

Directory of Nearest Hospitals Using Mobile Service

A thesis

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Declaration

In accordance with the requirements of the degree of bachelor of Computer Science in the department of Computer Science and Engineering, I present the following thesis entitled "Directory of Nearest Hospitals Using Mobile Service". This work was performed under the supervision of DR. Yousuf Mahbubul Islam.

I hereby declare that the work submitted in this thesis is my own and based on the result found by myself. Materials of the 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

.....
Dr. Yousuf Mahbubul Islam

Signature of Author

.....
Tasnuva Shabbin

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Finally, I would like to say that without his support and co-operation it was difficult for me to complete my research in this due time.

ABSTRACT

In Bangladesh we have five mobile telecommunication companies, among all only two of them have GPRS system and near future they will bring GPS system. This is why we want to develop a system that will work with GPS and help people to get information about nearest emergency hospitals.

There are many directories available, which provide helpful information to the people. However, the major problem with these directories is that they are not user friendly. That is, although these directories might contain many necessary information but due to lack of proper organization, these directories tend to become confusing. As a result the ordinary people find it very tough to use them. Location searching has always been a problem to everyone. And when it comes to finding locations of hospitals in times of emergency, things become more complex.

Thus, to make life a bit easier tried to develop a system that will help people to get their desired address/location of the nearest hospital via SMS (short message service).

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CHAPTER 1: INTRODUCTION

1.1 Need for Hospitals during Emergencies

Medical emergencies are one of the most common situations that may arise in our daily life. Anyone can suffer a heart attack or fall victim to an accident at any moment. In such cases the most important thing to do is to take the patients to the nearest hospital. The term “nearest” is important because it is a race against time and each second is valuable. And knowing the address of the nearest hospitals can buy us some important time.

1.2 Current methods of finding hospitals

In our country there are many directories available, which provide helpful information to the people. Some current methods which give information about hospitals are:

a) Yellow pages-

In internet we can get yellow pages of hospitals in Dhaka city. There are also different types of diaries which contain yellow pages of hospitals. All these yellow pages contain address and contact number of each hospitals.



Bangladesh Yellow Pages®

Category **+** HOSPITAL **+**
Advertise Here

*Free Listing
 Classifieds*

[Home Page](#)

[Full Page](#)

HOSPITALS

Hospitals	Location	Phone Number
Specialized Hospitals		
Ibrahim Memorial Diabetic Hospital (BARDEM)	Shahabagh, Dhaka	8616641-50
City Hospital (Pvt) Ltd	Panthapath, Dhaka	8617852
Gana Shasthya Nagar Hospital	Dhanmondi, Dhaka	500720, 8617208
National Institute of Cardiac Vascular Disease	Ser-e-Banglanagar, Dhaka	9122560
Bari-Ilizarov Orthopedic (BIO) Centre	Dhanmondi, Dhaka	9120309, 8117876
Dhaka ENT (Ear Nose Thot) Hospital	Dhanmondi, Dhaka	8613936, 8617593
Holy Family Red Crescent Hospital	Eskaton, Dhaka	8311721-25

Problem: Its very lengthy process to search in yellow pages at the time of emergency.

b) **Books:**

There different type of books available in market and internet which also contain all information about hospitals and clinics. One of them is A-Z medical directory which provides:

- List of hospitals and clinics according to alphabetical order
- List of Hospitals and Clinics according to specializatio n such as, Cardiac, Renal, Cancer, Gastroliver, Neurology, Eye, ENT, Orthopedic, Gynae & Obstetrics, Paediatric, Drug Addiction Rehabilitation center, Family Planning Center, General Hospitals & Clinic
- About some new and upcoming Hospitals
- Range of rates for diagnosis in Dhaka city
- Some Selected Diagnostic Centers in Dhaka
- 24 Hours Pharmacy in Dhaka
- Blood Banks in Dhaka
- Ambulance Services in Dhaka
- Health Related Websites of Bangladesh
- Health Policy of Bangladesh
- Patients Charter of Rights in Bangladesh
- Definitions of hospital, clinic and other health related institution

Problems:

It dose not help people in times of emergency. A people can get ill at any time and it's not possible for one to carry this book every moment cause no one can say when he/she will fall in this type of emergency.

Now a day's different multinational companies are providing this service which are also helpful for people.

c) **Grameen Phone:**

It has introduced a service that helps users with the advice of a doctor over cell phone.

Problems:

- One needs to register for the service, which costs 250 bdt.
- This is a voice service and the call cost is very high– 15Tk /3min and 5Tk/min onwards

d) **Bangla link:**

It's also providing a voice service where users or subscribers can ask for the address of a hospital over the cell phone to an operator.

Problems:

- Can not provide exact address all times
- Costly, because it takes plenty of time to talk

1.3 Main Drawback of current methods

We have analyzed all the current methods and tried to find out each of those methods' drawbacks. Although those methods have given lots of facilities, one major problem remains i.e. both these company and all other methods haven't thought about nearest location as in emergency.

CHAPTER 2 Survey of Needs

2.1 Design of Survey and Questionnaire

For our thesis we feel that we had to find out requirements of the user. In order to get the specific requirements of users we prepared a questionnaire containing 20 questions both in web and print media. We uploaded the questionnaire in the web so that every one can access this and can fill it up. For those who have no internet connection or don't use internet we gave them questionnaire.

We prepared our questionnaire in such a way that it provided some answers which are our main goals of this survey. We had made two main goals to get customers' requirements-

- A. Problem faced by customers while getting their desired locations
- B. Need of Customers

Screenshot of our questionnaire:

1. Name: <input type="text"/>
2. Occupation: <input type="text" value="Student"/>
3. Have you ever faced a situation where you needed some important addresses urgently ? <input type="checkbox"/> Yes <input type="checkbox"/> No
4. When did you face those problems ? Within - <input type="text" value="1 month"/>
5. How frequently you have faced this problem? <input type="checkbox"/> More than one a month <input type="checkbox"/> Once in a month <input type="checkbox"/> Never faced this problem
6. Have you ever faced problems in finding address that you need ? <input type="checkbox"/> Yes <input type="checkbox"/> No
7. If 'yes', what kind of problem did you face? : <input type="checkbox"/> Didn't get the exact address <input type="checkbox"/> Address that I have is not updated <input type="checkbox"/> Difficult to find the address

Other problem please specific here:

8. If no, how did you easily find the address:

9. At that time which of the following emergency locations did you need most? Mark those according to your need?

[1- needed most of the time .2- needed once 3. no need]

Bank

Hospital

Hotel

Fire service

RAB

Police Station

Clinic (Hospital and Clinic are same)

10. Do you need the phone number with the address ?

Yes No

11. What steps did you need to take to find the address that you wanted?

- Ask nearest friend by call
- Ask people in road
- Traffic police
- Sales man
- Security Guard
- Helper of BUS

Others: Please specify here

12. What type of information is important for you to find the address?

- Location
- Contact number
- Near famous / established company
- Suitable way to reach there

13. If you need to know about any emergency service then where will you prefer to get that information?

- News paper
- Internet
- Telephone
- Yellow pages
- Mobile

14. Do you think mobile phone can help you in this case ?

- Yes No May Be

15. If yes , how can it help you ?

- Directory services(voice)
- List of nearest emergency services
- Location of desired emergency service

16. What would be an easy way to contact the mobile support centre for emergency services?

- Text message
- Call
- Voice message

17. For example if an emergency occurred in Gulshan and you want to find out emergency location in Gulshan , what would be the requirement?

- Write the full name (for example Gulshan)
- Write the short name (Guls)

18. What is your preferable way to get the response?

SMS/ Tex message

Call

Voice message

Others: Please specify here

19. How many sms do you think you can afford for above service?

1

2

3

Doesn't matter.

20. How much can you spend for each SMS?

Tk 2

Tk 1- TK 2

Money does not matter

2.2 Data collection methodology

The link of our Questionnaire: www.ulterious.com/thesis_sms

We posted this link in:

1. hi5 groups
2. Different Bangladeshi yahoo groups
3. our university's students groups

We emailed this link to our friends of different fields, relatives etc. We also gave printed version to our university students, friends and relatives.

2.3 Survey results

We got total 210 responses for our project both in internet and printed media. We differentiated our results in some different sections which helped us to reach our goals that we made.

2.4 Compilation of survey results

A. Problem faced by Customers during gets desired emergency location

Among 210 inputs 92% people faced a situation where they need some important addresses urgently and 8% don't have faced it. We also could know that most of these 92% people faced problems during get their desired location.

