (Post condition): Make a list of participants and send SMS for not attending a particular class

Main Success Scenario (or Basic Flow):

1. Check participant ID.
2. Make a list of defaulter.

Extensions (or Alternative Flows):

1. System reconstructs prior state.
 - 1a. System detects anomalies preventing recovery.
 1. System signals error to the Participant s, record the Error and enter a clean state.
 2. Participant has to resubmit the registration process.
 - 2a. System shows error or warning to the Participant s. Participant may not able send attendance.

3.5.2 Use case: notify non participant process

Primary Actor: Participant, Question Answer System.

Stakeholders and interest:

- Participant: wants to participate in desired courses.
- Question Answer System: wants to deliver about the information of Participant those are not participating question answer session.

Preconditions: Participant should the registered

Success Guaranteed (Post condition): Send message to the participant successfully.

Main Success Scenario (or Basic Flow):

1. Take participants id who are registered but not participate question answer session.
2. Send message to the participant from the non-participant list successfully.

Extension s (or Alternative Flows):

*a. At any time, System fails:

To support recovery and events can be recovered from any step of scenario.

1. Admin restarts the system, log in, and request recovery of prior state.
2. System reconstructs prior state.

2a. System detects anomalies preventing recovery.

2b. System signals error to the Participants, record the Error and enter a clean state.

2c. Participant has to resubmit the registration process.

2d. System can be disconnecting from communication device.

3. System may fail to update information for any inconvenience reason of system failure

1. System shows the error messages and asked to restart the send message process.

Special Requirements:

1. Need robust, scalable, secure, powerful database system
2. System should have routine builder.

3.5.3 Use case: notify absence process

Primary Actor: Participant, Question Answer System. Authority

Stakeholders and interest:

- Participant: wants to send attendance successfully
- Question Answer System: wants to Confirmation about the information of student those are registered for the course that s/he is taking and give particular day's attendance

Preconditions: Participant should be registered but not give attendance.

Success Guaranteed (Post condition): Send message to the participants successfully for not attend the program

Main Success Scenario (or Basic Flow):

1. Take participant id that are registered but not attend particular day's program
2. Send alert message to the participant successfully.

Extension s (or Alternative Flows):

*a. At any time, System fails:

To support recovery and events can be recovered from any step of scenario.

1. Admin restarts the system, log in, and request recovery of prior state.
2. System reconstructs prior state.

2a. System detects anomalies preventing recovery.

2. System signals error to the Participant s, record the Error and enter a clean state.

2. Participant has to resubmit the registration process.

2b. System can be disconnecting from communication device.

3. System may fail to update information for any inconvenience reason of system failure

1. System shows the error messages and asked to restart the send message process.

3.5.4 Use case: Update participant daily result

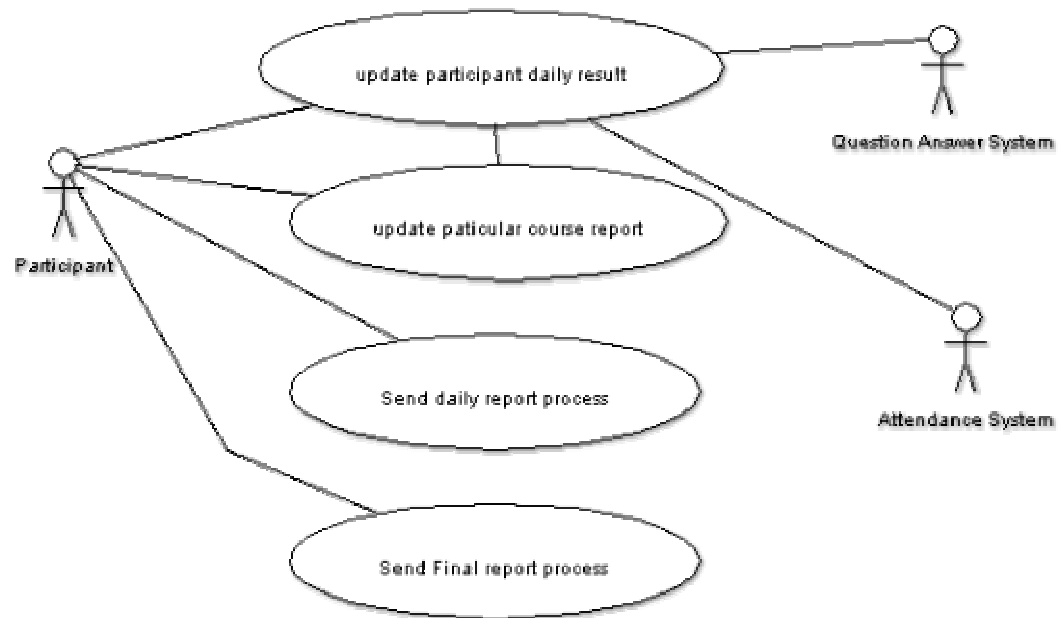


Fig 3.6: Use case diagram of Report system

Primary Actor: Participant, Question Answer System, Attendance system.

Stakeholders and interest:

- Participant: wants to get daily report.
- Question Answer System: wants to deliver about the information of Participant those are participating question answer session and also those are not participating question answer session.

Preconditions: Participant should be registered

Success Guaranteed (Post condition): Update final course report.

Main Success Scenario (or Basic Flow):

1. Take participants id who are registered, give attendance and participate question answer session.
2. Calculate participant daily progress.
3. Update course final report

Extension s (or Alternative Flows):

*a. At any time, System fails:

To support recovery and events can be recovered from any step of scenario.

1. Admin restarts the system, log in, and request recovery of prior state.
2. System reconstructs prior state.
 - 2a. System detects anomalies preventing recovery.
 - 2b. System signals error to the Participant s, record the Error and enter a clean state.
 - 2c. Their is a calculation error.
 - 2d. System can be disconnecting from communication device.

3. Fail to update final course result

Special Requirements:

1. Need robust, scalable, secure, powerful database system
2. System should have routine builder.

3.5.6 Use case: update particular course report

Primary Actor: Participant, Update Participant daily result.

Stakeholders and interest:

- Participant: want to get daily progress report.

-Update Participant daily result: wants to deliver about the information of Participant those are participating question answer session and give attendance.

Preconditions: Participant daily result should be updated.

Success Guaranteed (Post condition): send to participant.

Main Success Scenario (or Basic Flow):

1. Take participants ids that are registered, also course id. Updated course's participants' final report.
2. Calculate participant Final progress.

Extension s (or Alternative Flows):

*a. At any time, System fails:

To support recovery and events can be recovered from any step of scenario.

1. Admin restarts the system, log in, and request recovery of prior state.
2. System reconstructs prior state.

2a. System signals error to the Participant s, record the Error and enter a clean state.

2b. Their is a calculation error.

3. Fail to update final course result

Special Requirements:

1. Need robust, scalable, secure, powerful database system
2. System should have routine builder.

3.5.7 Use case: send participant daily report

Primary Actor: Participant.

Stakeholders and interest:

- Participant: wants to get daily report without any cost.

Preconditions: Participant should be registered

Success Guaranteed (Post condition): successfully send sms.

Main Success Scenario (or Basic Flow):

1. Take participant id who are registered, send daily result via sms.

Extension s (or Alternative Flows):

*a. At any time, System fails:

To support recovery and events can be recovered from any step of scenario.

1. Admin restarts the system, log in, and request recovery of prior state.
2. System reconstructs prior state.
 - 2a. System detects anomalies preventing recovery.
 - 2b. System signals error to the Participant s, record the Error and enter a clean state.

3. System can be disconnecting from communication device.
4. System may fail to send sms.

Special Requirements:

1. Need robust, scalable, secure, powerful database system
2. System should have routine builder.

3.5.8 Use case: send final course report

Primary Actor: Participant.

Stakeholders and interest:

- Participant: wants to get good final report for a particular course.

.Preconditions: Participant should be registered

Success Guaranteed (Post condition): successfully send sms.

Main Success Scenario (or Basic Flow):

1. Take participant id who are registered, send final course result via sms

Extension s (or Alternative Flows):

*a. At any time, System fails:

To support recovery and events can be recovered from any step of scenario.

1. Admin restarts the system, log in, and request recovery of prior state.
2. System reconstructs prior state.

2a. System detects anomalies preventing recovery.

2b. System signals error to the Participants, record the Error and enter a clean state.

3. System may fail to send sms.

Special Requirements:

1. Need robust, scalable, secure, powerful database system
2. System should have routine builder.

3.5.9 Use Case: update speaker information process

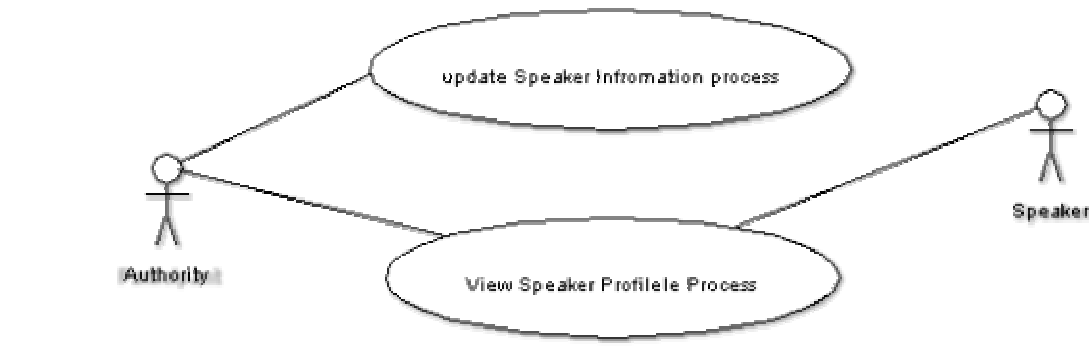


Fig 3.7: Use case diagram of Speaker Profile system

Primary Actor: Authority.

Stakeholders and interest:

Authority: wants to update speaker personal information.

.

Preconditions: Authority must be login to the system.

Success Guaranteed (Post condition): update speaker personal information

Main Success Scenario (or Basic Flow):

1. Set speaker personal information.
2. Update speaker information with course.

Extension s (or Alternative Flows):

*a. At any time, System fails:

To support recovery and events can be recovered from any step of scenario.

1. Admin restarts the system, log in, and request recovery of prior state.
2. System reconstructs prior state.
 - 2a. System detects anomalies preventing recovery.
 - 2b. System signals error to the Participant s, record the Error and enter a clean state.

Special Requirements:

1. Need robust, scalable, secure, powerful database system
2. System should have routine builder.

3.5.10 Use Case: view speaker profile process

Primary Actor: Authority, Speaker

Stakeholders and interest:

Authority: wants to update speaker personal information.

Speaker: wants to view own information.

Preconditions: speaker must be registered and login to system.

Success Guaranteed (Post condition): View speaker personal information

Main Success Scenario (or Basic Flow):

1. View Speaker all information.

Extension s (or Alternative Flows):

*a. At any time, System fails:

To support recovery and events can be recovered from any step of scenario.

1. Admin restarts the system, log in, and request recovery of prior state.
2. System reconstructs prior state.
 - 2a. System detects anomalies preventing recovery.
 - 2b. System signals error to the Participant s, record the

Error and enter a clean state.

