

# Web-Based Student Counselling Management System for Kotelawala Defence University

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**Abstract:** Today's education system is only focusing on students' abilities in the academic area, not giving much attention to their emotional aspects. Psychological problems include fear of failing, family pressure, competitive pressure, depression, academic stress, homesickness, and relationship issues are the major issues that students face and find hard to deal with. Student Counselling is a very important aspect for the students because it helps to save them from all issues that can negatively impact their studies. The students are under extreme pressure that needs to be heard, but they may not be able to verbalize their problems in front of the counsellors as they do not feel comfortable speaking, and, they do not like to expose others when they meet a counsellor. Therefore, the necessity for an online system that can manage all counselling processes was identified. Even though many counselling management systems have been introduced to the market, those systems are not capable of using in particular universities, institutes, etc. Our proposed system has the capability of implementing in institutes and doing online counselling via chat, video conferencing, or meeting in person as preferred by the user.

**Keywords:** Psychological problems, Student counselling, Counselling management systems

## 1. Introduction

The internet is the world's largest information and communication network, and its value is growing all the time. Today, much like the telephone was a few years ago, internet connectivity is largely taken for granted. The internet has become an important component of many teenagers' and adolescents' lives, as well as a common form of contact. Because of the internet's prevalence, individuals working to meet the psychosocial needs of young people must understand its possibilities. This new field of work also opens up new opportunities for engaging people, distributing information, and providing counselling, and thus serves as a complement to traditional counselling services.(Pulat and Yildirim, 2021)

Today's education system is only focusing on students' abilities in the academic area, not giving much attention to their emotional aspects. Psychological problems include fear of failing, family pressure, competitive pressure, depression, academic stress, homesickness, and

relationship issues are the major issues that students face and find hard to deal with. Student Counselling is a very important aspect for the students because it helps to save them from all issues that can negatively impact their studies.

Counselling psychology is a part of psychology that studies and applies research to a variety of topics, including counselling process and outcome, supervision and training, career development and counselling, and preventive and health.(Mielgo-Conde, Seijas-Santos and Grande-De-Prado, 2021) A focus on assets and strengths, person-environment connections, educational and vocational development, brief encounters, and a focus on intact personalities are some of the common themes among counselling psychologists. Online counselling can be a great way to meet someone for the first time and help you overcome your concerns. It can be used as a bridge to face-to-face counselling as well as a stand-alone kind of counselling support.(Sussman, 2004)

Online counselling is a type of professional mental health counselling that takes place over the internet. Instead of traditional face-to-face contacts, skilled professional therapists and individuals seeking counselling services communicate through computer-assisted technologies. Teletherapy, e-therapy, and web counselling are all terms used to describe online counselling. Email, real-time chat, and video conferencing are commonly used to provide services.(Yan, 2012) Online counselling is used by some clients in addition to traditional psychotherapy or nutritional counselling. An increasing number of clients are choosing internet counselling instead of in-person treatment.

There are various advantages to using online counselling. These are some of them:

- Treatments that are accessible: Online access to Mental Health Therapy may assist to reduce the stigma associated with mental illness and make people feel more comfortable talking about their problems.
- Increased comfort and convenience: For both clients and counselors, online counseling can provide greater comfort and convenience. It is possible that counselors or clients will not need to travel to their appointments, making them less

expensive and more comfortable for all parties involved.

- Less expensive: While most counselors charge the same fees for ongoing discussions as they do for direct counseling, online counseling can be less expensive because it does not require travel provided both parties have an internet connection.

Due to the COVID-19 epidemic, the usage of online counselling increased considerably in 2020. As a result of the epidemic, many countries imposed a quarantine to prevent the virus from spreading further. As a result, mental health specialists were unable to meet with their clients in person and had to resort to virtual counselling. In addition to this change, the epidemic and subsequent quarantine made many people frightened and unhappy, increasing the demand for mental health services.(Gading, 2020) Because virtual counselling became so popular during this time, its total use has increased, despite a reduction in the need for social distancing.

Thus, this paper is proposing an intelligent website that provides online counselling for students. Developing a web application that helps to manage the academic and psychological problems of the students without hindering their privacy and handle users as an individual for a better user experience. To achieve the above aim the following key objectives have been identified.