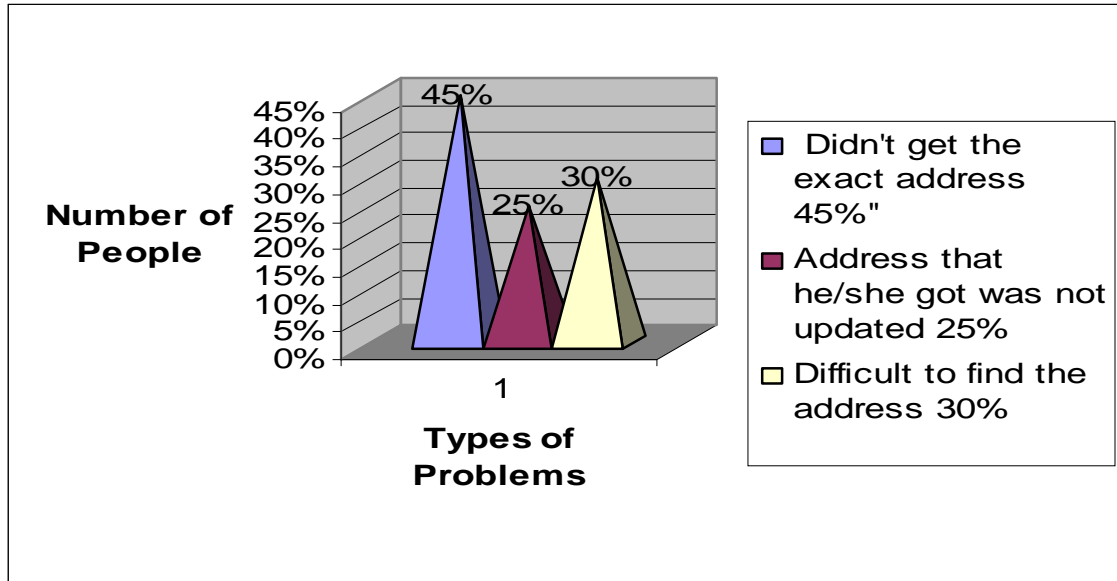


Fig 2: Problem faced

B. Need of Customers :

Here we tried to find out what actually people need. To get the information about user needs we differentiated the results in some different section, so that we can reach our 2nd goal.

- i. Need of emergency services
- ii. Preferred Source of Information
- iii. Preferred method of contacting:
- iv. Preferred Ways of Getting Response
- v. Address Requirements

I. Need of Emergency Services

Here we tried to find out what type of services people need in case of emergency. From the result we got that most of the people need hospital/ clinic (70%) in case of emergency.

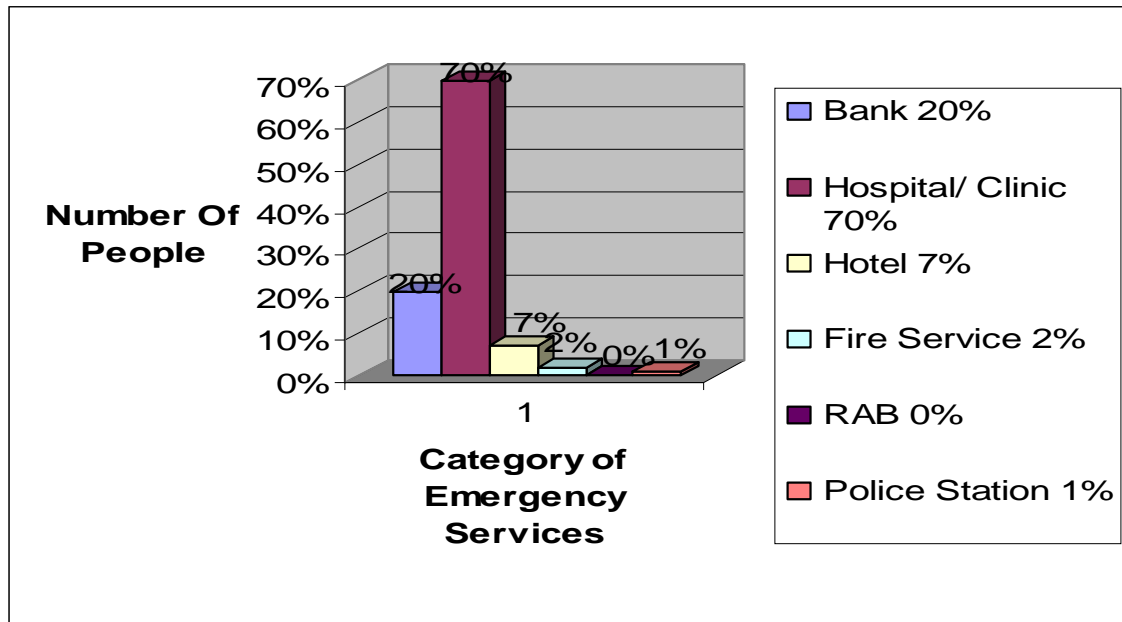


Fig3: Need of Emergency Services

II. Preferred Source of Information

Here we tried to find out actually what type of source people feel easy to use at their emergency situations. From the survey result we got that most of the people prefer mobile phone (69%) as their suitable source of getting their desired information.

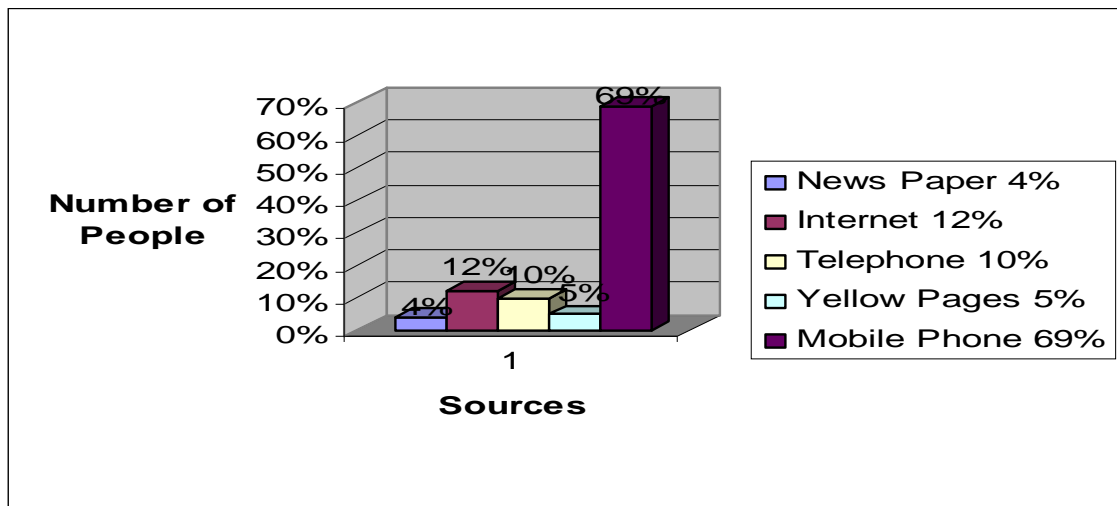


Fig4: Preferred Source of Information

III. Preferred method of contacting:

Here we tried to find out that if we give any mobile phone service then in which mode customers want to contact in case of emergency. From the response we got that both text message and call got higher priority as the mode of contacting. Maximum people (55%) want to use text message to contact and beside it many people (42%) want to use calling service as some people are not comfortable with messaging. We also got that very few people want use voice message.

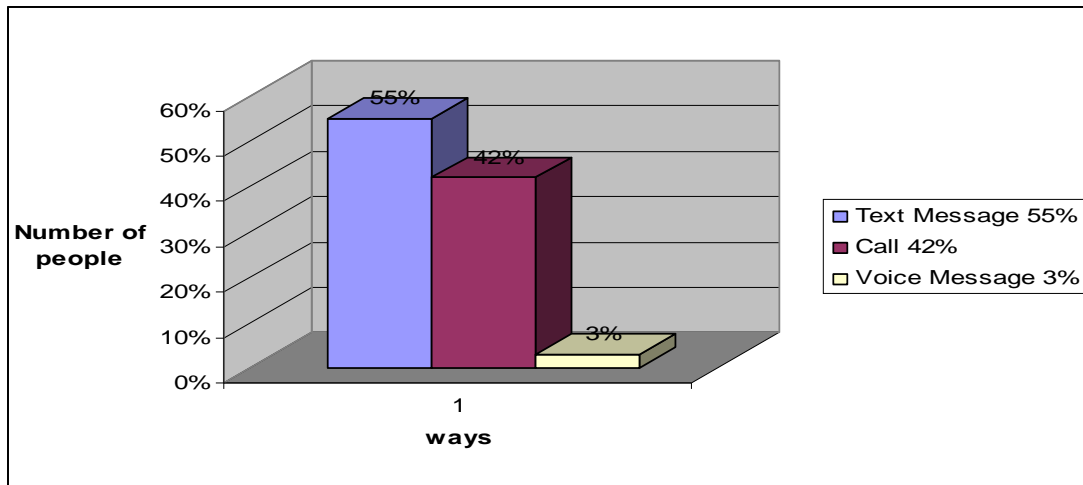


Fig5: Preferred method of contacting

IV. Preferred Ways of Getting Response

Same thing we tried to find out in case of getting response. That means which mode people prefer most to get the response after sending a SMS/call/voice message. Here from the result we got that most of the people want to use text message (70%) to have their response. Some people also want calling service (25%) and very few people want voice Message (5%).