Special Requirements:

1. Need robust, scalable, secure, powerful database system.

3.6 Sequence Diagram

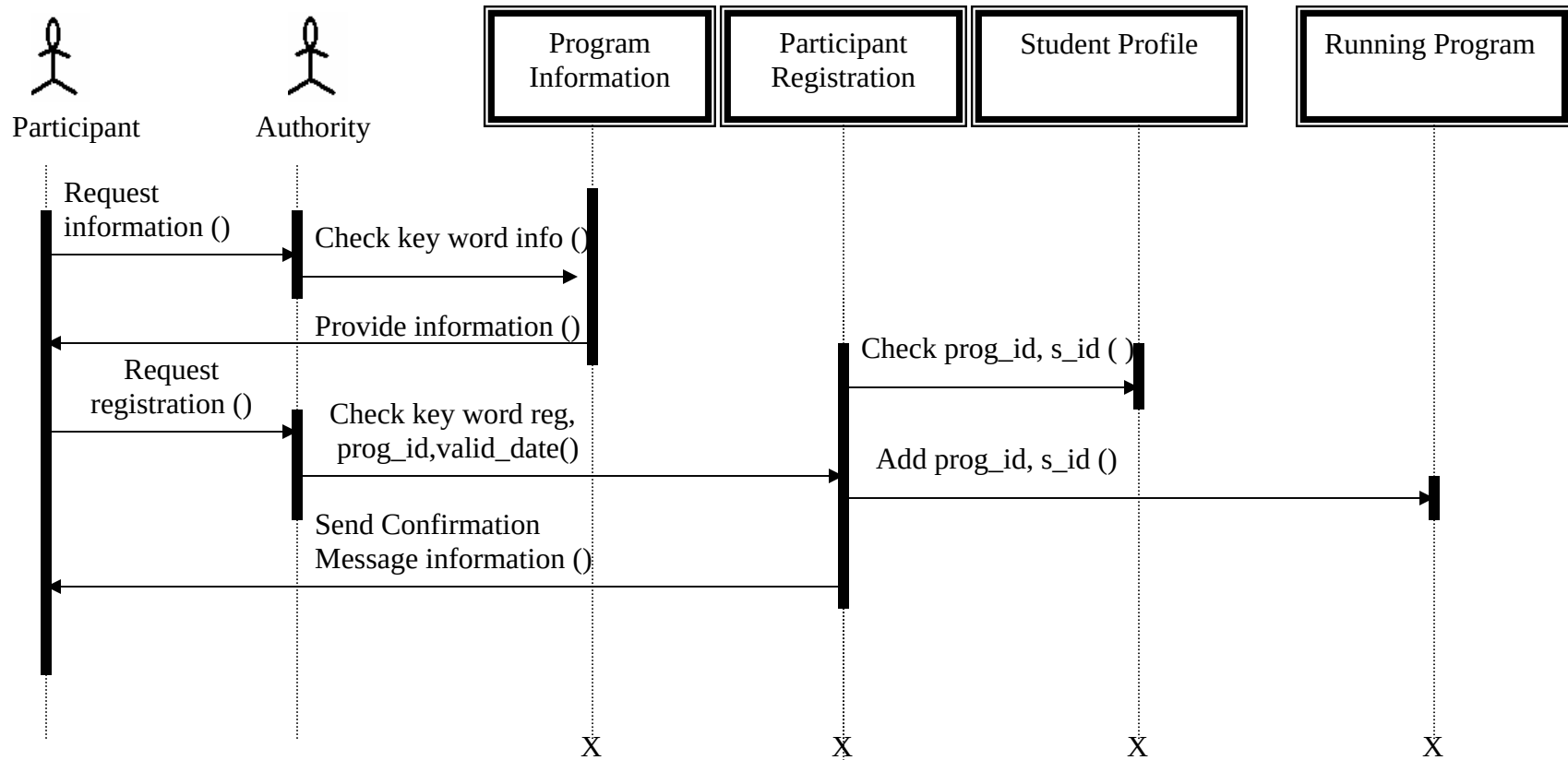


Fig 3.8: Proposed Distance Learning System sequence

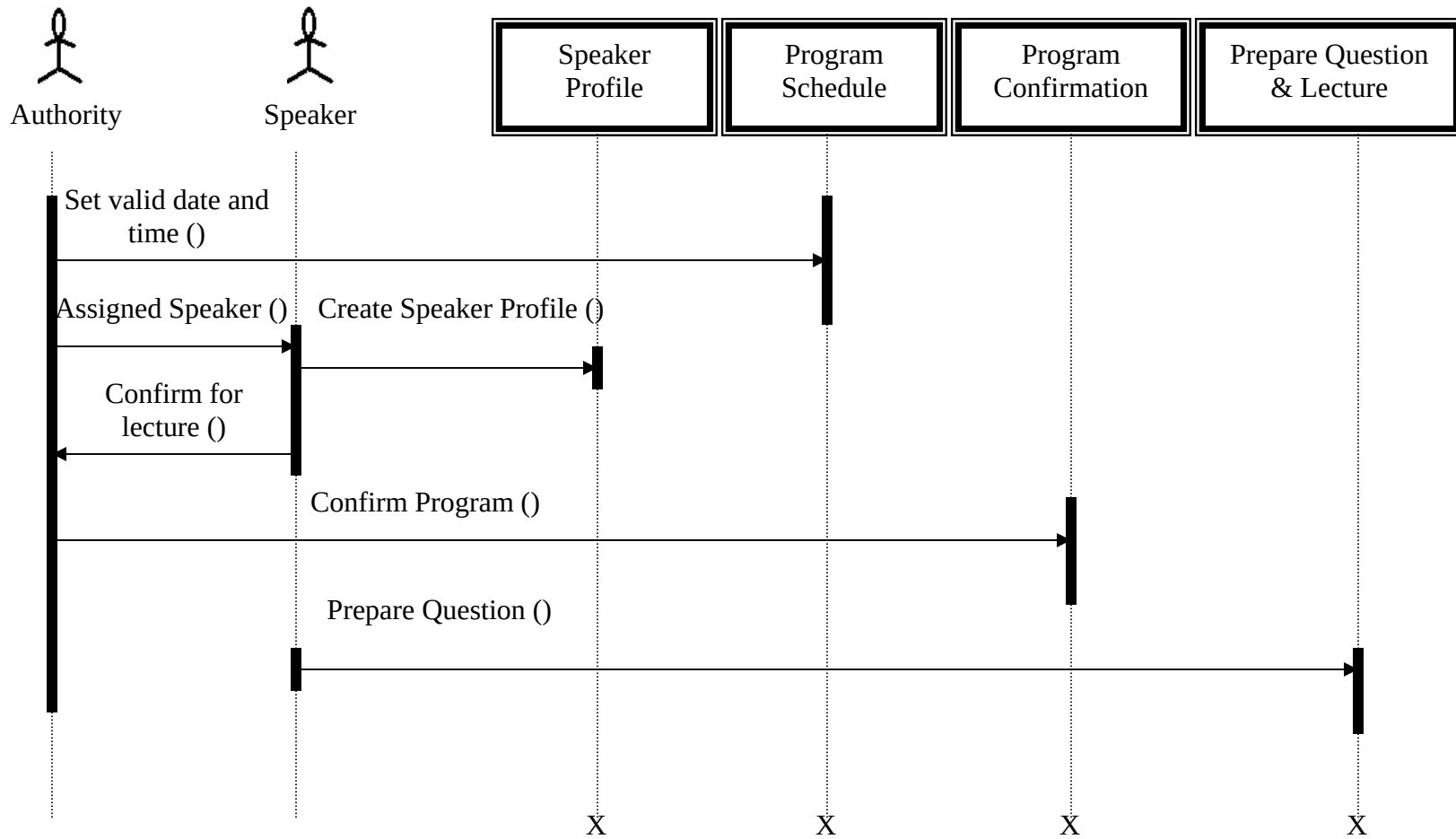


Fig3.9: Proposed Distance Learning System sequence

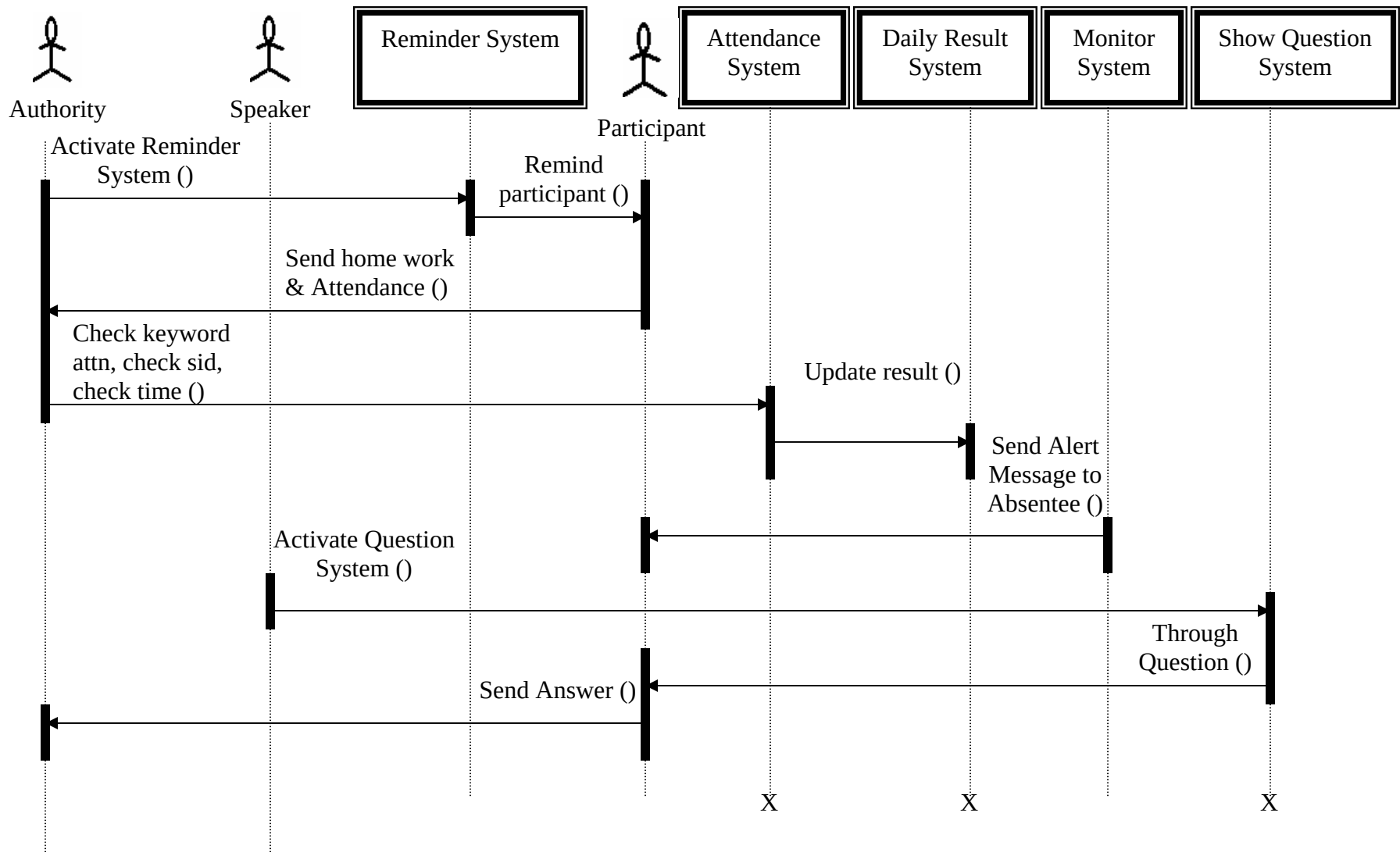


Fig 3.10: Proposed Distance Learning System sequence

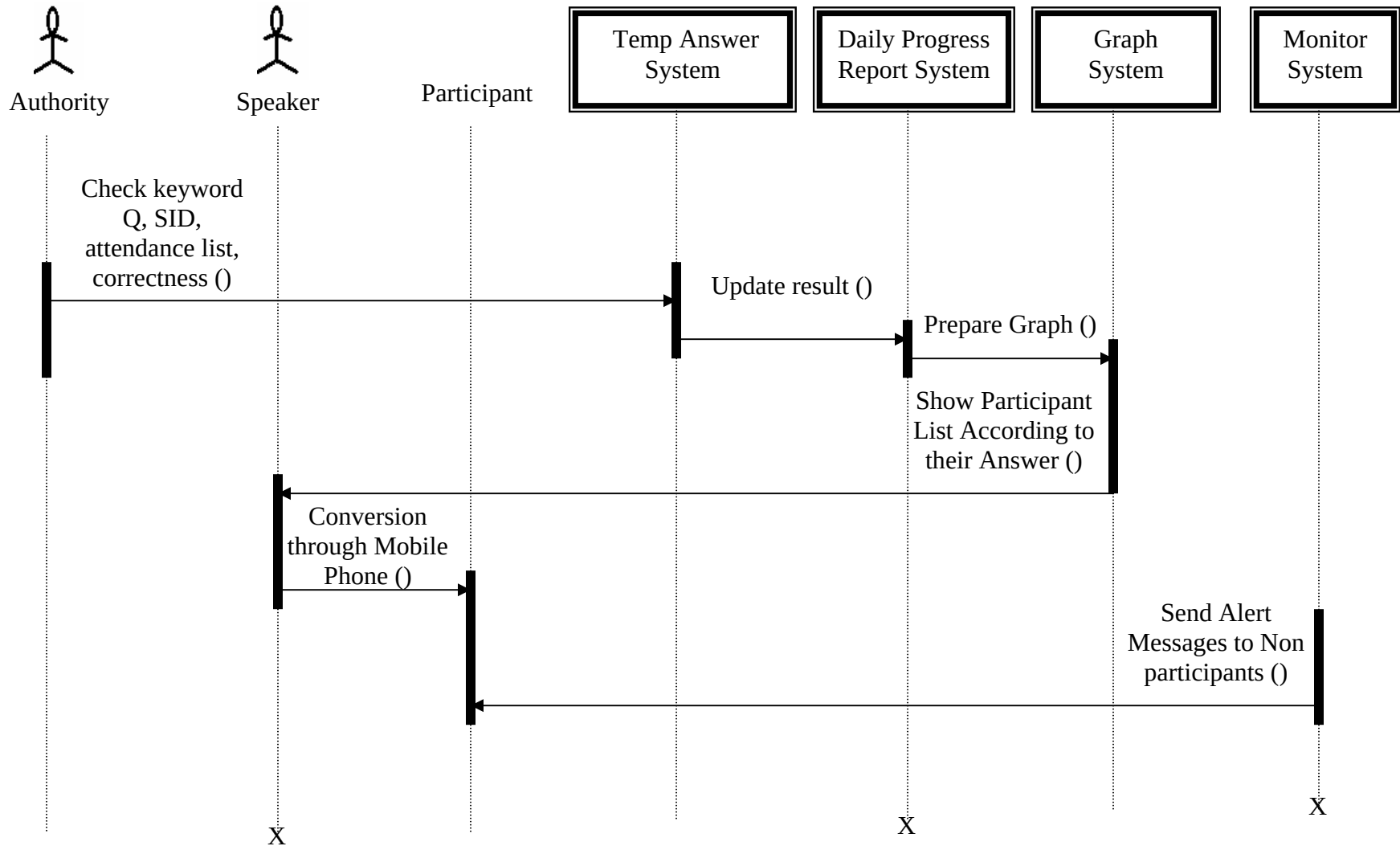


Fig 3.11: Proposed Distance Learning System sequence

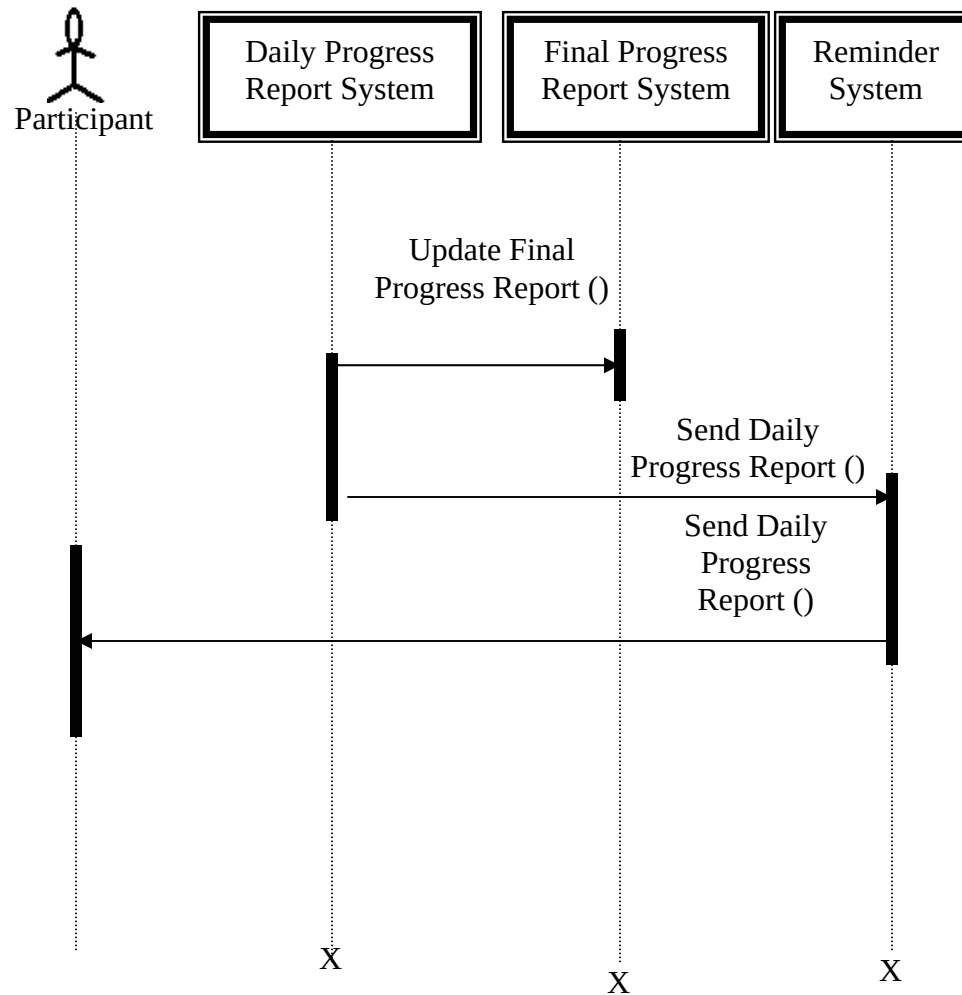


Fig 3.12: Proposed Distance Learning System sequence

3.7 Class Diagram

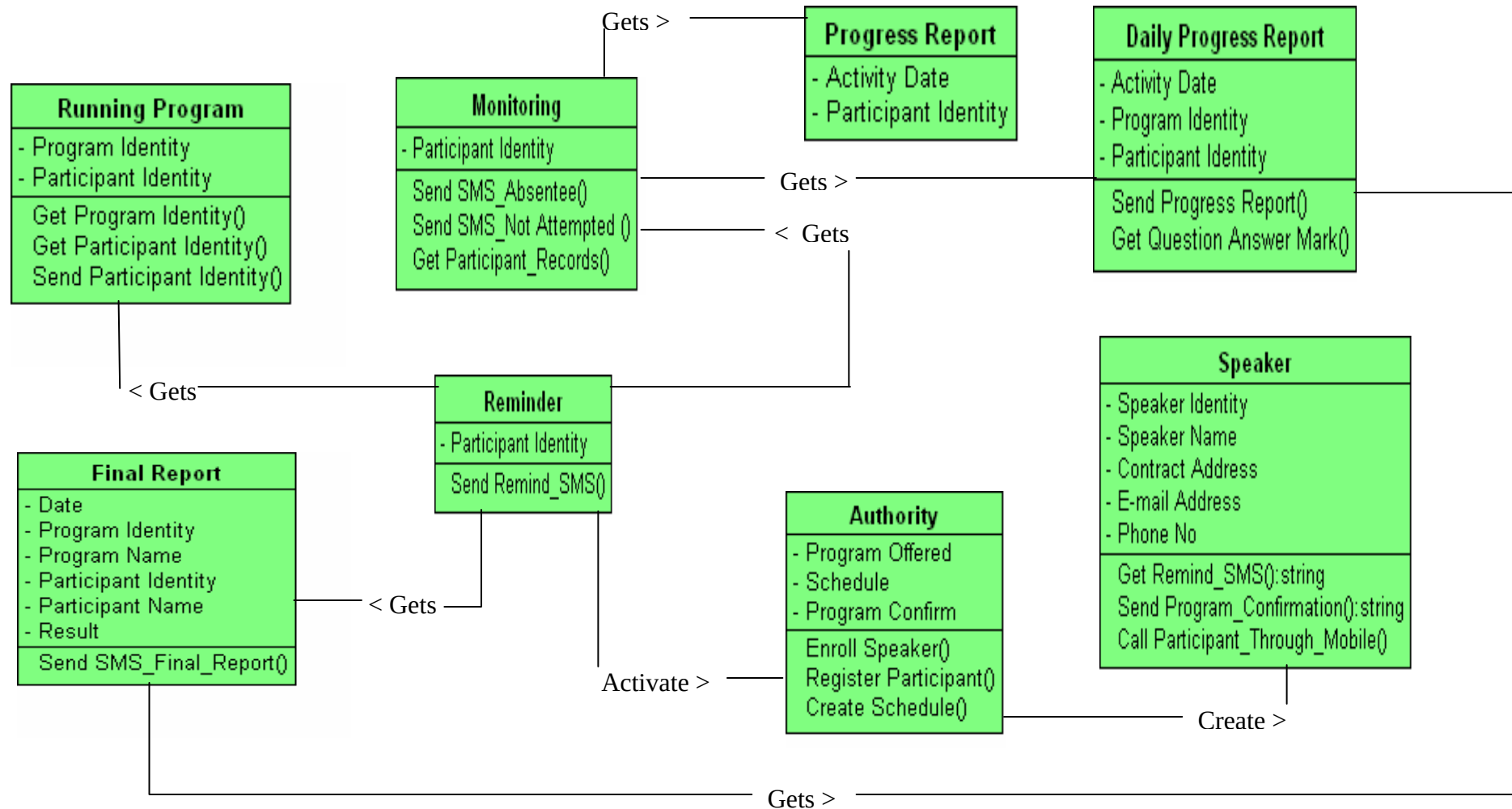


Fig 3.13: Proposed Distance Learning System Class Diagram

CHAPTER IV

DESIGN

4.1 Entity Relationship Diagram (ERD)

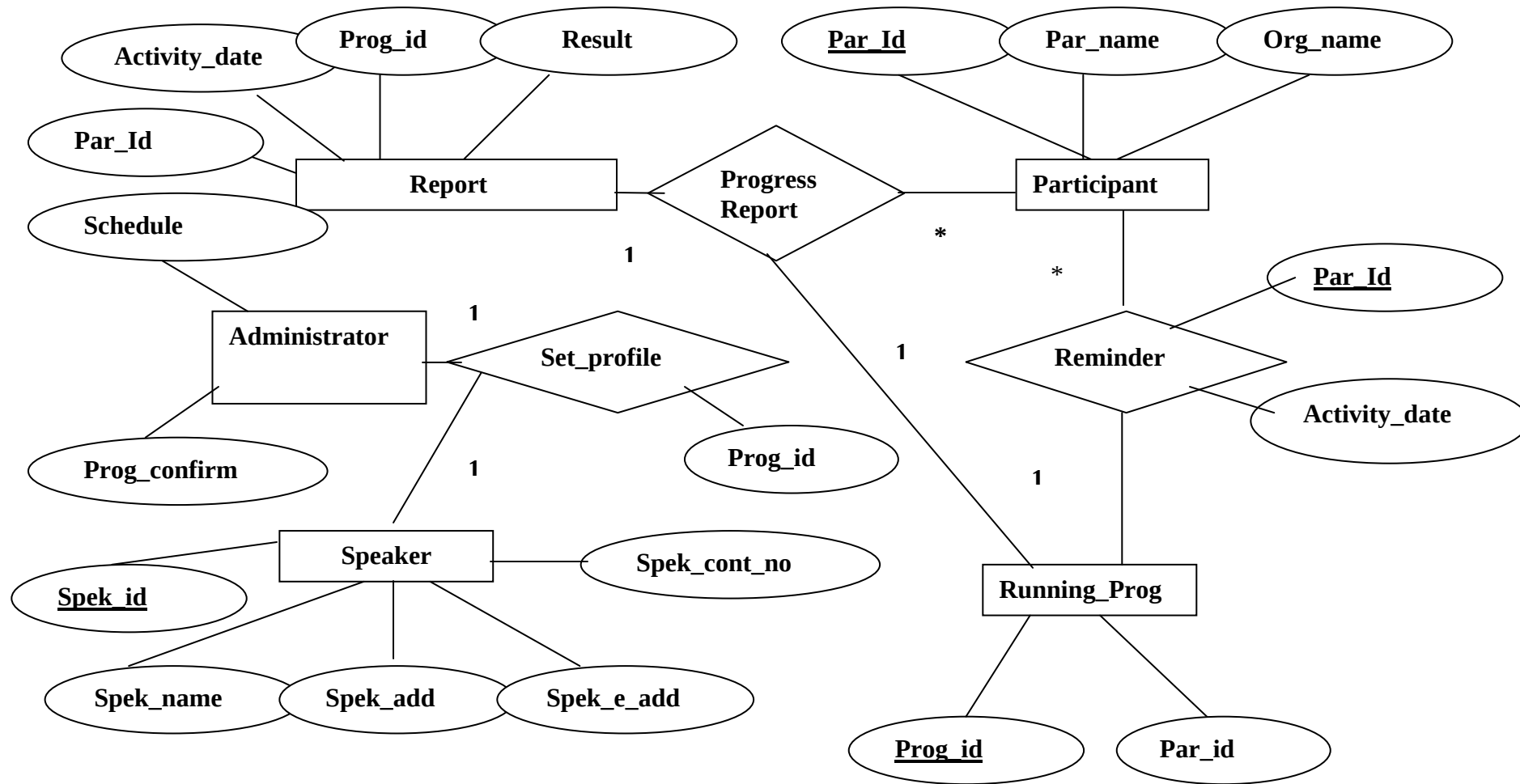


Fig 4.1: E-R Diagram of Reminder, Report Speaker Profile System

4.2 In Depth Systems Design

The detailed system design is an in-depth description of the system .In addition to being more specific than the general system design, the detailed design we think about system controls, data validation and methods. The content of the detailed system design falls into two major categories: system specifications and program/procedure specifications.

4.2.1 Systems specifications

The specifications of a system are defined in the detailed design. However, in the detailed design, that record must be divided into its component elements, each identified as to length, nature (alpha or numeric), logical limits, validation features, and onward.

This same concept of detail applies to all aspects of the system, including: Input data: — we have set Record sizes, field sizes data entry, media. We have defined a fix format for sending SMS.The participants have to use a fixed format for sending SMS.We have determine the field size depend on the length the record.

Processing steps:—at first we have parsed the participants' message. After that we have kept different information into different fields. We have also used temporary storage field for question answer checking purpose.