- To study the relationship between academic performance and counseling in a particular institute.
- To facilitate students to achieve their academic and personal goals in a particular institute.
- Support and empower students to develop their potential and improve mental health and wellness.
- To prevent spending money on expensive counseling services and excess travel expenses.
- To identify scenarios and determine issues faced by students.
- To minimize the cost for the physical of the university.
- To help for minimizing the suicide or depression cases among the younger generation in a particular institute.
- To protect the confidentiality of the students.

Most of the students in the KDU have psychological problems including fear of failing, family pressure, competitive pressure, depression, academic stress, homesickness, and relationship issues which can negatively impact their studies. The students have the capability of managing their academic issues with the assistance of the lecturers, but they are not able to manage other psychological problems with a proper counselling system. Another major problem is the high cost of online

counselling systems for students and the lack of access to them due to their busy schedules.

## 2. Literature Review

### A. Prevalent Methods

As mentioned earlier, this research is mainly conducted to give a solution to KDU Students to the problem of lack of methods to find a counsellor for their psychological problems. They are unable to find a counsellor in a busy academic life and find their contact details because of this issue. While searching about existing methods students use to find a counsellor, mainly identified methods are as followed,

- By searching the internet
- From friends who have joined previous counseling.

After identifying the psychological issues of students, the need for a proper database with the details of a counselor was identified. As mentioned above, considering the methods used by the students, the existing methods, and the methods they follow are not very suitable, this literature review identified the techniques previously used by other researchers to implement similar systems and their advantages and drawbacks of them.

### B. Development of a usable online counselling management system

This project has identified the themes of personal life counselling management in the state public and private sectors in Malaysia. In this project, ENAI has been developed to strengthen the existing system and has gone

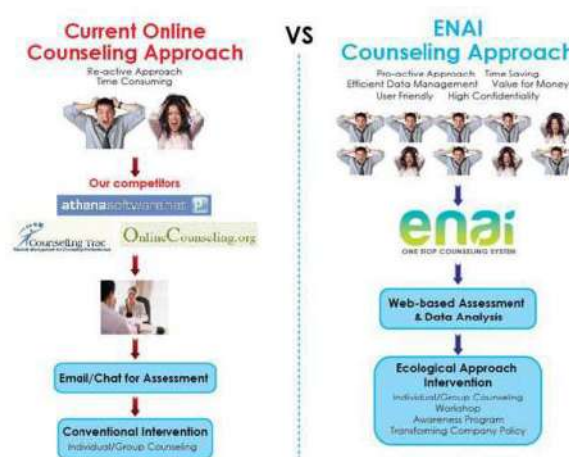


Figure 1: ENAI vs other online counselling systems

Source: Development of a usable online counselling management system Research Paper

through formative and summative evaluations. The results of the ENAI evaluation showed that the system would be able to provide convenience to the three tiers (employer, employees, and counsellor) in the counselling management

of personal life in public and private organizations in Malaysia.

The project involved the development of ENAI through the usage of the System Development Life Cycle (SDLC) and the draft of the theoretical analysis has been divided into three major phases of SDLC. Phase one is the process of gathering information regarding the problems and issues encountered in the current counselling system in the organization. Some of the issues found are difficulties in information sharing among employer and their employees; reluctance due to mistrust and anxiousness in giving private and confidential information to a counsellor or employer; counsellor is not proactive; loss of data and monitoring difficulties.(Hashim *et al.*, 2013)

AI has its unique characteristics which give uniqueness to the system. The figure illustrates the differences between ENAI and other online counselling systems. ENAI provides facilities for the user, especially employees, to share their life problems where they can key in all data problems that they experienced. The data will be sent to the counsellor and administrator. This data will be treated as private and confidential by the counsellor and not to be tried out. This system can only be accessed by the counsellor and the coordinator which means that other employees or employers do not have access to relevant information from colleagues. The problem of missing information or data loss can be avoided as ENAI is integrated with a large database to store all information.