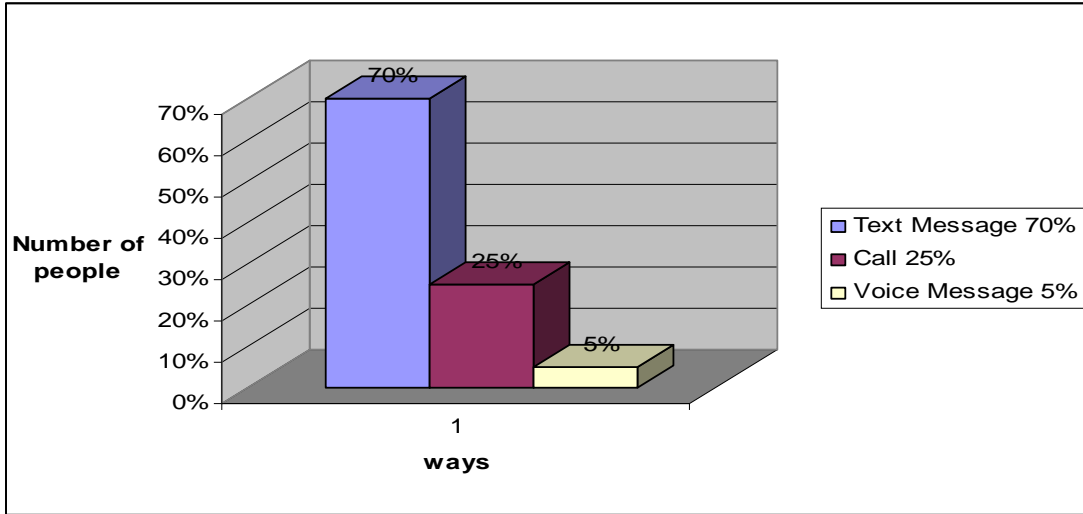


Fig6: Preferred Ways of Getting Response

V. Address Requirements:

Here we tried to know customer requirements about address. Because it is very important to make sure that the address that we will provide should contain all the possible information that help people to find their desired hospitals quickly.

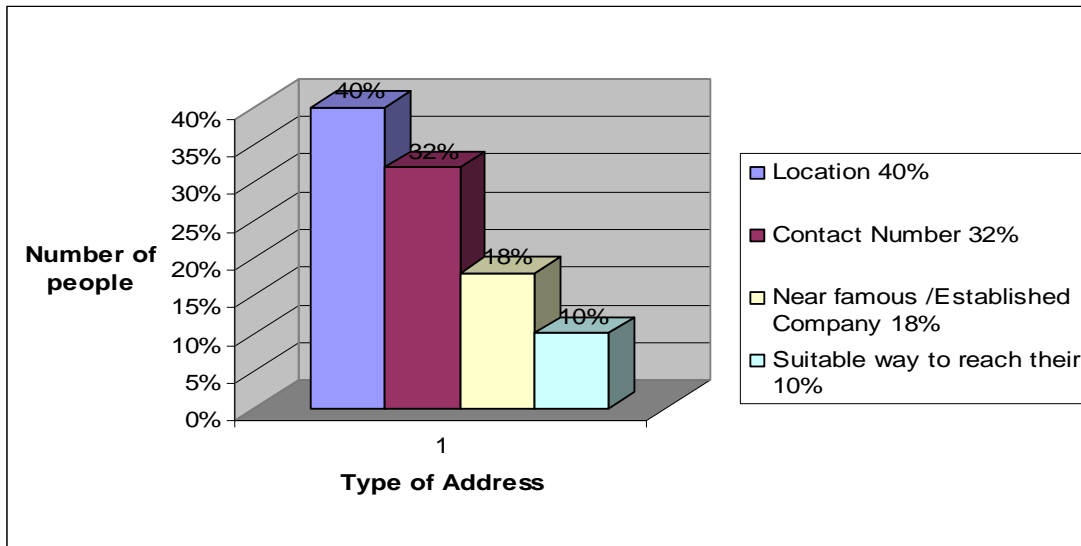


Fig7: Address Requirements

2.5 Conclusions from Survey and possible biases

Our main target was to know about customer requirements and we got different type of answers from different people. Analyzing the whole survey result we finally got some important information based on which we started our project. These are-

- Hospital service is most essential in times of crisis
- Mobile phone is the most preferred source of information
- SMS based is more convenient

2.6 Solution needed

From this survey we got much information about different type of need of different occupation's people and problems that are facing in their daily life or at any emergency situation. As most of the time hospital service needed by people so a system should be made on hospitals which will

- Give the address of nearest hospitals, because at the time of emergency people don't have time to go far and need the nearest one's address.
- The address should be liked that people can easily find the hospital and the address should be accurate and updated
- The service should be user friendly
- The service should be less expensive

2.7 Our Solutions:

We can see that both companies have not thought about the emergency situation and also taking users' requirements in mind we have designed a system that will be used by a mobile phone operator to provide the subscribers an SMS based service in emergency situations which will be

- Based on user needs that we got from our survey
- Automatically detect the location of the user
- Provide the names & addresses of the nearest hospitals &
- Check the availability of ambulance and give the address of those hospitals which have ambulance.

CHAPTER 3: Design of Solution

3.1 Data Collection of Hospitals

After doing the survey we took decision that we will make this system for hospitals in Dhaka city. For this at 1st we tried to find out addresses of all hospitals in Dhaka city and we have found 205 hospitals and clinics. To get the name and address of each hospital used directory from book, net and yellow pages.

3.2 Mapping of all hospitals

As we wanted to give the nearest hospital's address we had to think about the distance of all hospitals from customer's location. To calculate the distance we need each point of each hospital's location. As GPS system is not compatible in our country, we tried to find out each point of each hospitals and clinic. For this we plotted all area, sub area and hospitals/clinics under each sub area on map of Dhaka city.

3.3 Simulation of Coordinate System

Divided map into x, y coordinates and found the point of each hospital and clinic's location

- Both x-axis and y-axis are divided into smaller points (0.1, 0.2...)
- Found out point of each area and sub area of Dhaka city and stored them in the database