Processing Environment—we have used mobile to take participants answer. We have used Bluetooth wireless device as a mobile and our system connectivity.

Data Files—we have applied access control methods for data handling.

Output Data—we have also made fix formats for output data.

Control—we have used validation to check valid participants, question answers etc.

4. 2.2 Program/ Procedure specifications

The main aim is to build an error free operational system. The program specifications describe the data flow through the computer system and identify the number of programs to be coded. At first we checked our system data flows by building a prototype in Microsoft Excel. The improved prototype was assumed to be the final design of the ultimate system. For the prototype we coded using Visual Basic macros to test the data flow and design of our proposed system.

4.3 The Process of Database Designing

- A logical data model was developed for each known user interface for the application using normalization principle.
- The normalized data requirements from all user interfaces were combined into one consolidated logical database model.
- The conceptual data model translated for the application, developed without explicit consideration of specific user interface, into normalized data requirements.
- The combined logical database design was compared with E-R model and procedure, through view integration, one final logical database model for the application.

4.4 Final Set of Normalized Relations

LOGIN (**USER_NAME**, USER_PASS, CON_PASS)

PROGRAM_INFO (**PROGRAM_ID**, PARTICIPENT_NAME, ORGANIZATION_NAME)

PARTICIPENT_PROFILE(**PARTICIPENT_IDENTITY**,PARTICIPENT_NAME,ORGANIZATION_NAME)

SPEAKER_PROFILE(**SPEK_ID**_, SPEK_NAME, SPEK_ADD, SPEK__E_ADD, SPEK_CONT_NO)

PROGRAM_DETAIL(PROGRAM_ID,START_DATE,END_DATE,PROGRAM_DUARATION,NO_OF_PARTICIPENT)

QUESTION_BANK(PROGRAM_ID,QUESTION_NO,QUESTION_COUNT,CHOICE_NO1, CHOICE_NO2 CHOICE_NO3 ,CHOICE_NO4,CORRECT_ANSWER)

PARTICIPENT_CONFIRMATION(PROGRAM_ID,PARTICIPENT_IDENTITY, CONFIRMATION_DATE)

PARTICIPENT_LIST(PROGRAM_ID,PARTICIPENT_IDENTITY, ACTIVITY_DATE)

ABSENTEE (**ACTIVITY_DATE**, PARTICIPENT_IDENTITY, PROGRAM_ID)

DEFAULTER_LIST(**ACTIVITY_DATE**,**PARTICIPENT_IDENTITY**, QUESTION_NO, ALERT)

PROGRESS_REPORT_1(ACTIVITY_DATE,PARTICIPENT_IDENTITY,QUESTION_NO,PARTICIPENT_ANSWER,MARK,CORRECT_NESS)

PROGRESS_REPORT_2(ACTIVITY_DATE,PARTICIPENT_IDENTITY,HOME_TASK,ATTENDANCE_MARK,QUESTION_MARK,ANSWER_MARK,ATTEMPT_ANSWER, NOT_ATTEMPT, PASS_FAIL)

RUNNING_PROGRAM (PROGRAM_ID, PARTICIPENT_ID)

4.5 Designing Tables

Unlike textual information, where context and meaning are significantly derived through reading, the context and meaning of tables are significantly derived from the format of the information. The tables are used for reading individuals information. In the tables we set individuals attributes .the we set data type and size for that attributes. We set null value for some attributes as a default value. Each table keeps necessary information. The login table keeps user name and password information. Program Information table keep program information like program id, which is unique, program name and organization name. Participant Profile table keeps participants id, name and organization name. Here the question bank table contains each question and its possible answers. The Speaker profile table contains seeker personal information. Running program table keeps confirmed programs information. The absentee table contains the absentees' information to monitor and remind the participants. We have also some temporary table for data handling. We have two bales for keep participant's progress information.

4.6 Tables for Database

4.6.1 Program information

Columns						
Name	Datatype	Size	Scale	Nulls?	Default Value	
PROGRAM_ID	VARCHAR2	10				
PROGRAM_NAME	VARCHAR2	50				
ORGANIZATION_NAME	VARCHAR2	50				

The program information table contains program id, program name and organization name. The program id is unique for every program.

4.6.2 Participant profile

Columns						
Name	Datatype	Size	Scale	Nulls?	Default Value	
PARTICIPANT_IDENTITY	VARCHAR2	13				
PARTICIPANT_NAME	VARCHAR2	30				
ORGANIZATION_NAME	VARCHAR2	30		✓		

The Participants Profile table contains participant's id, name and participant's organization name. The participant id is unique. Here the organization name is optional.

4.6.3 Speaker Profile

Columns						
Name	Datatype	Size	Scale	Nulls?	Default Value	
SPEK_ID	VARCHAR2	13				
SPEK_NAME	VARCHAR2	50				
SPEK_ADD	VARCHAR2	80				
SPEK_E_ADD	VARCHAR2	30				
SPEK_CONT_NO	NVARCHAR2	30				

The Speaker Profile table contains Speaker's id, name address, e-mail and contract number. The speaker id is unique. Actually it keeps speaker personal information.

4.6.4 Program details

Columns						
Name	Datatype	Size	Scale	Nulls?	Default Value	
PROGRAM_ID	VARCHAR2	10				
START_DATE	DATE					
END_DATE	DATE					
PROGRAM_DURATION	NUMBER	10	0			
NO_OF_PARTICIPANT	NUMBER	10	0			

The program details table contains program start and end time. It also keeps the number of participants for a particular program.

4.6.5 Participants list

Columns						
Name	Datatype	Size	Scale	Nulls?	Default Value	
PARTICIPANT_IDENTITY	VARCHAR2	13				
PROGRAM_ID	VARCHAR2	13				
ACTIVITY_DATE	VARCHAR2	10				

The participants' list table gets program id and participant id for particular activity date.

4.6.6 Running program

Columns						
Name	Datatype	Size	Scale	Nulls?	Default Value	
PROGRAM_ID	VARCHAR2	10				
PARTICIPANT_IDENTITY	VARCHAR2	13				

On a particular activity date the Running program table contains program id and participant id. From this table the monitor and reminder system get the participants list to send alert message.

4.6.7 Progress report 1

Columns						
Name	Datatype	Size	Scale	Nulls?	Default Value	
ACTIVITY_DATE	VARCHAR2	15				
PARTICIPANT_IDENTITY	VARCHAR2	13				
QUESTION_NO	VARCHAR2	10				
PARTICIPANT_ANSWER	VARCHAR2	15				
MARK	NUMBER	10	0			
CORRECTNESS	VARCHAR2	10				

The progress report1 table contains participant's question answer marks. The system checks the question answer from this table

4.6.8 Progress report 2

Columns						
Name	Datatype	Size	Scale	Nulls?	Default Value	
ACTIVITY_DATE	VARCHAR2	10		✓		
PARTICIPANT_IDENTITY	VARCHAR2	13		✓		
HOME_TASK	NUMBER	10	0	✓	0	
ATTENDANCE_MARK	NUMBER	10	0	✓	0	
QUESTION_MARK	NUMBER	10	0	✓	0	
ANSWER_MARK	NUMBER	10	0	✓	0	
ATTEMPT_ANSWER	NUMBER	10	0	✓	0	
NOT_ATTEMPT	NUMBER	10	0	✓	0	
PASS_FAIL	VARCHAR2	3		✓		

The progress Report2 table contains participant's daily progress report. Participant's attendance and question marks are added in this table. The report system generates daily report from progress report1 table.

4.7 Designing Forms, Interface and Report

The system takes input from the environment within and outside the boundary. Then it will process that and present output. Therefore, we need to design a form to take and to show output. Forms, interface design are the most vital design activity because those are what the user will acquire from the system. The following figures will show some of the forms and interfaces that the system contains.

4.7.1 Program information

The screenshot displays a 'Program Information' form on a dark blue background. It features a table with three rows of data. The first row shows 'Program Info' with the value 'PROG1' and an 'Add' button. The second row shows 'Program Name' with the value 'Quadratic Function' and a 'Delete' button. The third row shows 'Organization Name' with the value 'BRAC University' and an 'Edit' button. Below the table, there are four navigation icons: a left arrow, a double left arrow, a double right arrow, and a right arrow. At the bottom left, there are two buttons labeled 'BACK TO MAIN' and 'EXIT'.

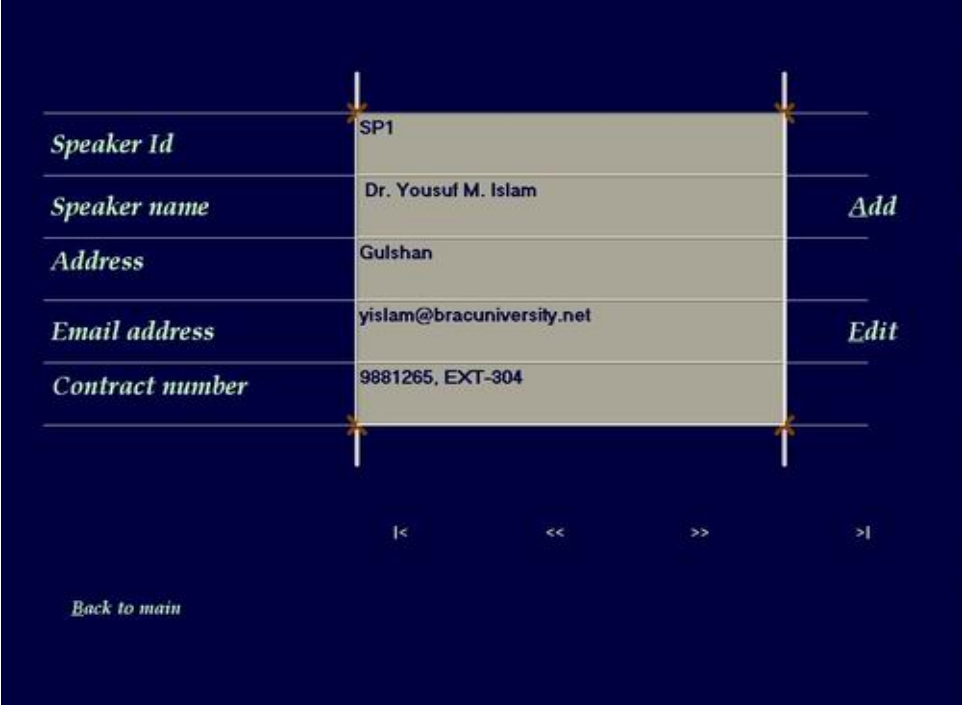
<i>Program Info</i>	PROG1	<i>Add</i>
<i>Program Name</i>	Quadratic Function	<i>Delete</i>
<i>Organization Name</i>	BRAC University	<i>Edit</i>

|< << >> >|

BACK TO MAIN EXIT

Fig 4.1: Program Information Form

4.7.2 Speaker profile



The image shows a 'Speaker profile' form on a dark blue background. The form is a light gray rectangle with a thin border. It contains five rows of text, each with a label on the left and a value in the center. The labels are 'Speaker Id', 'Speaker name', 'Address', 'Email address', and 'Contract number'. The values are 'SP1', 'Dr. Yousuf M. Islam', 'Gulshan', 'yislam@bracuniversity.net', and '9881265, EXT-304'. To the right of the form, there are two buttons: 'Add' and 'Edit'. Below the form, there are four navigation arrows: '<', '<<', '>>', and '>|'. At the bottom left, there is a link 'Back to main'.

Speaker Id	SP1
Speaker name	Dr. Yousuf M. Islam
Address	Gulshan
Email address	yislam@bracuniversity.net
Contract number	9881265, EXT-304

Navigation: < << >> >|

Back to main

Fig4.2: Speaker Profile Form

4.9.3 Main Interface

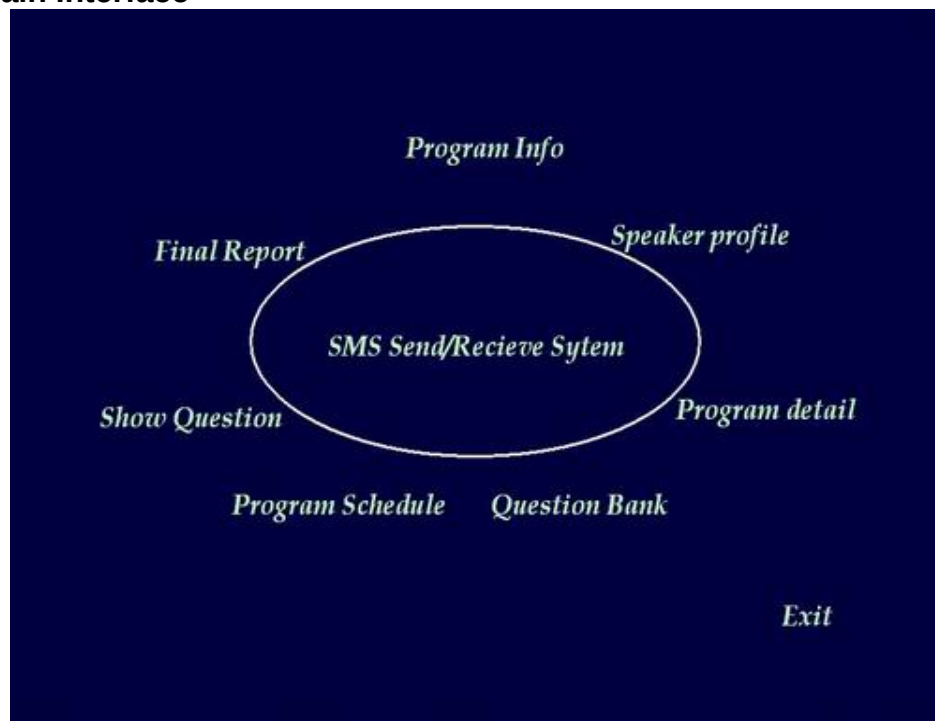


Fig 4.3: Main Interface

From the above figures we see the whole system split into different modules. The user can go from main window to any modules. We have used different forms to collect different information. We have used previous and next buttons to see records easily. In forms we have kept edit options. Accordingly the user can update data easily from the front end. The user can also use drop-down buttons to select values. Some reports are generated for the presenter and the authority to view course information, participant's performance, attendance, etc.

