

# Electronic Counseling System for the Visually Impaired in Enugu State Nigeria

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**Abstract:-** This paper was developed for visually impaired students in Anambra state Nigeria for proper interaction with counselors. Based on discussion with some visually impaired students called for this research effort to investigate on how to design and build a voice command computer based counseling system that work with voice recognition program since they cannot see with their eyes reply electronic mails sent to them, the voice command interface helps them to listen and answer questions effectively from their counselors. Keeping in view a strong need for managing these students' information and problems a network computer based counseling system with voice command was designed and developed. Electronic counseling in Anambra State does not consider how visually impaired reply electronic mails sent by their counselors. It is web based application that uses Visual Basic .Net, HTML (Hypertext Markup Language), CSS (Cascading Style Sheet), JavaScript, PHB (Hypertext Pre Processor), Microsoft Speech Recognition Engine and SQL (Structured Query Language) to implement and Object Oriented Analysis and Design Methodology was adopted since it is based on states and behaviour of objects. The system uses Microsoft speech recognition to read electronic mails sent to students by online counselors. It is user friendly and provides simple and efficient way for managing students' problems.

**Keywords:** *Voice recognition, visually impaired, Counselor, Student.*

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## I. Introduction

Electronic counseling first emerged on the Internet as early as 1982 through online self-help support groups (Kanani and Regehr, 2003). Electronic counseling system is the provision of professional mental health counseling services through the internet (Mallen, Micheal, David and 2005). Services are offered via email, real-time chat and video conferencing (Mallen, Micheal, David and Vogel, 2005). Electronic counseling provide students with the ability to access counseling services via email (Skyline College, 2015). It makes provision of professional mental health counseling services through the Internet (Wikipedia, 2015). The main goal of counseling is to alleviate the distress, anxiety or concerns experienced by a client when he or she enters therapy, online counseling has strong efficacy under that definition (Mallen, Micheal, David and Vogel, 2005). A wide or broader aspect for understanding purpose says that "Online counseling is kind of professional assistance provided to those requiring counseling for mental health distress through Internet or in simple words counseling - online student support services (Skyline College, 2015). They are also known as counseling webinars, Cyber counseling and cyber learning, E-walk-in counseling, email counseling, online communication with an academic

counselor. People and counselors have started using this online counseling system in addition to the traditional one; hopeful of the betterment of the patients or mentally distressed person at a faster pace (www.schooland university .com). There is a segment of people who feel that it can be considered to be a complete replacement for the traditional psychiatrist visits. Tele psychology; a form of counseling has been prevailing since long. However the evolving video chat systems and internet facilities due to the prevailing broad band systems have shown overwhelming increase in the number of people approaching online counseling therapy (Mallen, Micheal, David and Vogel, 2005). For providing and getting online counseling; the counselor and the patient or the client needs to have a computer with an internet connection.

Online counseling works as a means of constant contact between the students and the counseling center or the counselor. It has proved it is worth time and over again. Online counseling helps in facing, addressing and resolving the distress and challenges faced by students in their life. They are been counseled by licensed professional or a certified counselor. Sincere records of the facts discussed between the student and the counselor are been maintained for future purpose.

Online counseling services have become increasingly popular. Students who are miles away from such assistance or are not ready to face the spotlight or the ones who are afraid of being confronted seek help through online counseling. These services are made available steady throughout the year. It also has prescribed policies and procedures for attending and reverting back to students about their anguish. All this comes under the jurisdiction and regulations drawn by the counseling centers or the community but the visually impaired are left out in some benefits associated with on line counseling system. Electronic counseling system have some advantages like; Remote and rural students and people can seek assistance for mental health information or distress. Disabled, household, shy and the ones not ready to come out in public with their problem also can get help, fairly affordable and convenient to a large extent. Easy way of accessing and authenticating the details/resolution shared by the online counselor - re checking the details on internet. People conveniently talk to family members and friends thru internet applications but are skeptical about discussing mental health; hence online counseling proved to be beneficial in such cases (Wikipedia, 2015). Its disadvantages are not left out; No insurance coverage for therapies done through online counseling, Confidentiality at stake sometimes. Counselors are non-reciprocate in emergency circumstances. Severe psychiatric situation cannot be handled online.

Virtually impaired is a decreased ability to see to a degree that causes problems not fixable by usual means, such as glasses (WHO, 2015). Visual impairment is often defined as a best corrected visual acuity of worse than either 20/40 or 20/60 (Maberley, Holland, Chou, Tam, Konkall, Roesch, Veselinovic and Witzigmann, 2006). Electronic counseling for the virtually impaired is organized in a way the impaired individual uses Microsoft speech recognition hardware to see what the counselor has posted in electronic mail and video conferencing. E-counseling is particularly helpful to students who find it difficult to schedule counseling appointments during normal business hours (Skinner and Zack, 2004). The number of missed appointments is much less than with in-person counseling. Electronic-counseling is viewed with skepticism by a large number of professionals; it has received support from many clients who have utilized online counseling. (WHO, 2015). The electronic counsel system is design for organizations that want to implement electronic counseling services within their organizations or to the public. The e-counsel system will be able to signup clients from any location and be able to provide real-time chat. This system allows clients to chat with counselors from anywhere in the world (Skyline College, 2015).