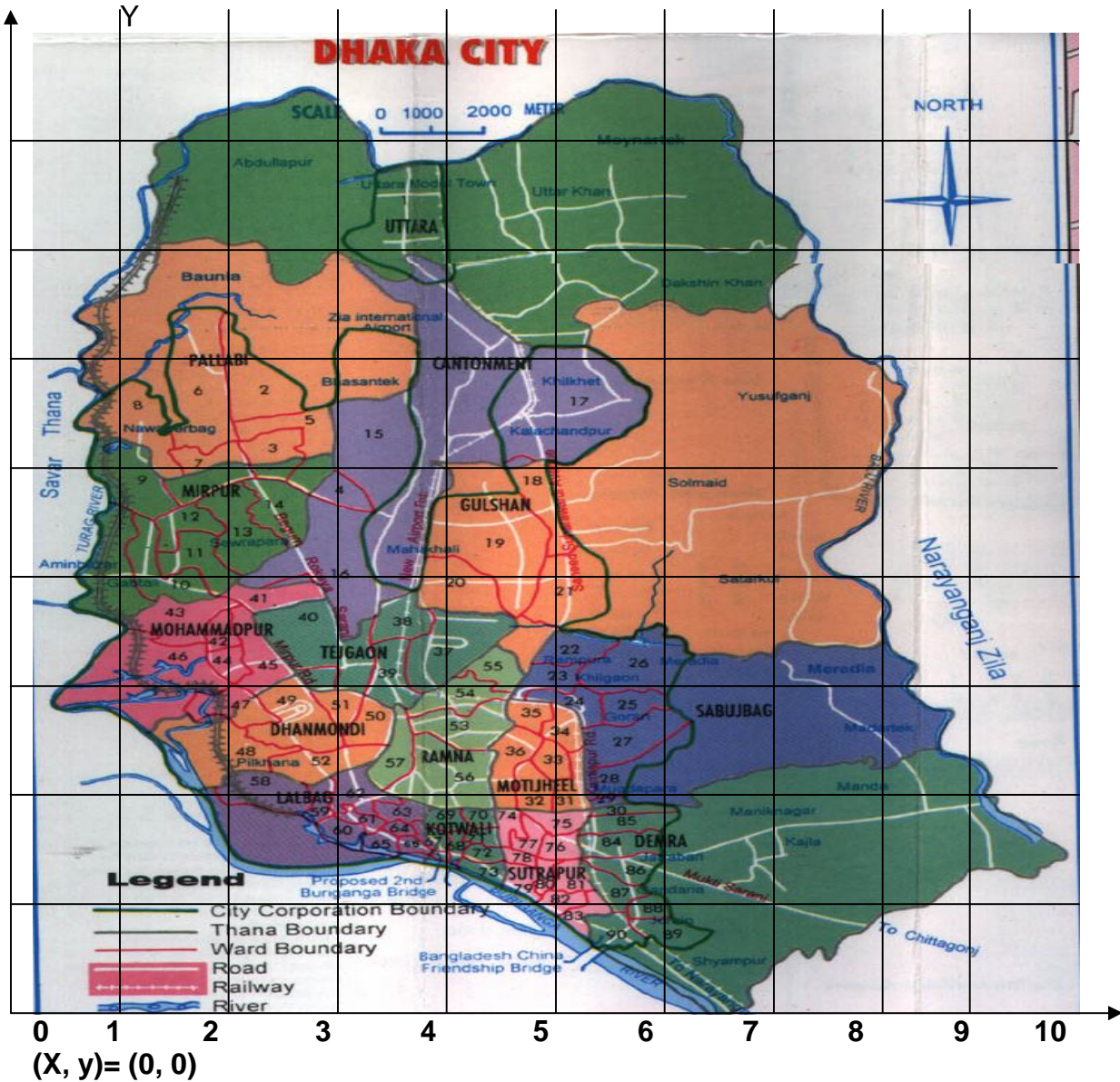


Fig8: Map of Dhaka City

Suppose we need to fine out the point of Dhanmondi area. At x axis his area is situated in 2.9 and in the y axis it is situated in 2.7 value. So the point of Dhanmondi will be $(x=2.9, y= 2.7)$. We had applied it for all hospitals in Dhaka city.

3.4 Use of Distance Formula

We have made our system in such a way that when the server get the message calculates the distance of all hospitals mathematically from the user's location. For this we have used this Formula:

$$\text{Root over } ((X_L - X_H)^2 + (Y_L - Y_H)^2)$$

Where $((X_L, Y_L))$ is user's point from where user give the SMS to server and (X_H, Y_H) is hospitals' point.

3.5 Design of Algorithm to find nearest hospital

Get the coordinate (X_L, Y_L) of user location

x = number of hospitals

For x = 1 to 205

$$\text{Distance} = \text{Root over } ((X_L - X_H)^2 + (Y_L - Y_H)^2)$$

Save the distances of each hospital in database

Dis = 0.1 miles

While dis < 3

For x = 1 to 205

 If distance < dis then

 Save the distance into another sheet of database and print them

 Distance = Distance + 0.1

 End if

Next x

3.6 Design of messaging system

Step 1: User sends the SMS writing his/her query (Hospital/ Amb) to the server (1st SMS from user)

Step 2: Server will automatically detect the location of that user that means the server will receive the coordinate (X_L, Y_L) of user's location.

Step 2: The server will start calculating the distance from user's point (X_L, Y_L) to each stored hospital's point (X_H, Y_H) and save these distances in database.

Step 3: Server find the hospitals which are in shortest distance from user checking increasing radius from the user's point (X_L, Y_L) .

Step 4: Server send name and serial number of nearest hospitals giving the option to choose any of them (1st SMS from server)

Step 5: User will choose his/her desired hospital and send the serial number to the server. (2nd SMS from user)

Step 6: Finally the server will send the full address of user's desired hospital.

This process work as-

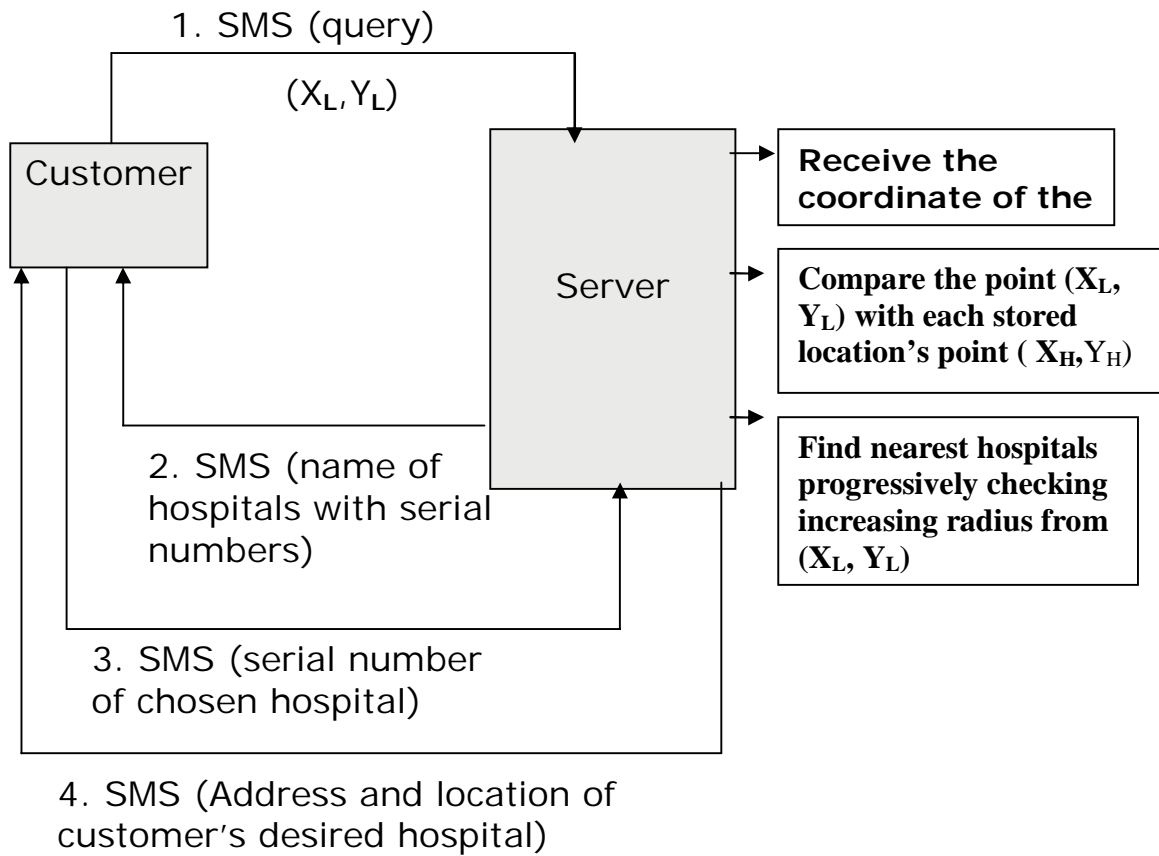


Fig9: Messaging System

CHAPTER 4: Development of Prototype

4.1 Entering of data into sheets

Area:

At 1st we have stored all area name of Dhaka city in this under the “Area name” column and given area code number to each area which is unique. These area codes are stored under “Area code” column beside each area name. Here we have shown the availability of hospitals in each area which is written by Yes/ No option under the “Availability column”. The point that we have calculated for each area also be stored in this sheet i.e. x coordinate under “X” column and “Y” coordinate under Y column

Sub Area:

Each area has sub areas. Some areas are divided into road number and some are divided into section/ sector number. We have stored sub areas of some main areas under the “Sub Area” column. Then found out points of each sub area and stored them in this sheet under “X” and “Y” column.

Hospital:

All the hospitals/clinics’ name have been stored in this sheet under the “Hos Name” column. We have given each hospital/clinic a code number which is stored under “Hos/ Clin Code” column. The option (Yes/No) of ambulance availability of each hospital is given under “Amb Availability” column. We have also found point for each hospital and put them in this sheet under “X “and “Y” column. This sheet also contain “area code” column and “Address column” containing house number/name, road name, road number, sector /section

number, postal code and phone number. In this sheet he have given a column called Distance which stored the distance calculated each time the user send the SMS to server.

4.2 Design of sheets

Area:

Table 1: Area of Dhaka city

<u>Area code</u>	<u>Area name</u>	<u>Availability</u>	<u>X</u>	<u>Y</u>
A001	Agrarian	Yes	4.3	11.1
A002	Adabor	No	3	10.6
A003	Ahammadbag	No	12.6	6.2
A004	Armanitola	Yes	9.3	3.9
A005	Azimpur	No	6.2	5.2
A006	Badda	Yes	10.9	12.8
A007	Bakshi Bazar	Yes	7.4	4.4
A008	Banani	Yes	8.8	13.1
A009	Banglabazar	No	9.8	2.9
A010	Basabo	No	11.9	7
A011	Basundhara	Yes	11.9	16
A012	Baridhara	Yes	10.5	14.3

Fig10: Area Info

Sub area:

Table 2:Subarea

<u>Area Code</u>	<u>Sub Area</u>	<u>X</u>	<u>Y</u>
A006	Pragati Sharani	11.4	12.9
A006	Merul Badda	11	10.3
A006	Uttar Badda	10.9	12.3
A008	Road 1	8.7	12.5
A008	Rpad 1A	8.9	12.4
A008	Road 2	8.3	12
A008	Road 3	8.9	12.6
A008	Road 4	8.5	12.7
A008	Road 5	8.8	12.7
A008	Road 7	8.9	12.8
A008	Road 9	8.9	12.9
A008	Road 10	9.2	12.8
A008	Road 11	8.7	12.9
A008	Road 12	9.4	12.8
A008	Road 13	9.1	13
A008	Road 19A	9.5	13