CHAPTER V

SYSTEM IMPLIMENTATION

5.1 System Development

The purpose of implementation is to build a proper working system. System development consists of translating previous specifications into computer programs and manual procedures

5.1.1 Computer programming

This general design of the program is usually documented in the form of a macro level flow chart, which depicts the major logical flow of the program. Once we have prepared the macro level chart, the detailed sequence of decisions, data movement, computations, and linkage in the program will be shown in a micro level program flow chart. This micro level chart then becomes the basis for actual coding of the program.

5.1.2 Actual coding

While coding, we used Visual Studio as front end. In addition, for the Database we used oracle 9i. The reason we used this tool is because Visual library is very rich and it can handle complex situation and the oracle database is security and well designed. In the coding phase face we first decided the functions names. After that the functions' details were decided. Each implemented each module was implemented separately.

Speaker Profile system: At first a connection was made between front end and oracle database. Then we have implemented insert information function. To

show the data from the database we have written show data function. Editing the Speaker profile information we had to write an edit function. At last we have added a function, which is, use to save data to database.

Reminder system: Before implemented the remind system we had to find out the conditions and the tables that were used to build the reminder system. At first we have defined a remind function, which is, use to remind the participants. In the remind function we have set a timer, which automatically check the program date and time after a certain time by a function date range. After that a function was created which program name and start time. The remind function takes the participants list from running program and send SMS by sending function. The remind function also check the program end time by the function ckeck _end. After that it collect participants daily progress mark by a function and send result by sending function.

Report system: At first we have created a function which opens daily progress and final progress tables. Then a function checks participants' validity. After that a function calculates _mark which calculates the participants' daily marks. Thus A function final_grade generates participants' final grade.

Pseudo Code of Reminder Function:

```

If (date_range = True) Then
    dtime = check_date
If (dtime = "NULL") Then
    remind = False
Else
    tm = Time
    hr = sms.GetToken (hour)
    min = sms.GetToken (minute)
    'If min = "00" Then
    min = 60
    hr = Int (hr) – 1

```

```
se = "30"  
hr_now = sms.GetToken (hour)  
min_now = sms.GetToken (minute)  
se_now = sms.GetToken(second)  
If (actual_time=current time) Then  
    remind = True  
'Else  
    remind = False
```

5.1.3 Crystal report

Our system generates reports for the Presenter and the Administrator. While building the system, we became aware of the need for such reports. We used Crystal Report 8.0 for this purpose. Crystal Report is one of the popular and reliable reporting software around the world. It gives more flexibility and choices than any other software.

5.2 Actual Testing

5.2.1 Presentation testing

From the sequence of our test plan we have first arranged presentation testing with the presenter being our thesis advisor. With the presentation testing; we have observed how the presenter interacts with our system. We basically tested the presenter lesson session and how frequently he used our system. The presenter conducted a whole class in front of a camera and we got feedback from the presenter about our system after end of the class. We then tested the lesson with the working of the software systems. After presentation testing we have found some problems.

The presenter did not set the timer frequently. Then we have modified our interface for showing questions. Later we added an option so that the presenter can set and start timer after the question is visible on the screen.

5.2.2 Sequence of class test

We have tested our system at BRAC University Savar residential campus. For our testing the students of MAT101 participated on that test program. Dr. Yousuf M. Islam has taken a class on Quadratic functions. Two groups of people participated in the test. One group sat in front of the presenter face-to-face and other group sat in the next room, each with a mobile set. They heard the presenter's speech on the sound system and watched him on a projector screen. On that day we tested the complete sequence of a 'live' class. At first, the participants completed their registration with their mobile phone for participating in the class session. The presenter started the class session at the stated time. Within the first 5 minutes the participants registered their attendance. Then our system processed all the participant's attendance marks. The presenter displayed questions to participants during the lecture time. The presenter selected the question and set the time for answering that question from our

system. The system processed the answer marks and also checked the answer. At the last the reminder system delivered both individual warnings and the daily progress report at the end of the session to the participants via SMS.

5.2.3 Actual test data

On the actual testing day we had to set program information, speaker profile, program details and schedule of the program. The presenter input all the questions and answers into our system before the starting of the class session.

5.2.3.1 List of registered participants

Table 5.1: List of registered participants

PARTICIPANT_IDENTITY	PARTICIPANT_NAME	ORGANIZATION_NAME
+880172844972	UMMAY HUMAYRA	BRAC University
+880172720366	TAHIA KHAIR	BRAC University
+880176412311	SHAMIUL ISLAM	BRAC University
+880172849812	SHAHIDA CHOWDHURY	BRAC University
+880171288829	TONIMA AZAM	BRAC University
+880176835595	NAZIFA TASNIM	BRAC University
+880172105137	ZAHID ISLAM	BRAC University
+880172696308	ISHFAQ	BRAC University
+880172832211	SHORAB	BRAC University
+880176552088	RIDWANA E REJINA	BRAC University
+880189405131	SAJJAD AHMED	BRAC University
+880172977503	EVANA	BRAC University
+880189502590	MD KAMRUZZAMAN	BRAC University
+880171876909	MD ISHRAT JAMIL	BRAC University
+880172823901	KHAIRUL BASAR	BRAC University
+880189419681	RUBAMA AHMED NIRU	BRAC University
+880172230474	FATEMA AKTER SUMI	BRAC University
+880173013365	MITU	BRAC University
+880176593790	ISHTIAQ	BRAC University
+880172798525	AMITABH	BRAC University
+880176484892	SHAMIMA SIDDIQUA	BRAC University

Our system accepts above participants' registration before the starting of the class session.

5.2.3. 2 Program Information

Table5.2 Program Information

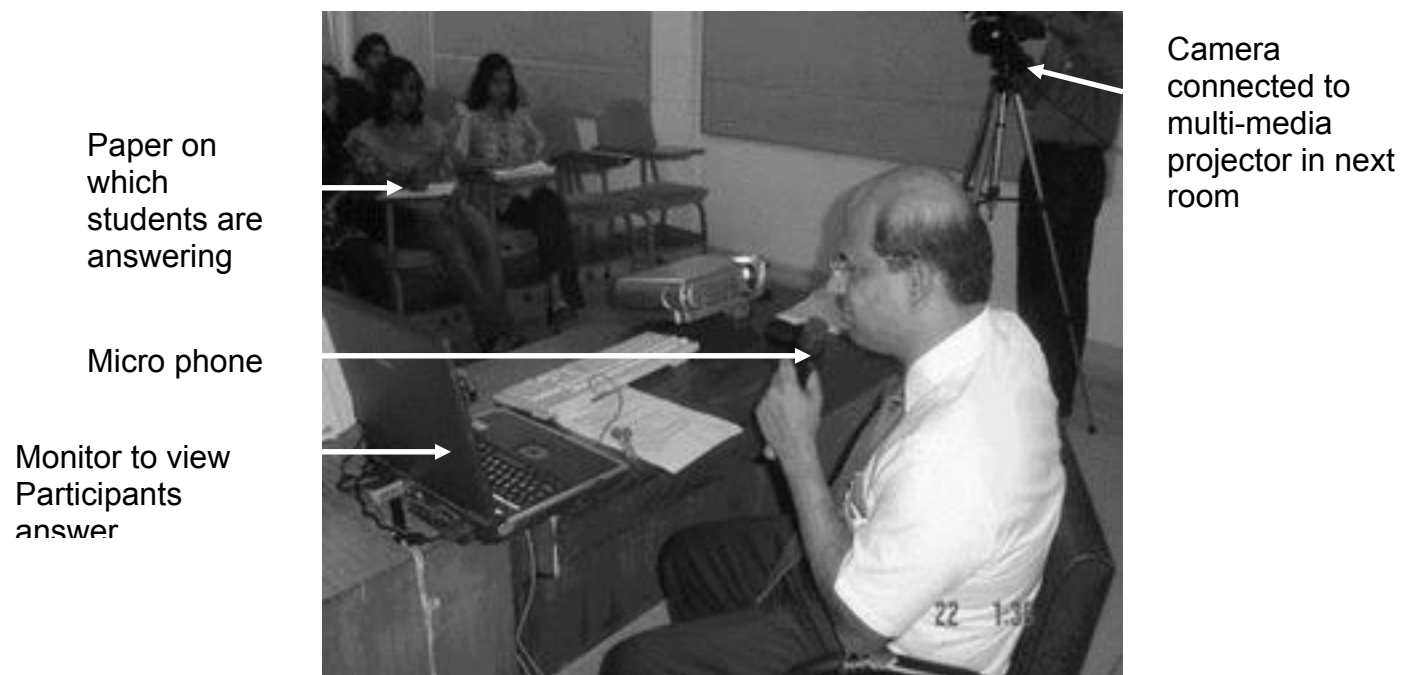
PROGRAM_ID	PROGRAM_NAME	ORGANIZATION_NAME
PROG1	Quadratic Function	BRAC University

PROGRAM_ID	START_DATE	END_DATE	PROGRAM_DURATION	NO_OF_PARTICIPANT
PROG1	22-Dec-2004	22-Dec 2004	1	25

SPEK_ID	SPEK_NAME		SPEK_ADD	SPEK_E_ADD		SPEK_CONT_NO	
PROGRAM ID	ACTIVITY DATE	PROGRAM CONFIRMATION	SPEAKER ID	SPEAKER CONFIRMATION	PROGRAM START_TIME	PROGRAM END TIME	
PROG1	12/22/2004	Yes	SP1	Yes	13:29:00	14:10:00	
SP1	Dr. Yousuf M. Islam	Gulshan -2	yislam@bracuniversity.net		9881265, 304	EXT-	

Program information; and presenter profile entered in our system database before the starting of the class session. After presenter confirmation we have set class starting and ending time. In the Appendix the log file contains all incoming and outgoing actual test data.

5.3 Visual Documents of Actual Testing



Teacher delivers his speech in front of one group of student. Other group pays attention and watch via camera and multimedia projector.



Participant writes down notes from presenter lecture.

Face to face students listen to the presenter speech and they have taken notes.



Participants write question answer on

Face to face students write down the answer on the quiz sheet, which was delivered from presenter.



Next room students have to pay attention to the projection screen and try to understand teacher lesson. Here teacher is physically absent but he is virtually present.