Electronic counseling is more effective because a client is at greater ease and feels less intimidated than they would in traditional settings (Shaw and Shaw, 2006). This makes clients more likely to be honest and thus allow the counselor to provide better guide. Electronic counseling has additional benefits unrealized by office-based counseling as it allows the students to attend sessions at a higher rate than traditional sessions (Walker, 2007). This paper is for the visually impaired students. These students can get in contact with the counselor through the internet from any location and with any device that have internet connection. This helps to reduce cases of students' queuing up in the counselor's office or missing appointments because of engagement with lectures and academic affairs. Two assistive technologies used by the blind are the braille and screen reader. The counselor interacts with the students online and sends messages to their electronic mail. Visually impaired students use computer that has software that stimulates voice reading installed. The virtually impaired student reply the mail online using special software called screen reader.

## II. Problem Statement

Virtually impaired students have problem accessing electronic mails sent by their counselors.

### Objectives of Study

The objective is to develop an electronic counseling system that uses Microsoft speech recognition and finger print for the visually impaired. The system has an interface where the students communicate with the counselor.

### Importance of the Study

Electronic counseling with Microsoft speech recognition helps virtually impaired students to read and understand whatever that is sent to their mail using voice recognition software. Once an electronic mail is sent the voice recognition notifies student through the sound that a mail is been sent and reads it using voice recognition software.

### Analysis of the Present System

The present electronic counseling system does not consider the virtually impaired. This creates a big problem in responding to electronic mail sent to them since they cannot make use of their eyes. When interested people get in contact with electronic counselor system, they operate it with some difficulties. The e-mail sent to them cannot be read and reply. Present system uses two methods to interact with each other; Book Session: This is when interested student try to get in contact with a counselor and set an appointment with the counselor. The student is required to fill some forms and wait for feedback. This brings about delay in the system because there tends to be a long queue in

the system because of different students trying to book session with the counselor. One-on-One meeting with the counselor: Students that already have session(s) with the counselor meets the counselor in a closed room where the clients opens up the counselor. Student makes the counselor know his/her problem area while the counselor at the end of the meeting will be able to provide the optimum solution to the problem which still takes time and follow up becomes a hindrance.

### III. Methodology

Object Oriented Analysis and Design methodology (OOADM) was adopted. It has five steps; find the objects, organize the objects, state how the objects interact, define the behavior of the object and define the internal of the object. The objects in this research work are the problems presented by the students, possible questions asked by the counselor and Proffered solution the counselor. The objects are organized into two; the data preparation object and the data solution object. It interact in such a way that data preparation object is an interface or the form where the student fills the problem and the solution object gives the right answer or solution to the problem via electronic mail. The object interacts in such a way that behavior of the data preparation object becomes the input to the data solution object.

#### Description of the New System

Students' problems can be academic, financial, emotional, psychological or social issues. The e-Counseling system is

an online web based application which runs on a browser preferable Internet Explorer, Mozilla Firefox, Opera, safari, Google Chrome browser. It is a two column, responsive, multiple pages, and dynamic website. This system is a modification of the predominant existing manual system of counseling. It filled the loop holes associated with the counseling system with visually impaired by providing an interface on the internet and voice recognition software that helps them in replying electronic mails sent by counselor. A client's problem is solved from anywhere, at any time through the real-time chat module provided by the system. The system is easy to use and one can exit or quit the application at any point in time, from this application some individuals can experience in their individual personality development.

#### Description Of Input And Output Document

The input and output documents are very important in trying to make this system achieve this goal. The input documents are what the system uses to produce result. It comprises of welcome screen, create account page and edit profile page. While the output documents are the results after coding. The output document of this research is a screen output comprising of characters, numbers and images. The output design documents contain the pieces of information which are required to update the master file in any system, to get a desired output, the necessary and relevant data must be entered as input.