Fig11: Sub Area Info

Hospitals:

Table 3:Hospitas

<u>Hos/clin Code</u>	Hos Name	<u>Area code</u>	Amb Availability	X	Y	Distance	Address
H0001	Bangladesh Lions Foundation Khalikunnesa General Hospital	A001	Yes	4.3	11	4.30464865	Loins Building, Rokeya Sarani, Agargaon, Phone: 8110894, 9131990 House- 61, Becharam Deori, Armanitola, Phone:7312449, 7313583, 01711390984
H0002	Asian General & Dental Hospital Badda	A004	Yes	9.3	3.9	4.482186966	House-4, Road- 11, Pragati Sarani,Merul Badda, Dhaka-1212, Phone: 9860000, 9898899
H0003	general Hospital & Diagonstic center (Pvt)ltd	A006	Yes	11	10	5.353503526	Cha- 107/2, Uttar Badda(Pragati Sarani),Dhaka-1212, Phone- 8857828-30
H0004	Uposhom health complex (pvt)ltd	A006	Yes	11.4	13	7.366138744	Cha- 107/1, Uttar Badda, Dhaka- 1212, Phone- 8815690, 9887597
H0005		A006	Yes	10.9	12	6.58559033	

Fig12: Hospitals Info

4.3 Entity Relationship Diagram

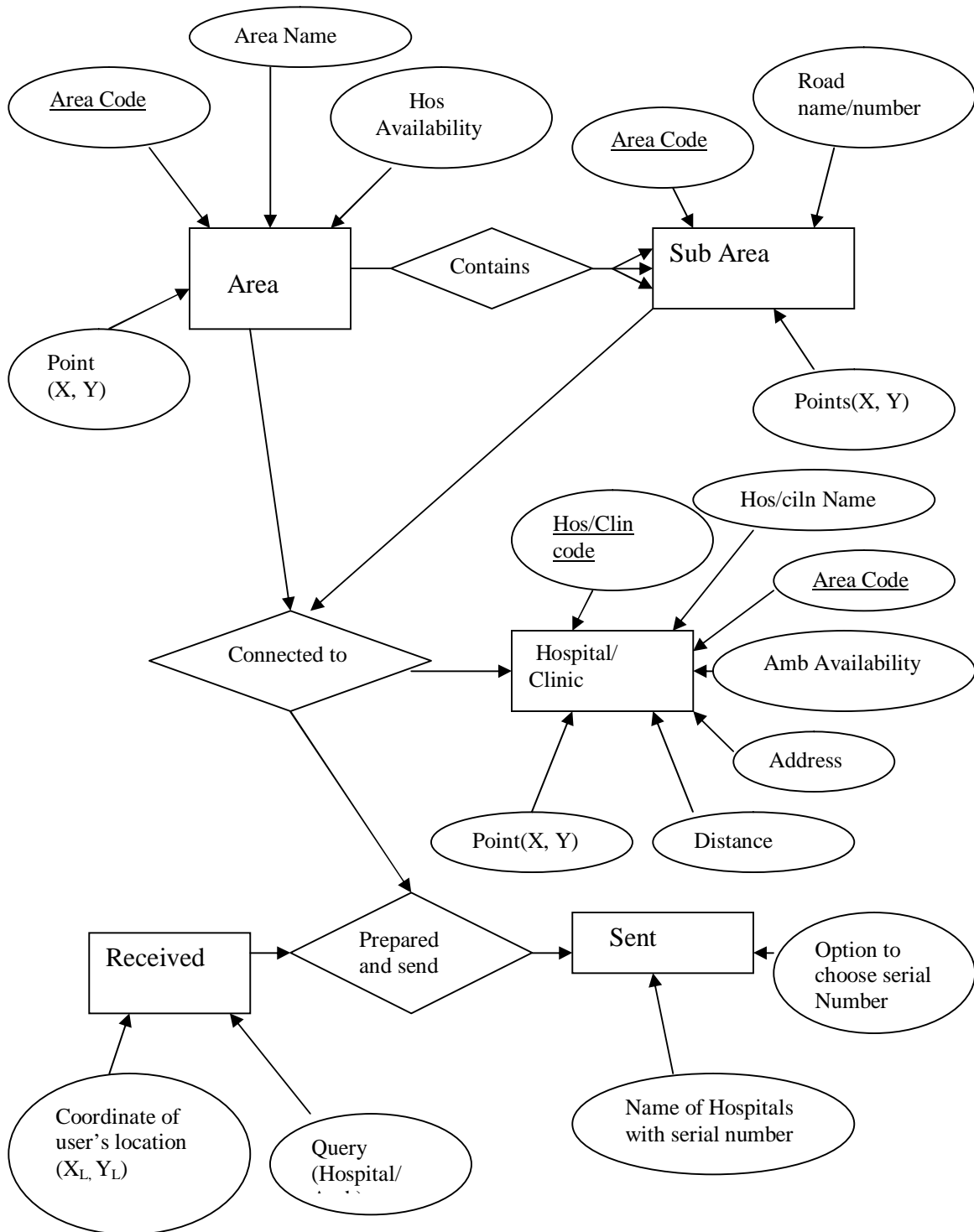


Fig13: ER Diagram

4.4 Development of macros

Sheet 1: Introduction

```
Private Sub CommandButton1_Click ()
```

```
Row = 2
```

```
While Sheet7.Cells (Row, 1) <> ""
```

```
Sheet7.Cells (Row, 1) = ""
```

```
Sheet7.Cells (Row, 2) = ""
```

```
Row = Row + 1
```

```
Wend
```

```
x = TextBox2.Text
```

```
y = TextBox3.Text
```

```
Query = TextBox1.Text
```

```
If query = "Hospital" Or query = "Amb" Then
```

```
    calculateDistance x, y
```

```
End If
```

```
End Sub
```

```
Public Function calculateDistance(ByVal x As Double, ByVal y As Double) As
```

```
Integer
```

```
    Dim xh As Double
```

```
    Dim yh As Double
```

```
    Dim xl As Double
```

```
    Dim yl As Double
```

```
    Dim distance As Double
```

```
    xl = x
```

```
    yl = y
```

```
    For Row = 3 To 208
```

```
        xh = Sheet6.Cells(Row, 5)
```

```
        yh = Sheet6.Cells(Row, 6)
```

```
        x = xh - xl
```

```
        y = yh - yl
```



```

distance = (x * x) + (y * y)
distance = Sqr(distance)
saveDistance distance, Row, 7
Next Row
If Row = 209 And TextBox1.Text = "Hospital" Then
    compareDistance
Else
    If Row = 209 And TextBox1.Text = "Amb" Then
        comapareDistanceAmb
    End If
End If
End Function
Public Function saveDistance(ByVal distance As Double, ByVal x As Integer,
ByVal y As Integer)
Sheet6.Cells(x, y) = distance
End Function
Public Function compareDistance()
Dim min As Double
Dim minrow As Integer
Dim dis As Double
exist = False
minrow = 2
dis = 0.1
While dis < 3
For Row = 3 To 208
    If Sheet6.Cells(Row, 7) <= dis Then
        Sheet7.Cells(minrow, 1) = minrow - 1
        Sheet7.Cells(minrow, 2) = Sheet6.Cells(Row, 2)
        minrow = minrow + 1
        exist = True

```

```

    End If
Next Row
If exist = True Then
dis = 3
Sheet8.Activate
End If
dis = dis + 0.1
Wend
End Function
Public Function comapareDistanceAmb()
Dim min As Double
Dim minrow As Integer
Dim dis As Double
exist = False
minrow = 2
dis = 0.1
While dis < 3
For Row = 3 To 208
    If Sheet6.Cells(Row, 7) <= dis And Sheet6.Cells(Row, 4) = "Yes" Then
        Sheet7.Cells(minrow, 1) = minrow - 1
        Sheet7.Cells(minrow, 2) = Sheet6.Cells(Row, 2)
        minrow = minrow + 1
        exist = True
    End If
Next Row
If exist = True Then
dis = 3
Sheet8.Activate
End If
dis = dis + 0.1
Wend

```

```

End Function
Sheet 8: Received Msg
Private Sub CommandButton1_Click()
Sheet9.Activate
End Sub
Private Sub Worksheet_Activate()
TextBox1.Text = ""
Row = 2
While Sheet7.Cells(Row, 1) <> ""
TextBox1.Text = TextBox1.Text & Sheet7.Cells(Row, 1) & "." &
Sheet7.Cells(Row, 2)
Row = Row + 1
Wend
TextBox1.Text = TextBox1.Text + " Chose ur hos & send SL_No(1,2..3)"
End Sub

```

Sheet 9: Write

```

Private Sub CommandButton1_Click()
Row = 2
While Sheet7.Cells(Row, 1) <> ""
If TextBox1.Text = Sheet7.Cells(Row, 1) Then
    str1 = Sheet7.Cells(Row, 2)
    For ind = 3 To 208
        If str1 = Sheet6.Cells(ind, 2) Then
            TextBox1.Text = ""
            TextBox1.Text = str1 + Sheet6.Cells(ind, 8)
            ind = 209
        End If
    Next ind
End If
Row = Row + 1

```

```
Wend
End Sub
Private Sub CommandButton2_Click()
Sheet1.Activate
End Sub
Private Sub Worksheet_Activate()
TextBox1.Text = ""
End Sub
```

4.5 Testing of system with test data

After developing the prototype we have tested it to ensure that our system is working properly. The point of each area is given to the database and we have tested our system applying some known points as the user points which is received by server. In our prototype there is a sheet (Hospital) containing column called Distance under which distance of each hospital calculated from user point is stored. So it was easy for us to check which hospitals were within our given value (0.1 mile) in macro.