Video camera

Sending
Answer via
Mobile phone

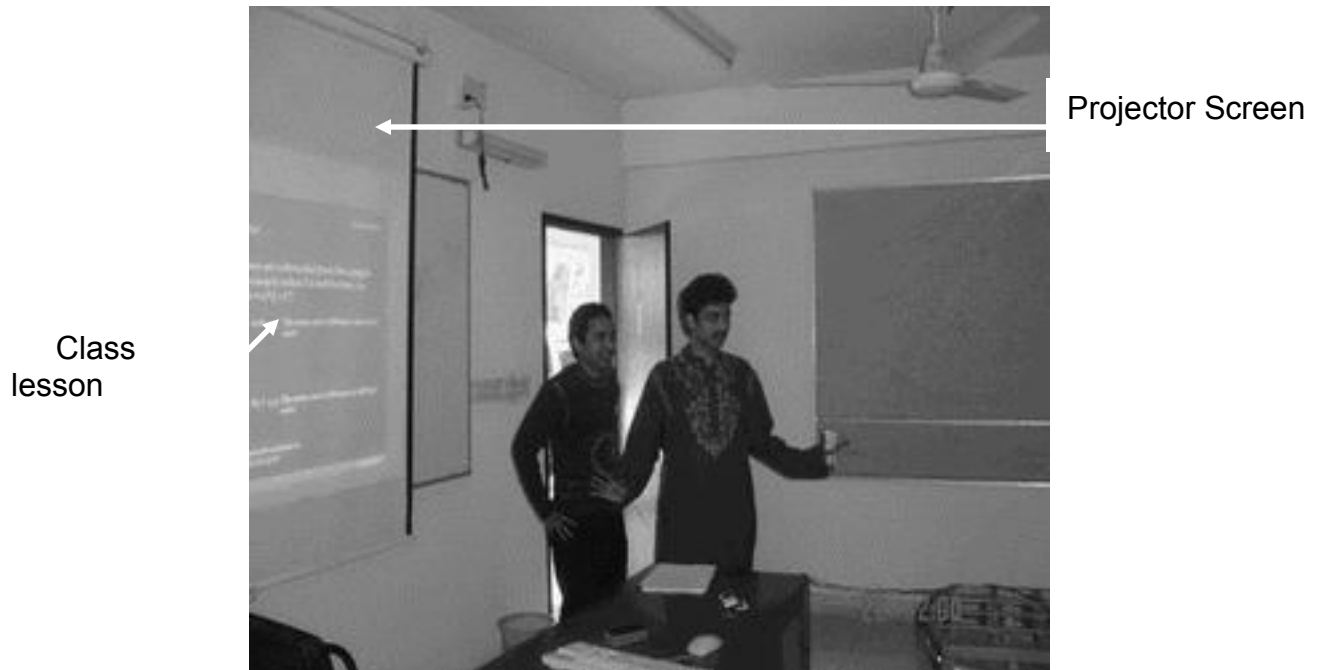
Next room students send their answer via SMS.

Presenter asked question to the participants by mobile Phone.



Participant answer the question by mobile Phone.

By our proposed system presenter can interact with participants via mobile. Presenter picked a participant identity from graph chart and discuss the question answer with the participant. Dr. Yuosuf talked with the selected student.



Participants were watching presenter lesson on this projector screen. Our moderator Zillur Rahman observed and verified our system



One of our group members operates our system.

5.4 Analysis of Actual Testing

5.4.1 Pre test:

We break down our pre-test into two parts:

1. Face-to-face.
2. Using SMS

1. Face-to-face:

Twenty participants of BRAC University attended the face-to-face program. We also divided the participants into two groups. They were Bengali medium and English medium. We considered the total mark as 6. On face-to-face Pre-test there is no English medium participant. Seven people did not get any mark. Out of 6 the average mark is 0.8

2. Using SMS:

Twenty-one participants of BRAC University attended the distance learning session. We also divided the participants into two groups. They are Bengali medium and English medium. We considered a total mark is 6. Ten people did not get any mark. Out of 6 the average mark is 0.5

5.4.2 Posttest:

We also broke down our Post-test into two parts:

1. Face-to-face.
2. Using SMS

1. Face-to-face:

Twenty participants of BRAC University attended the post test program. We also divide the participants in to two groups. They are Bengali medium and English medium. The total mark was out of 6. On face to face Post test there were no English medium participants. At post-test their performance is better from pre-test. Out of 6 the average mark is 3.24

2. Using SMS:

Twenty-one participants of BRAC University attended the post test program. We also divide the participants in to two groups. They are Bengali medium and English medium. The total mark is was 6. Out of 6 the highest mark was 5.5 and average mark is 3.60. Now we see the participant's performance is similar to that of the face-to-face test. The participant can get their daily result just after end of the class.

5.4.3 Compare result:

Now we have seen that using SMS the participant's performance is same as face-to-face test. The average mark at face-to-face is 3.24 and using our system the average is 3.60. In addition, the participant can get their daily results just after end of the class.

Ratio:

Using SMS/Face-to-face = $3.60/3.24 = 1.11$

5.5 T-test Analysis

We test the hypothesis that “there is no true difference between the two means” (NULL hypothesis). We have used MATLAB as the test-tool through the following command:

```
[h, significance, ci] = ttest2(x,y,alpha)
```

Here the '**alpha**' is related to the degree of certainty we require in order to reject the null hypothesis in favor of the alternative. Using this we decide in advance to reject the null hypothesis if the probability of observing your sampled result is less than the significance level. For a typical significance level of 5%, the notation is $\alpha = 0.05$. For this significance level, the probability of incorrectly rejecting the null hypothesis when it is actually true is 5%. If we need more protection from this error, then choose a lower value of alpha.

The '**significance**' (**p-value**) is the probability of observing the given sample result under the assumption that the null hypothesis is true. If the significance (p-value) is less than alpha, then we reject the null hypothesis.

Pre test:

```
» x=load ('preface2face.txt');
```

```
» y=load ('presms.txt');
```

```
» mean(x)-mean(y)
```

```
ans = 0.2737
```

```
» [h, significance, ci] =ttest2(x, y, 0.05)
```

```
h =0
```

```
Significance = 0.1870
```

ci = -0.1387 0.6861

The result, $h = 0$, means that we cannot reject the null hypothesis. The significance is 0.1870, which means that by chance we would have observed values of t more extreme than the one in this example in 1870 of 10,000 similar experiments! A 95% confidence interval on the mean is $[-0.1387, 0.6861]$, which includes the theoretical (and hypothesized) difference of 0.1870.

Post test:

```
» x=load ('face2face.txt');
```

```
» y=load ('sms.txt');
```

```
» [h, significance, ci]=ttest2(x,y,0.01)
```

$h = 0$

Significance = 0.0274

ci = -2.0463 0.1713 (0)

```
» [h, significance, ci] =ttest2(x, y, 0.02)
```

$h = 0$

Significance = 0.0274

ci = -1.9303 0.0553 (1)

```
» [h, significance, ci]=ttest2(x,y,0.03)
```

$h = 1$

Significance = 0.0274

ci = -1.8591 -0.0159 (2)

» [h, significance, ci] = ttest2(x, y, 0.05)

h = 1 Significance = 0.0274

ci = -1.7649 -0.1101 (3)

From (0) & (1) where 'alpha' = 0.02, the result, $h = 0$, means that we cannot reject the null hypothesis. The significance is 0.0274, which means that by chance we would have observed values of t more extreme than the one in this example in only 274 of 10,000 similar experiments! From (1) a 95% confidence interval on the mean is $[-1.9303, 0.0553]$, which includes the theoretical (and hypothesized) difference of -0.9375

From (2) & (3) where 'alpha' = 0.03 or more, the result, $h = 1$, means that we can reject the null hypothesis. The significance is 0.0274, which means that by chance we would have observed values of t more extreme than the one in this example in only 274 of 10,000 similar experiments! In (3), a 95% confidence interval on the mean is $[-1.7649, -0.1101]$, which includes the theoretical (and hypothesized) difference of

-0.9375

6. LIMITATIONS

. We did not arrange load testing. We did not test with a large number of participants to verify our system. We also did not test our system with multi-programs i.e. it alerts one program's participants at a time by its reminder system. So, we need to test our proposed system with multi-programs.

7. CONCLUSION

Real time interactive distance learning can be a close alternative for the usual on-campus teaching in our country. We can improve current distance learning education by using existing widely available technologies. For distance learning we need qualified teachers and visual lesson materials. Effective distance learning can reduce the need for migration and develop quality education in our rural areas. Our proposed system is an approach to solve current distance learning problems. Interaction between presenter and participants was our main aim. We have tried to fulfill this goal. Our distance learning education heavily relied on communication equipments. The integrity and consistency of the network and communication system does affect the quality of the distance learning. Thus, our system can be an interactive solution to distance learning in Bangladesh.

REFERENNCES

- [1] Joshua Angrist and Victor Lavy. "New Evidence on Classroom Computers and Pupil Learning"
- [2] Mawdudur Rahman, Nishikant Sonwalkar. "Multidimensional assessment of online learning –A pilot study".
- [3] Andy Stone¹, Jonathan Briggs², "SMS and Interactivity – Some Results from the Field, and its Implications on Effective Uses of Mobile Technologies in Education", Craig Smith Learning Technology Research Group, Kingston University.
- [4] Barker, B. O., Frisbie, A. G., & Patrick, K. R. (1989). "Broadening the definition of distance education in light of the new telecommunications technologies". *The American Journal of Distance Education*, 3, 20, 29.
- [5] Jung, D. J., Keel, R. O., & Irons, L. R. (1998). "Interactivity in distance education: A study of telepresence in university virtual classes". Paper presented at International Conference on the Social Impact of Information Technologies, October, St. Louis, Missouri.
- [6] Mohammad Shamim Hossain "Delivery Technologies used for Distance Education in Bangladesh Open University", School of Science and Technology Bangladesh Open University.
- [7] Lars Bollen, Sabrina Eimler, H. Ulrich Hoppe, "The Use of Mobile Computing to Support SMS Dialogues and Classroom, Discussions in a Literature Course", University of Duisburg-Essen, Germany.

- [8] Andy Stone, Mobile Scaffolding: "An Experiment in Using SMS Text Messaging to Support", First Year University Students. School of Computing & Information Systems, Kingston University, UK
- [9] Sherry, L. (1996). "Issues in Distance Learning. International Journal of Educational Telecommunications"
- [10] GOB (2001): Bangladesh Economic Review 2001, Ministry of Finance, Government of Bangladesh.
- [11] Development of Education: National report of Bangladesh. September, 2004.
- [12] <http://www.uwex.edu/disted/definition.html>
- [13] <http://stanford-online.stanford.edu/>
- [14] <http://www.unext.com/whoweare/academicalliances.asp>
- [15] <http://scpd.stanford.edu/scpd/students/onlineClass.htm>
- [16] <http://www.evl.uic.edu/cavern/vrserver.htm>
- [17] <http://www.unext.com/whoweare/academicalliances.asp>
- [18] <http://www.deetya.gov.au/division/hed/highered/occpaper.htm>
- [19] <http://www.citechco.net/bou/>
- [20] <http://scpd.stanford.edu/scpd/students/onlineClass.htm>

APPENDICES

Test document for participant:Program Information System:

This module keeps program information. If a participant wants to know about any particular program, he/she has to send a SMS as like:

info<dot> Program id (Not Case Sensitive but no space)

Info.prog1	0188042525
SMS Message	Destination number

The return message gives the particular program information.

Participant Registration System

Participant has to complete his/her registration before the start of a program. The Participant has to send his/her details with program id. The SMS format is:

Reg<dot>program id<dot>Participant name<dot>Organization name

Reg.prog4.Abdul Karim.BRAC	0188042525
SMS Message	Destination number

Note that, here a participant can give space between his/her first and last name. But except that no space is allowed.

Attendance system

The attendance system takes individual participant's attendance. When a session starts the Participant has to send a SMS within next 10 minutes. The SMS format for attendance as:

Attn(Not case Sensitive but no space)

attn	0188042525
SMS Message	Destination

If there is any home task the SMS format is:

Attn.h1a

attn.h1a	0188042525
SMS Message	Destination number

Show Question system:

The speaker can throw question on screen to test the participants. He/she just select question from question bank and set time (in minute) for that question. On that time participant send his/her answer through SMS. Like for question one and answer is a. then the SMS format is

Question number and answer: q1a

q1a
SMS Message

0188042525
Destination number

Questions of actual testing

Q1. What do a satellite dish and the mirror of a car headlight have in common?

- a. They are circular in shape.
- b. They are parabolic in shape.
- c. They have a square cross-section.
- d. Their shape is unknown

Answer: Q1b

Q2. Which of the following subjects tells us why we need a parabolic shape for the satellite dish and for the mirror of a car headlight?

- a. Mathematics
- b. Biology
- c. Physics
- d. English Language

Answer: Q2C

Q3. On normal paper that we use, i.e. in a plane, how can we best describe complete curved lines or shapes?

- a. By using a series of X, Y coordinates
- b. By drawing a curved line
- c. Using X and Y axis
- d. By describing the curved line verbally

Answer: Q3A

Q4. A formula given in terms of X is sometimes called a function of X or $f(x)$. Which of the following function does not describe a curved line?

- a. $f(x) = x^3 + x^2 + 2x + 1$
- b. $f(x) = x^2 + 2x + 1$
- c. $f(x) = x$
- d. $f(x) = x^2 + 1$

Answer: Q4C

Q5. The simplest Parabola is described by the following function

- a. $f(x) = x^2 + 2x + 1$
- b. $f(x) = x^2$
- c. $f(x) = 4x^2 + x + 3$
- d. $f(x) = 2x + 1$

Answer: Q5B

Q6. How can we find out what a particular function of x or $f(x)$ looks like?

- a. By estimating or approximating the curve
- b. By plotting the x and y axis
- c. By working out the minimum and maximum value of $f(x)$
- d. By working out the value of $f(x)$ for a range of x values and plotting the x and corresponding $f(x)$ values

Answer: Q6D

Q7. When $f(x) = x^2$, what is the value of $f(x)$ when $x = 3$?