#### Login Input Forms for the Students

#### WELCOME SCREEN




### CREATE ACCOUNT PAGE

HOME COUNSELING HISTORY PROFILE

**Login form**  
Reg Number: 2012224276  
Password: ●●●●●●●●  
Submit  
-> Create Account

eCounsel: Create Account page

**Registration form**  
Upload Passport:  Browse... Upload



**STUDENT DETAILS**

Surname:   
First Name:   
Last Name:   
Sex: Select an option ...  
Date of Birth:   
Address:


### EDIT PROFILE PAGE

HOME COUNSELING HISTORY PROFILE

**Login form**  
Reg Number: 2012224276  
Password: ●●●●●●●●  
Submit  
-> Create Account

eCounsel: Create Account page

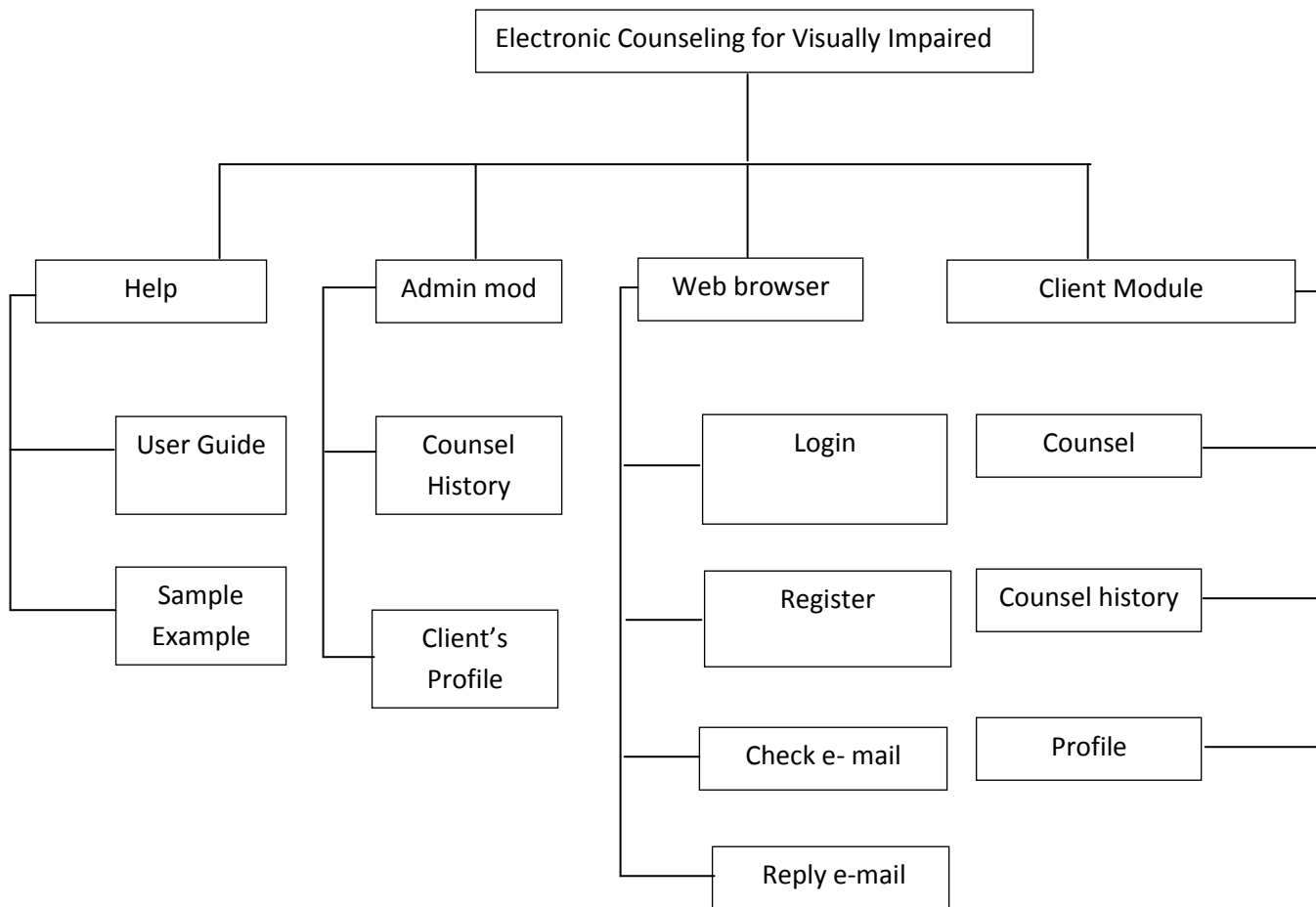
**Registration form**  
Upload Passport:  Browse... Upload



**STUDENT DETAILS**

Surname:

#### IV. Architecture of the New System



#### V. Result

Result of this paper is an interface where visually impaired in Enugu State Nigeria can interact with counselor's on-line, send and reply electronic mails sent to them since speech recognition software is installed. Any time a counselor sends an electronic mail, a notification appears with sound indicating something arrived. The alert notification will be sending at hourly intervals for six times a day until the message is read.

#### VI. Conclusion

It was found out during analysis of the present system that visually impaired has problem with on-line counseling system. Most times their counselors may not be disposed to give immediate solution to the presented problem. The counselor may want to communicate through an electronic mail but since they cannot access it; it becomes a hindrance. Therefore software called speech recognition was introduced to the electronic counseling system to help them communicate effectively. This is in order to enhance the availability and efficiency counsellors by using the internet

to remotely provide counseling services to any client from any location at any time. The major findings on the benefits of this research were also covered.

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