For example we wanted to test this for a user who gave the SMS from Dhanmondi asking for nearest hospitals. We have our prototype in such a way that the server already knows the point of Dhanmondi which is (6.5, 7.4) and calculated the distance instantly after getting the SMS from server.

To check that this distance was right, we have calculated each distance by our selves using calculator and compare with the distance calculated in our prototype. Then we check actually which distance is shorter and also compare with those hospitals' point in Dhanmondi which are got from our prototype.

We did it for all areas and sub areas and those were correct.

4.6 Modifications and improvement of prototype

At the beginning of our thesis we had made our prototype in such a way that user needed to give the location name and query while sending the SMS to server. Because we did not have thought about distance. We had also made a sheet for nearest areas of those areas which don't have any hospitals. We had found those from map. We were not satisfied with this process because it was not giving the nearest hospitals' name accurately. Then we had started to think how it can be modified. Then we thought about distance and to do it at 1st we found all points of areas using city map and made it easier for user. Because now user don't have to write location name or road number, he/she will just have to send SMS writing his/her query (Hospital/ Amb) to server and take the facility of our system.

4.7 Limitations of prototype

Our goal was to make a system that will help people and we have built a system that will work but in our country most of the GSM set is not GPS enable so that we can not implement here as long as the Govt. don't give us the permission to use the GPS and GPS enable set publicly.

4.8 Screen shots of working prototype with descriptions

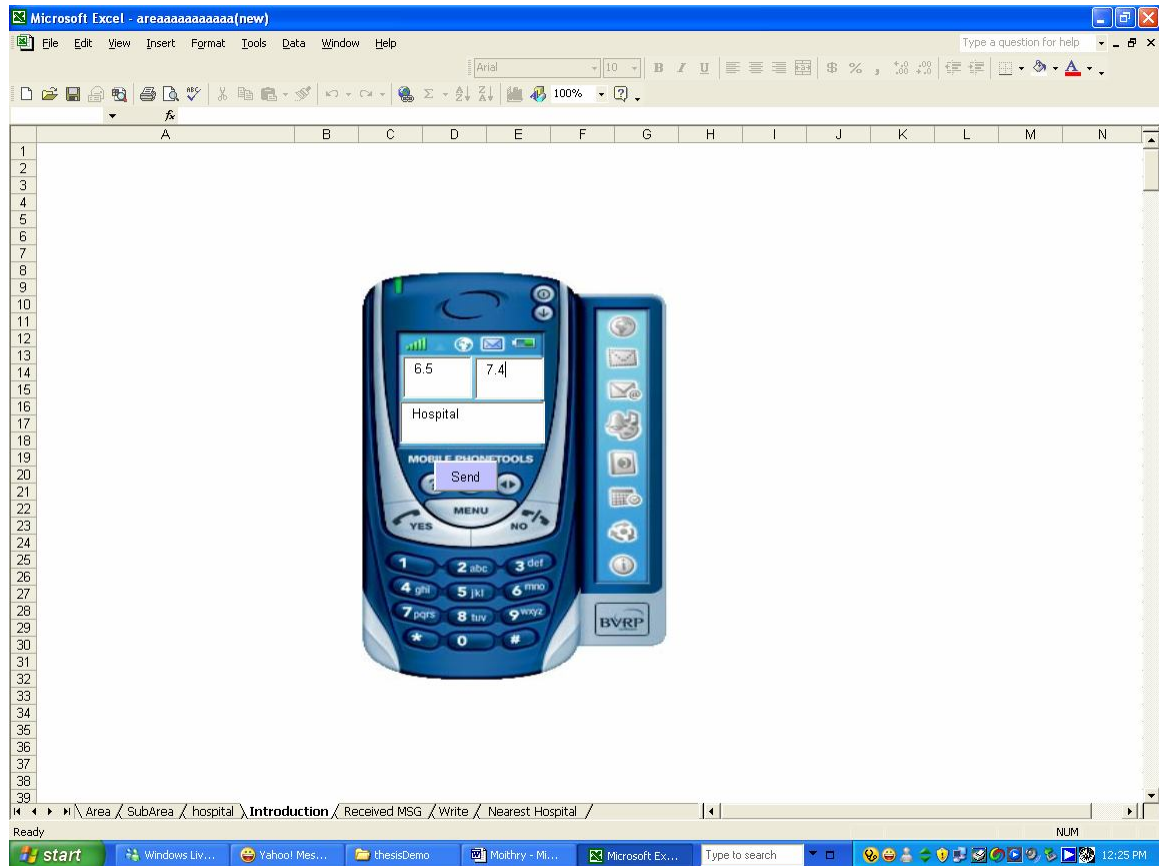


Fig14: Sending SMS

This is user's mobile interface where user has to write his/ her query. In our prototype we are giving the point of user location but in real life user don't have write it, cause server will automatically detect it with the help of tower situated by different telecom company. Here when the operator press the send button the server will go to "Hospital" sheet and pick the nearest hospitals. After getting the nearest hospital it save these hospitals' name with there serial numbers in "Nearest Hospitals" sheet.