- a. 4
- b. 9
- c. 6.25
- d. 2.25

Answer: Q7B

Q8. What is the value of x and $f(x)$ at the lowest points shown on the graph?

- a. -1, 1 and 1, 1
- b. -0.5, 0.25 and 0.5, 0.25
- c. -0.25, 0.25 and 0.25, 0.25
- d. None of the above

Answer: Q8B

Q9: What is the minimum value of the simplest parabola?

- a. 3
- b. 0
- c. -3
- d. 0.5

Answer: Q9B

Q10. What would happen terms are subtracted from the simple function $f(x) = x^2$, for example when 3 is subtracted, i.e. when the function is $f(x) = x^2 - 3$?

- a. The entire curve will move up by 3 units
- b. The entire curve will move to right by 3 units
- c. The entire curve will move down by 3 units
- d. The entire curve will move to left by 3 units

Answer: Q10C

When the coefficient $a=-1$, each value of x^2 will be multiplied by -1. The resulting curve will:

- a. Move down by -1 and have a minimum at $f(x) = -1$.
- b. Be a mirror image of $f(x) = x^2$ around the x-axis with a maximum value at $f(x) = 0$.
- c. Shift to the left by -1 and have a minimum at $f(x) = 0$.
- d. Shift to the right by 1 and have a minimum at $f(x) = 0$.

Answer: Q11A

Q12. When the coefficient $|a| > 1$, x^2 would increase for each value of x , therefore the curve

- a. Will be sharper with the max / min still at $f(x) = 0$.
- b. Will move up by the value of "a" and the minimum at $f(x) = a$.
- c. Will move down by the value of "a" and the minimum at $f(x) = a$.
- d. Will invert and have a maximum value at $f(x) = a$.

Answer: Q12B

Log File:

Received Log:

+880171442013 22/12/04 01:27:54 info.prog1
 +880188042525 22/12/04 01:30:10 Info.prog1
 +880171442013 22/12/04 01:31:27 info.prog1
 +880172961628 22/12/04 01:35:50 Reg.prog1.k.i
 +880171442013 22/12/04 01:36:01 reg.proG1.ZAMAN.BU
 +880172961628 22/12/04 01:43:44 Attn
 +880171442013 22/12/04 01:43:48 attn
 +880172961628 22/12/04 01:45:48 Q4a
 +880171442013 22/12/04 01:45:50 q4c
 +880172961628 22/12/04 01:49:53 Q5a
 +880188042524 22/12/04 12:20:20 info.prog1
 +880172105137 22/12/04 12:54:37 j
 +880172961628 22/12/04 13:15:58 Info.prog1
 +880172844972 22/12/04 13:16:23 Reg.prog1. Ummay humayra.BRAC
 +880172720366 22/12/04 13:16:24 Reg.prog1.Tahia khair.BRAC
 +880176412311 22/12/04 13:16:54 Reg.prog1.Shamiul Islam.BRAC
 +880172849812 22/12/04 13:16:55 Reg.prog1.shahida chowdhury.brac
 +880171288829 22/12/04 13:16:58 Reg.Prog1.Tonima azam.Brac
 +880176835595 22/12/04 13:17:03 Reg.prog1.Nazifa Tasnim.BRAC
 +880172105137 22/12/04 13:17:32 Reg.prog1.ZAHID ISLAM.BRAC
 +880172696308 22/12/04 13:17:38 Reg.Prog1.Ishfaq.BRAC
 +880172832211 22/12/04 13:18:12 Reg.prog1.shorab.BRAC
 +880172230474 22/12/04 13:18:33 Reg.prog.Fatema Akter Sumi.BRAC
 +880176552088 22/12/04 13:18:54 Reg.prog1.RIDWANA E REJINA.BRAC
 +880189405131 22/12/04 13:17:59 Reg.Prog1.Sajjad Ahmed.BRAC
 +880172977503 22/12/04 13:19:03 Reg.prog1.evana.BRAC
 +880189502590 22/12/04 13:18:18 REG.PROG1.MD KAMRUZZAMAN.BRAC
 +880171876909 22/12/04 13:19:22 Reg.prog1.Md Ishrat jamil.BRAC
 +880172823901 22/12/04 13:19:27 Reg.prog1.khairul basar.BRAC
 +880189419681 22/12/04 13:18:51 Reg.prog1.rubama ahmed niru.brac
 +880172230474 22/12/04 13:20:08 Reg.prog1.Fatema Akter Sumi.BRAC
 +880171876909 22/12/04 13:20:29 Reg.prog1
 +880173013365 22/12/04 13:20:56 Reg.Prog1.Mitu

+880176412311 22/12/04 13:22:39 attn
+880172105137 22/12/04 13:22:45 attn
+880172849812 22/12/04 13:22:55 Attn
+880176552088 22/12/04 13:22:57 attn
+880171876909 22/12/04 13:23:20 Attn
+880172230474 22/12/04 13:23:30 attn
+880173013365 22/12/04 13:23:46 Attn
+880172977503 22/12/04 13:23:46 attn.h1a
+880172696308 22/12/04 13:23:49 Attn
+880172832211 22/12/04 13:23:55 attn
+880172823901 22/12/04 13:23:59 Attn
+880176835595 22/12/04 13:24:12 attn
+880176593790 22/12/04 13:25:33 Reg.prog1.ishtiaq.brac
+880172720366 22/12/04 13:26:25 attn
+880172696308 22/12/04 13:26:26 Attn
+880172844972 22/12/04 13:26:31 Attn
+880171876909 22/12/04 13:26:38 Attn
+880176552088 22/12/04 13:26:41 attn
+880176412311 22/12/04 13:26:43 attn
+880172230474 22/12/04 13:26:48 attn
+880172798525 22/12/04 13:26:53 Reg.prog1.amitabh.BRAC
+880173013365 22/12/04 13:26:54 Attn
+880172832211 22/12/04 13:26:57 attn
+880172977503 22/12/04 13:26:59 attn
+880176835595 22/12/04 13:27:36 attn
+880172105137 22/12/04 13:28:35 attn
+880171876909 22/12/04 13:28:37 Attn
+880189502590 22/12/04 13:22:59 ATTN
+880172720366 22/12/04 13:30:00 q1b
+880176552088 22/12/04 13:30:02 q1b
+880172798525 22/12/04 13:30:17 Attn
+880172832211 22/12/04 13:30:17 q1b
+880172696308 22/12/04 13:30:31 Q1b
+880171876909 22/12/04 13:30:32 Q1b
+880172977503 22/12/04 13:30:40 Q1b
+880176412311 22/12/04 13:30:45 q1a

+880172105137 22/12/04 13:30:46 q1b
+880172798525 22/12/04 13:30:54 Attn
+880176835595 22/12/04 13:30:55 Q1b
+880172844972 22/12/04 13:31:00 Q1b
+880173013365 22/12/04 13:31:25 Attnq1a
+880172823901 22/12/04 13:31:48 q!b
+880176593790 22/12/04 13:31:49 B
+880172230474 22/12/04 13:31:51 Q1.d
+880172798525 22/12/04 13:32:34 Q1.b
+880172823901 22/12/04 13:33:38 Attn
+880189502590 22/12/04 13:25:45 ATTN
+880176593790 22/12/04 13:34:10 Q2c
+880172720366 22/12/04 13:34:11 q2c
+880176552088 22/12/04 13:34:13 q2c
+880172798525 22/12/04 13:34:14 Q2c
+880172105137 22/12/04 13:34:14 q2c
+880173013365 22/12/04 13:34:18 Q2c
+880176412311 22/12/04 13:34:20 q2c
+880176835595 22/12/04 13:34:23 Q2c
+880172230474 22/12/04 13:34:24 Q2c
+880172696308 22/12/04 13:34:25 Q2c
+880171876909 22/12/04 13:34:31 Q2c
+880172977503 22/12/04 13:34:33 Q2c
+880172832211 22/12/04 13:34:34 q2c
+880172696308 22/12/04 13:34:34 Q2c
+880172823901 22/12/04 13:34:46 Q2c
+880172977503 22/12/04 13:34:59 Q2c
+880172230474 22/12/04 13:35:08 Q2c
+880176552088 22/12/04 13:37:06 q3c
+880173013365 22/12/04 13:37:15 Q3c
+880172696308 22/12/04 13:37:16 Q3a
+880171876909 22/12/04 13:37:23 Q3c
+880172720366 22/12/04 13:37:24 q3c
+880172230474 22/12/04 13:37:27 Q3c
+880176835595 22/12/04 13:37:29 Q3c
+880172798525 22/12/04 13:37:30 Q3b

+880172977503 22/12/04 13:37:39 Q3b
+880172105137 22/12/04 13:37:42 q3c
+880172832211 22/12/04 13:37:43 q3a
+880172844972 22/12/04 13:37:43 Q3c
+880172823901 22/12/04 13:37:51 Q3a
+880176412311 22/12/04 13:38:42 q3d
+880176593790 22/12/04 13:38:57 Q3D
+880176484892 22/12/04 13:39:13 Reg.prog1.Shamima Siddiqua.BRAC
+880176484892 22/12/04 13:43:12 attn
+880188042524 22/12/04 13:26:02 attn
+880172696308 22/12/04 13:43:59 Q4c
+880173013365 22/12/04 13:44:00 Q4C
+880172977503 22/12/04 13:44:04 Q4c
+880176552088 22/12/04 13:44:09 q4d
+880176412311 22/12/04 13:44:13 q4d
+880172105137 22/12/04 13:44:14 Q4d
+880172720366 22/12/04 13:44:15 q4c
+880172823901 22/12/04 13:44:19 Q4b
+880176593790 22/12/04 13:44:20 Q4C
+880172832211 22/12/04 13:44:23 q4b
+880172230474 22/12/04 13:44:26 Q4c
+880176835595 22/12/04 13:44:33 Q4c
+880171876909 22/12/04 13:44:37 Q4c
+880172844972 22/12/04 13:44:46 Q4c
+880176484892 22/12/04 13:44:59 attn
+880172696308 22/12/04 13:47:44 Q5b
+880172105137 22/12/04 13:47:46 Q5b
+880172720366 22/12/04 13:47:46 q5b
+880172977503 22/12/04 13:47:48 Q5b
+880173013365 22/12/04 13:47:49 Q5B
+880176835595 22/12/04 13:47:52 Q5b
+880172798525 22/12/04 13:47:57 Q5b
+880172823901 22/12/04 13:47:58 Q5b
+880176412311 22/12/04 13:47:58 q5b
+880172844972 22/12/04 13:48:02 Q5b
+880176552088 22/12/04 13:48:03 q5b

+880176484892 22/12/04 13:48:08 q5b
+880172832211 22/12/04 13:48:12 q5b
+880171876909 22/12/04 13:48:15 Q5b
+880176593790 22/12/04 13:48:41 Q5B
+880171876909 22/12/04 13:48:51 Q5b
+880176593790 22/12/04 13:52:01 ATTN
+880173013365 22/12/04 13:53:01 Q8d
+880172696308 22/12/04 13:53:36 Q8d
+880189405131 22/12/04 13:27:01 Attn
+880189502590 22/12/04 13:27:13 ATTN
+880176412311 22/12/04 13:53:47 q8c
+880176835595 22/12/04 13:53:49 Q8c
+880172105137 22/12/04 13:53:58 Q8c
+880172720366 22/12/04 13:53:59 q8c
+880176552088 22/12/04 13:54:00 q8c
+880176593790 22/12/04 13:54:04 Q8C
+880172977503 22/12/04 13:54:16 Q8b
+880171876909 22/12/04 13:54:19 Q8c
+880172696308 22/12/04 13:58:05 Q10c
+880172696308 22/12/04 13:58:22 Q10c
+880176412311 22/12/04 13:58:30 q10c
+880172720366 22/12/04 13:58:31 q10c
+880172696308 22/12/04 13:58:31 Q10c
+880172977503 22/12/04 13:58:32 Q10c
+880173013365 22/12/04 13:58:34 Q10c
+880172832211 22/12/04 13:58:35 q10c
+880172844972 22/12/04 13:58:37 Q10c
+880176552088 22/12/04 13:58:39 q10c
+880172105137 22/12/04 13:58:39 Q10c
+880176835595 22/12/04 13:58:50 Q10c
+880176593790 22/12/04 13:59:20 Q9C
+880171876909 22/12/04 13:59:48 Q10c
+880189502590 22/12/04 13:29:47 Q1B

Transmit Log:

880171442013 12/22/2004 01:28:38 AM "Quadratic Function , Start: 12/22/2004, End: 12/22/2004, 1 Lectures" .

880188042525 12/22/2004 01:31:32 AM "Quadratic Function , Start: 12/22/2004, End: 12/22/2004, 1 Lectures" .

880171442013 12/22/2004 01:31:38 AM "Quadratic Function , Start: 12/22/2004, End: 12/22/2004, 1 Lectures" .

880172961628 12/22/2004 01:35:57 AM "You have been successfully registered for PROG1" .