Hospitas	Hos/clin Code	Hos Name	Area cod	Ambulance Avail	Xh	Yh	Distance	Address
H0001	A001	Bangladesh Lions Foundation	A001	Yes	4.3	11.1	4.30464865	Loins Building, Rokeya Sarani, Agargaon, Phone: 8110
H0002	A004	Khaliknunesa General Hospital	A004	Yes	9.3	3.9	4.482186966	House- 61, Becharam Deoni, Armanitola, Phone:73124
H0003	A006	Asian General & Dental Hospital	A006	Yes	11	10.3	5.353503526	House-4, Road- 11, Pragati Sarani,Merul Badda, Dhaka
H0004	A006	Badda general Hospital & Diagonstic center (Pvt)ltd	A006	Yes	11.4	12.9	7.366138744	Cha- 107/2, Uttar Badda(Pragati Sarani),Dhaka-1212, F
H0005	A006	Uposhom health complex (pvt)ltd	A006	Yes	10.9	12.3	6.58559033	Cha- 107/1, Uttar Badda, Dhaka- 1212, Phone- 881569
H0006	A007	Dhaka Medical College Hospital	A007	Yes	8.4	5	3.061045573	Bakshi Bazar, Dhaka, Phone- 8626812-6
H0007	A008	Doctor's Support Center	A008	No	8.9	12.6	5.727128425	House-104, Road-3, Block-F,Banani, Dhaka-1213, Pho
H0008	A008	Harvest Infertility Care Ltd.	A008	No	8.7	12.5	5.554277631	House- 63, Road-1, Block-I,Banani, Dhaka, Phone-989
H0009	A008	Quality Care Hospital Ltd.	A008	No	8.3	12	4.939635614	House- 2, Road-2,Banani, Dhaka-1213, Phone-885607
H0010	A008	The Eye Pavilion ltd	A008	No	8.5	12.7	5.664803615	House-123, Road-4, Block-A,Banani, Dhaka-1213, Pho
H0011	A008	Welcare Specialized Doctors Clinic ltd	A008	Yes	8.9	12.8	5.909314681	House- 69, Road-7, Block-C,Banani, Dhaka-1213, Phor
H0012	A008	Zaman's Clinic	A008	No	8.5	12.7	5.664803615	House- 89, Road-4, Block-F,Banani, Dhaka-1213, Phor
H0010	A011	Appollo Hospital	A011	Yes	12	15.2	9.54410813	Plot-81, Block- E, Bashundhara, Dhaka-1229, Phone-9
H0011	A012	Chrstian Medical Hospital	A012	No	11.2	14.9	8.850986645	House-6/3,Nadda(North), Bandhara, Phone- 986298, E
H0012	A012	K. C Memorial Clinic Ltd.	A012	No	10.7	14.6	8.335465394	59-C, Northern Kacha Bazar, Bandhara, Phone- 88142
H0013	A014	Chankharpul general hospital	A014	No	8.6	4.5	3.580502758	House#10/1, Nawab Katara Road,Chankarpool,Dhaka-11
H0014	A014	Rafat general hospital	A014	No	8.1	4.8	3.052657504	81/B-2,Hossaini Dalan Road,Chankarpool,Dhaka-1211,
H0015	A014	Seba general hospital	A014	No	8.5	4.7	3.360059523	72/75, Majed Sardar RoadChankarpool,dhaka-1000,Ph
H0016	A018	Bangladesh medical college hospital	A018	Yes	4.9	7.9	1.676305461	House-33-35, Road-14A,Dhanmondi,Dhaka-1209,Phone
H0017	A018	Central hospital ltd	A018	Yes	6.5	7.1	0.3	House-2,Road-5,Green Road,Dhanmondi,Dhaka-1205,F
H0018	A018	Conscious health services limited	A018	No	6	7.1	0.583095189	House-25A,Road-6,Dhanmondi,Phone-9665544, 96676
H0019	A018	Crescent Gastroliver & general hospital	A018	Yes	5.6	7.3	0.905538514	House-60,Road-8/A,Dhanmondi,Dhaka-1205,Phone-91
H0020	A018	Dhaka shishu nabajatak & general hospital	A018	No	5.7	6.8	1	House-48A,Road-2A,Dhanmo
H0021	A018	Dhaka National Hospital (Pvt.) Ltd.	A018	Yes	4.9	8.4	1.886796226	House-51/1, Road-16(New),Dh
H0022	A018	Dhanmondi south east hospital	A018	No	6	7	0.640312424	House-25, Road-5, Residence
H0023	A018	Dr. salahuddin hospital	A018	No	5.6	7.5	0.905538514	House-37, Road-9/A,Dhanmon
H0024	A018	Eden multi care hospital	A018	No	6	6.8	0.781024968	House-36, Road-3, Dhanmondi,
H0025	A018	Enasyet Hospital	A018	No	5.5	7.5	1.004987562	753,Road-9A/Old 19), Sat Ma
H0026	A018	Farabi general hospital ltd	A018	Yes	5.5	7.2	1.019803903	House#8/3,Road-7A,Dhanmon
H0027	A018	Gonoshashtho nagar hospital	A018	Yes	6.3	7.1	0.360555128	14E,Road-6,Dhanmondi,Phon
H0028	A018	Harun eye foundation ltd & green eye hospital	A018	No	5.9	7	0.721110255	House-31, Road-6,Dhanmondi,
H0029	A018	Ibn sina hospital	A018	Yes	4.9	8.2	1.788854382	House-68, Road-15/A,Dhanmo
H0030	A018	Jebel-E-nur general hospital ltd.	A018	Yes	5.7	7.5	0.806225775	House-21, Road-9/A,Dhanmon
H0031	A018	Lab aid cardiac hospital	A018	Yes	6.3	7	0.447213595	House-1, Road-4, Dhanmondi,F
H0032	A018	Lab aid Specialized hospital	A018	Yes	6.3	7.1	0.360555128	House-6, Road-4, Dhanmondi,F
H0033	A018	Naz-E-noor hospital(pvt)ltd	A018	No	5.7	7.4	0.8	House-69, Road-9/A/Old 19),D
H0034	A018	Nebedita Nursina Home	A018	No	5.2	7.7	1.334166406	House-68/A, Road-11A, Dhanmondi,Phone-9126170. 81

Fig15: Hospital

When the server detect the user's point then it calculate distance of each hospital from user's location and store it temporarily in Distance column of this sheet. This Distance column's values will be different for different users. Now if the user searches by ambulance then a small change occurs. In this case the server will go to the Ambulance Availability column first and find those hospitals' point which has ambulance and then start to find the nearest hospitals which already have been discussed for query of hospital.

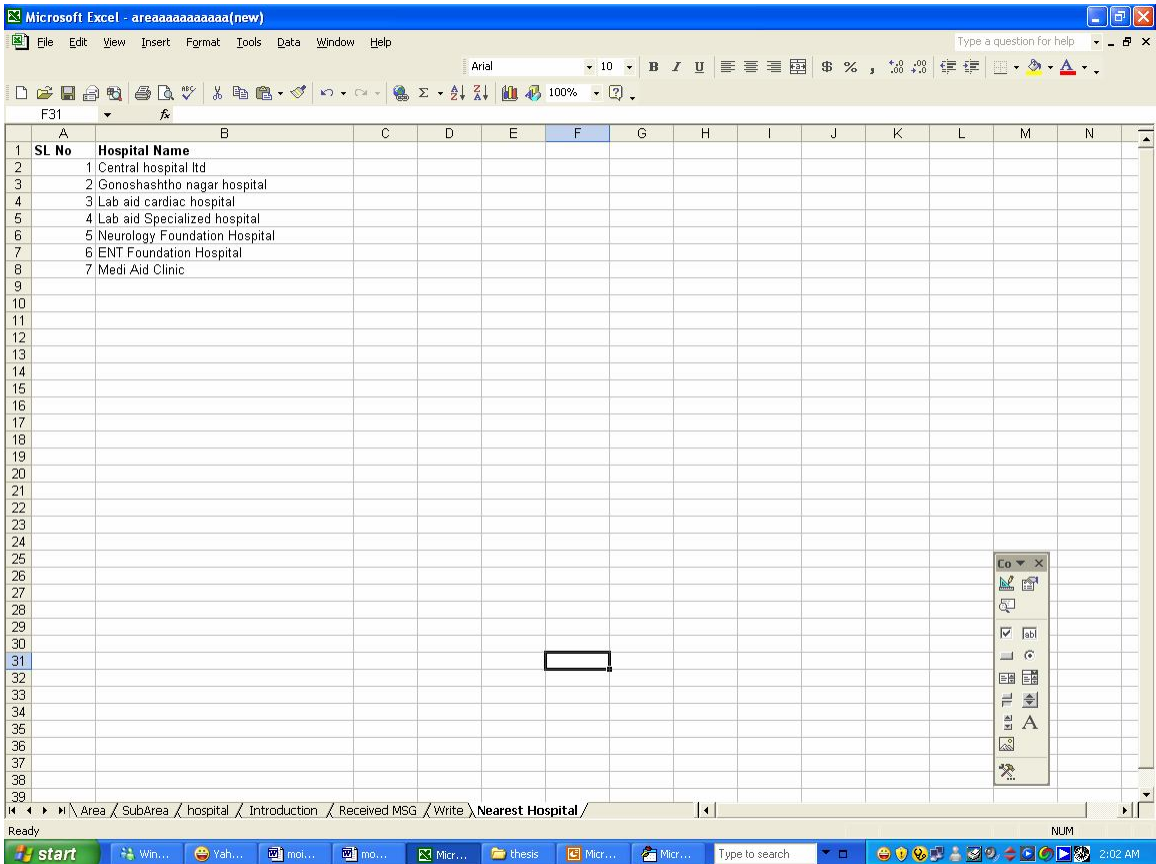


Fig16: Nearest hospital

This sheet contains the nearest hospitals and serial number of those hospital stored temporarily by the server. It is cleared each time the server sends the address of nearest hospitals to the user.

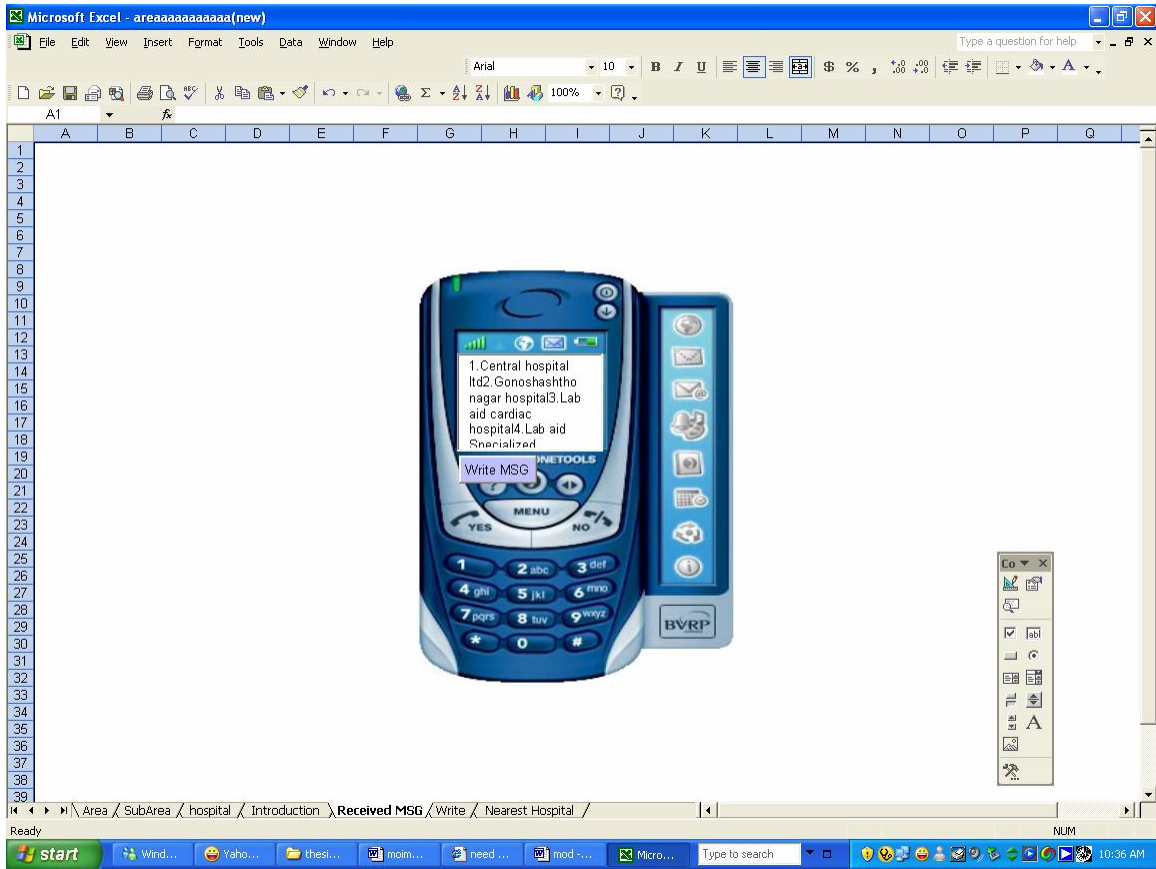


Fig 17: Received SMS

Here this interface is showing the nearest hospitals' name with serial number which given by server and received by user. Server get this name and serial number from "Nearest Hospitals" sheet. and give user a option to choose his/her desired hospitals.

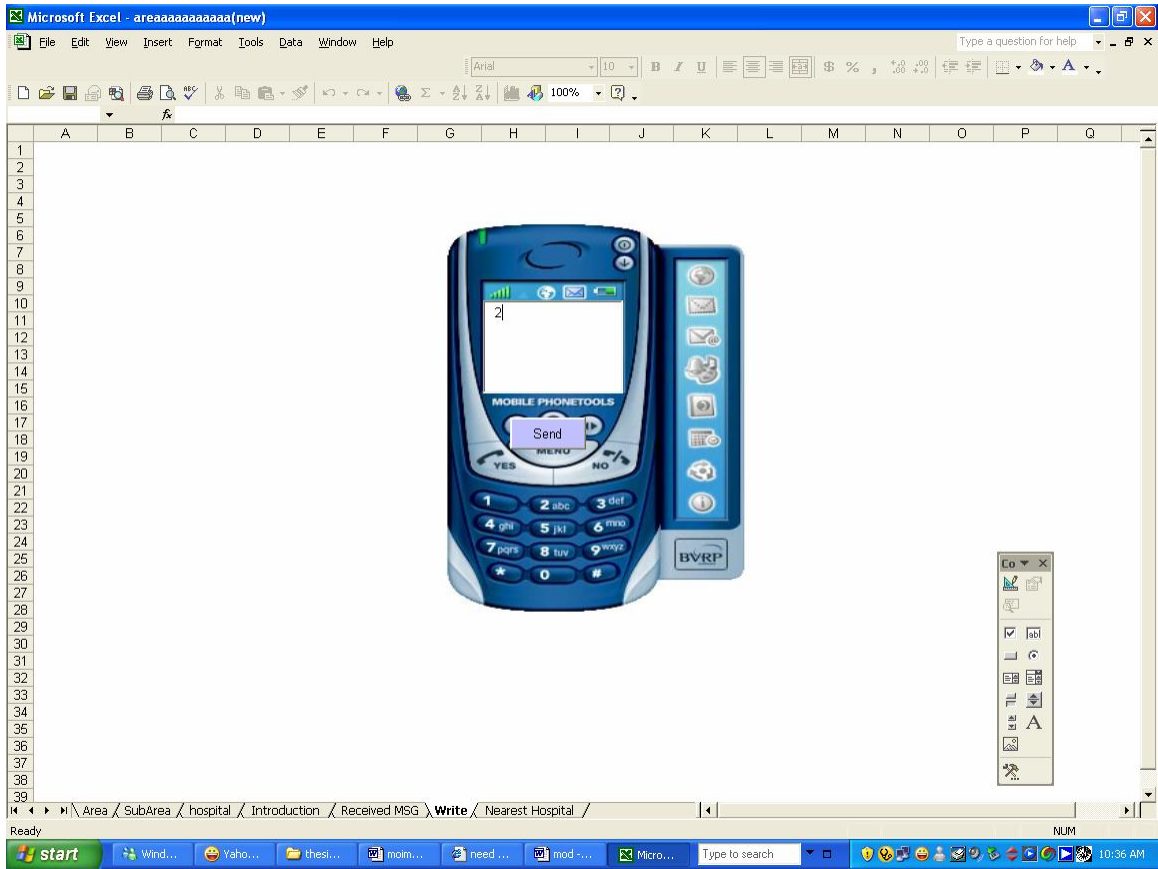


Fig 18: Writing of Serial number

Here user has to write his/ her desired hospital's serial number and send. When operator press this send button then "Hospital" sheet again needed to get the address of that hospital.

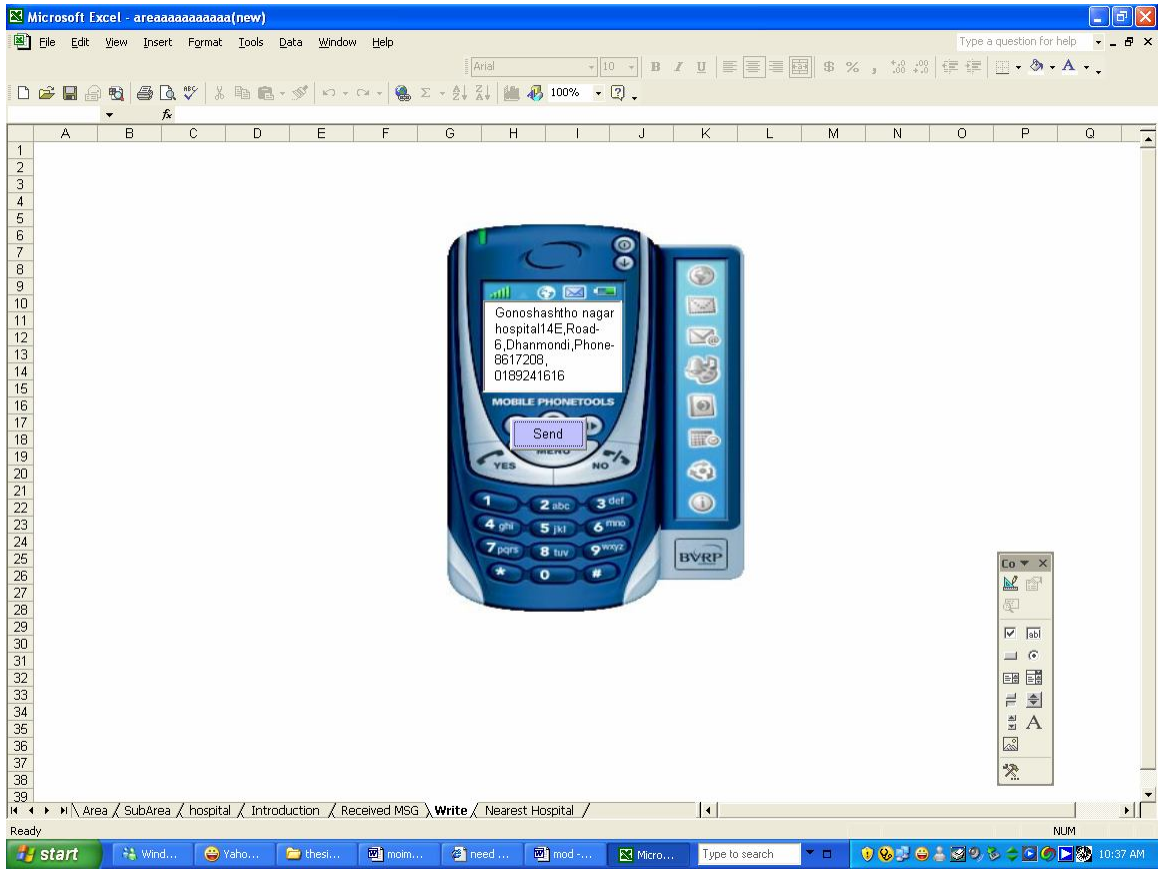


Fig 19: Receiving SMS

Here it's just showing the last SMS sent by server which contain full address of hospital.

Chapter 5: Conclusions and future scope

Actually we have designed this system from users' point of view and tried to make it user friendly. In future we will try to implement it and accommodate GPS when it comes. We will also try to include information of different doctors /specialists and reduce the number of SMS passed by user and server that will save both time and money. This type of system can be designed for other city and also for other emergency location like bank/ hotel / police station etc.

Chapter 6: References

- A-Z Medical Directory- Hospital & Clinic. Dhaka
- www.bangladeshyellowpages.com/hospitals.html
- Dhaka City Map