880171442013 12/22/2004 01:36:08 AM "You have been successfully registered for PROG1" .

880171442013 12/22/2004 01:40:34 AM "Quadratic Function class is about to start within 10 minutes" .

880172961628 12/22/2004 01:40:40 AM "Quadratic Function class is about to start within 10 minutes" .

880172961628 12/22/2004 01:43:50 AM "BRAVO you are the attentive student of this class" .

880171442013 12/22/2004 01:43:56 AM "BRAVO you are the attentive student of this class" .

880171442013 12/22/2004 01:50:46 AM "You Did not attempted Ques No 5" .

880188042524 12/22/2004 12:21:25 PM "Quadratic Function , Start: 12/22/2004, End: 12/22/2004, 1 Lectures" .

880172961628 12/22/2004 01:16:04 PM "Quadratic Function , Start: 12/22/2004, End: 12/22/2004, 1 Lectures" .

880172844972 12/22/2004 01:16:26 PM "You have been successfully registered for PROG1" .

880172720366 12/22/2004 01:16:37 PM "You have been successfully registered for PROG1" .

880176412311 12/22/2004 01:17:20 PM "You have been successfully registered for PROG1" .

880172849812 12/22/2004 01:17:30 PM "You have been successfully registered for PROG1" .

880171288829 12/22/2004 01:17:49 PM "You have been successfully registered for PROG1" .

880176835595 12/22/2004 01:18:05 PM "You have been successfully registered for PROG1" .

880172105137 12/22/2004 01:18:12 PM "You have been successfully registered for PROG1" .

880172696308 12/22/2004 01:18:20 PM "You have been successfully registered for PROG1" .

880172832211 12/22/2004 01:18:33 PM "You have been successfully registered for PROG1" .

880172230474 12/22/2004 01:18:45 PM "The program id does not exit;please check whether your program is PROG" .

880176552088 12/22/2004 01:18:59 PM "You have been successfully registered for PROG1" .

880189405131 12/22/2004 01:19:15 PM "You have been successfully registered for PROG1" .

880172977503 12/22/2004 01:19:52 PM "You have been successfully registered for PROG1" .

880189502590 12/22/2004 01:20:19 PM "You have been successfully registered for PROG1" .

880171876909 12/22/2004 01:20:37 PM "You have been successfully registered for PROG1" .

880172823901 12/22/2004 01:20:46 PM "You have been successfully registered for PROG1" .
880189419681 12/22/2004 01:20:52 PM "You have been successfully registered for PROG1" .
880172230474 12/22/2004 01:21:04 PM "You have been successfully registered for PROG1" .
880171876909 12/22/2004 01:21:30 PM "You have been already enlisted for PROG1" .
880173013365 12/22/2004 01:21:37 PM "You have been successfully registered for PROG1" .
880176412311 12/22/2004 01:22:54 PM "You are too late for attending the class" .
880172105137 12/22/2004 01:23:27 PM "You are too late for attending the class" .
880172849812 12/22/2004 01:23:34 PM "You are too late for attending the class" .
880176552088 12/22/2004 01:23:41 PM "You are too late for attending the class" .
880171876909 12/22/2004 01:23:48 PM "You are too late for attending the class" .
880172696308 12/22/2004 01:28:01 PM "You are too late for attending the class" .
880172832211 12/22/2004 01:28:12 PM "You are too late for attending the class" .
880172823901 12/22/2004 01:28:17 PM "You are too late for attending the class" .
880172823901 12/22/2004 01:28:17 PM "You are too late for attending the class" .
880176593790 12/22/2004 01:29:34 PM "You have been successfully registered for PROG1" .
880172720366 12/22/2004 01:30:43 PM "BRAVO you are the attentive student of this class" .
880172696308 12/22/2004 01:31:28 PM "BRAVO you are the attentive student of this class" .
880172844972 12/22/2004 01:31:34 PM "BRAVO you are the attentive student of this class" .
880171876909 12/22/2004 01:31:43 PM "BRAVO you are the attentive student of this class" .
880176552088 12/22/2004 01:31:53 PM "BRAVO you are the attentive student of this class" .
880176412311 12/22/2004 01:32:00 PM "BRAVO you are the attentive student of this class" .
880172230474 12/22/2004 01:32:07 PM "BRAVO you are the attentive student of this class" .
880172798525 12/22/2004 01:32:13 PM "You have been successfully registered for PROG1" .
880173013365 12/22/2004 01:32:20 PM "BRAVO you are the attentive student of this class" .
880172832211 12/22/2004 01:32:27 PM "BRAVO you are the attentive student of this class" .
880172977503 12/22/2004 01:32:35 PM "BRAVO you are the attentive student of this class" .
880176835595 12/22/2004 01:32:44 PM "BRAVO you are the attentive student of this class" .
880172105137 12/22/2004 01:32:51 PM "BRAVO you are the attentive student of this class" .
880171876909 12/22/2004 01:32:58 PM "You are already attending the class" .
880189502590 12/22/2004 01:33:52 PM "BRAVO you are the attentive student of this class" .
880172798525 12/22/2004 01:34:52 PM "You are already attending the class" .
880172798525 12/22/2004 01:35:30 PM "You are already attending the class" .
880172823901 12/22/2004 01:35:53 PM "You are absent for today" .
880172230474 12/22/2004 01:36:00 PM "You Did not attempted Ques No 1" .
880173013365 12/22/2004 01:36:07 PM "You Did not attempted Ques No 1" .
880189502590 12/22/2004 01:36:13 PM "You Did not attempted Ques No 1" .

880172823901 12/22/2004 01:37:37 PM "BRAVO you are the attentive student of this class" .

880189502590 12/22/2004 01:37:48 PM "You are already attending the class" .

880176593790 12/22/2004 01:38:32 PM "You are absent for today" .

880172798525 12/22/2004 01:38:49 PM "You are absent for today" .

880172844972 12/22/2004 01:39:58 PM "You Did not attempted Ques No 2" .

880189502590 12/22/2004 01:40:04 PM "You Did not attempted Ques No 2" .

880172977503 12/22/2004 01:40:11 PM "You are late" .

880172230474 12/22/2004 01:40:17 PM "You are late" .

880171288829 12/22/2004 01:40:33 PM " You are absent for the 12-22-2004 Class of PROG1" .

880172849812 12/22/2004 01:40:40 PM " You are absent for the 12-22-2004 Class of PROG1" .

880189405131 12/22/2004 01:40:46 PM " You are absent for the 12-22-2004 Class of PROG1" .

880189419681 12/22/2004 01:40:53 PM " You are absent for the 12-22-2004 Class of PROG1" .

880172798525 12/22/2004 01:42:01 PM "You are absent for today" .

880176593790 12/22/2004 01:42:56 PM "You are absent for today" .

880189502590 12/22/2004 01:43:02 PM "You Did not attempted Ques No 3" .

880176484892 12/22/2004 01:43:23 PM "You have been successfully registered for PROG1" .

880176484892 12/22/2004 01:47:11 PM "You are too late for attending the class" .

880188042524 12/22/2004 01:47:44 PM "You are Not Valid Participant" .

880172720366 12/22/2004 01:48:36 PM "You Did not attempted Ques No 4" .

880172844972 12/22/2004 01:48:45 PM "You Did not attempted Ques No 4" .

880171876909 12/22/2004 01:48:54 PM "You Did not attempted Ques No 4" .

880176552088 12/22/2004 01:49:02 PM "You Did not attempted Ques No 4" .

880176412311 12/22/2004 01:49:08 PM "You Did not attempted Ques No 4" .

880172230474 12/22/2004 01:49:15 PM "You Did not attempted Ques No 4" .

880172832211 12/22/2004 01:49:21 PM "You Did not attempted Ques No 4" .

880172977503 12/22/2004 01:49:28 PM "You Did not attempted Ques No 4" .

880176835595 12/22/2004 01:49:35 PM "You Did not attempted Ques No 4" .

880172105137 12/22/2004 01:49:41 PM "You Did not attempted Ques No 4" .

880189502590 12/22/2004 01:49:48 PM "You Did not attempted Ques No 4" .

880172823901 12/22/2004 01:49:54 PM "You Did not attempted Ques No 4" .

880172720366 12/22/2004 01:50:00 PM "You are late" .

880172823901 12/22/2004 01:50:06 PM "You are late" .

880176593790 12/22/2004 01:50:12 PM "You are late" .
880172832211 12/22/2004 01:50:18 PM "You are late" .
880172230474 12/22/2004 01:50:25 PM "You are late" .
880176835595 12/22/2004 01:50:31 PM "You are late" .
880171876909 12/22/2004 01:50:37 PM "You are late" .
880172844972 12/22/2004 01:50:43 PM "You are late" .
880176484892 12/22/2004 01:50:49 PM "You are too late for attending the class" .
880172798525 12/22/2004 01:52:18 PM "You are absent for today" .
880176484892 12/22/2004 01:52:46 PM "You are absent for today" .
880176593790 12/22/2004 01:53:02 PM "You are absent for today" .
880172230474 12/22/2004 01:53:36 PM "You Did not attempted Ques No 5" .
880189502590 12/22/2004 01:53:42 PM "You Did not attempted Ques No 5" .
880176593790 12/22/2004 01:55:59 PM "You are too late for attending the class" .
880173013365 12/22/2004 01:56:59 PM "You are late" .
880189405131 12/22/2004 01:57:43 PM "You are too late for attending the class" .
880189502590 12/22/2004 01:57:49 PM "You are too late for attending the class" .
880172720366 12/22/2004 01:58:20 PM "You Did not attempted Ques No 8" .
880172844972 12/22/2004 01:58:26 PM "You Did not attempted Ques No 8" .
880171876909 12/22/2004 01:58:32 PM "You Did not attempted Ques No 8" .
880176552088 12/22/2004 01:58:38 PM "You Did not attempted Ques No 8" .
880176412311 12/22/2004 01:58:44 PM "You Did not attempted Ques No 8" .
880172230474 12/22/2004 01:58:51 PM "You Did not attempted Ques No 8" .
880173013365 12/22/2004 01:58:57 PM "You Did not attempted Ques No 8" .
880172832211 12/22/2004 01:59:04 PM "You Did not attempted Ques No 8" .
880172977503 12/22/2004 01:59:11 PM "You Did not attempted Ques No 8" .
880176835595 12/22/2004 01:59:17 PM "You Did not attempted Ques No 8" .
880172105137 12/22/2004 01:59:23 PM "You Did not attempted Ques No 8" .
880189502590 12/22/2004 01:59:29 PM "You Did not attempted Ques No 8" .
880172823901 12/22/2004 01:59:35 PM "You Did not attempted Ques No 8" .
880176412311 12/22/2004 02:02:04 PM "You are late" .
880176593790 12/22/2004 02:02:31 PM "You are absent for today" .
880176593790 12/22/2004 02:03:54 PM "You are absent for today" .
880172230474 12/22/2004 02:04:10 PM "You Did not attempted Ques No 10" .
880189502590 12/22/2004 02:04:16 PM "You Did not attempted Ques No 10" .
880172823901 12/22/2004 02:04:22 PM "You Did not attempted Ques No 10" .
880189502590 12/22/2004 02:07:43 PM "You are late" .

880172720366 12/22/2004 02:10:33 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 4;Attmpted: 6;Not attmpted: 2,Pass" .

880172696308 12/22/2004 02:10:40 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 6;Attmpted: 7;Not attmpted: 0,Pass" .

880172844972 12/22/2004 02:10:47 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 3;Attmpted: 4;Not attmpted: 3,Pass" .

880171876909 12/22/2004 02:10:54 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 4;Attmpted: 5;Not attmpted: 2,Pass" .

880176552088 12/22/2004 02:11:02 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 4;Attmpted: 5;Not attmpted: 2,Pass" .

880176412311 12/22/2004 02:11:10 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 3;Attmpted: 5;Not attmpted: 2,Pass" .

880172230474 12/22/2004 02:11:17 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 1;Attmpted: 2;Not attmpted: 5,Pass" .

880173013365 12/22/2004 02:11:25 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 4;Attmpted: 6;Not attmpted: 2,Pass" .

880172832211 12/22/2004 02:11:33 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 5;Attmpted: 5;Not attmpted: 2,Pass" .

880172977503 12/22/2004 02:11:40 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 4;Attmpted: 5;Not attmpted: 2,Pass" .

880176835595 12/22/2004 02:11:47 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 4;Attmpted: 5;Not attmpted: 2,Pass" .

880172105137 12/22/2004 02:11:55 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 4;Attmpted: 5;Not attmpted: 2,Pass" .

880189502590 12/22/2004 02:12:02 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 0;Attmpted: 0;Not attmpted: 7,Pass" .

880172823901 12/22/2004 02:12:10 PM "Result of class of 12/22/2004:H.W: 0;attendance: 10,Qs mark: 0;Ans Mark: 3;Attmpted: 3;Not attmpted: 3,Pass" .