The system also will indicate to the counsellor and administrator the employee's decision whether he/she wants to seek further intervention and treatment. The system also can automatically analyses all data by changing the form of the percentage of employees who are suffering counselling workshopping from liver problems and need further intervention and treatment. There are many methods of intervention that can be done such as an individual c, group counselling workshops, awareness programs, and policies to transform the company.

#### C. Online Counselling System

The Online Counselling System is developed to enhance counselling. The software will be a great relief to the students. The Online Counselling System is developed to enhance counselling, which fully works online. This software will be a great relief to the student for Reporting, Registration, and searching the information about college and university. This software gives an overview of the entire institute in a short interval of time and will also be a

great help to the university to manage the whole counselling procedure by their paperwork and reducing their time.(Jain *et al.*, 2012)

Present system or Existing system of Counselling Management System working manually or computerized in a building. Therefore, all types of works are maintained in the building. So, maintaining all the counselling procedures is very difficult. If we are reporting, then we need to go to the University and get a form for reporting and fill the form and submit the queue conditions. Then verify their form by the university and maintain the record on the computer or register. The system is mainly related to the online counselling management system. Which is developing an online web-based application system, it is necessary to make a thorough study of the existing system. There is no online Counselling Management System. All the information is not maintained globally. Therefore, maintaining all the information about the university is very difficult.

#### D. KDU Helpline Service (e Counselling)

Considering the KDU Help Desk, a web-based 24/7 mobile counselling service is provided through E KDU. What happens here is that a PDF file containing a doctor and his or her phone number is scheduled for each day of the month and stored in the form for the month. And a student has the ability to physically go and meet this counsellor.(KDU Helpline - KDU, no date)

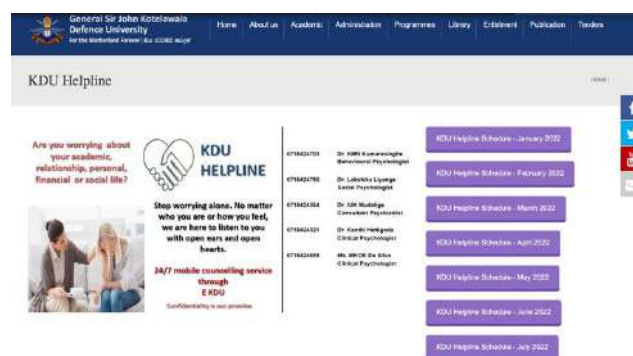


Figure 2: KDU Helpline Service (e-Counselling)

Source: KDU Web-site

#### E. Development of an online counselling system and usability evaluation

The rising prevalence of mental health diseases is a serious problem for society. Some areas in Asia have no medical facilities and proper mental health care is unavailable. To cope with these problems, the application of ICT for mental health services has been recognized as one of the effective approaches. Therefore, we have been studying and putting

into practice online counselling for people assigned overseas. We constructed a system using agile software development for those assigned overseas in Asia. The first step involved developing a prototype system based on system requirements after we repeatedly discussed system development with people in charge of a clinic. Next, we conducted interviews about the online counselling system. We also discussed and analysed the interviews. Finally, we completed the online Web counselling system by

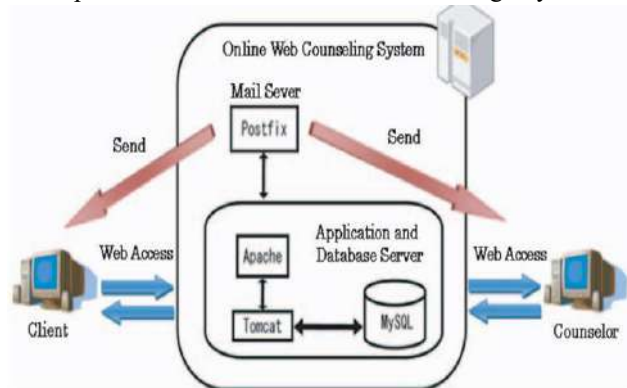


Figure 3: System Configuration

Source: Development of an online counselling system and usability evaluation Research Paper

repeatedly discussing possible improvements with the clinic and then incorporating the changes into the system. Moreover, we evaluated the system by surveying the form of a questionnaire. Since we developed an effective online counselling system using statistical methods, this paper reports on the construction and usability evaluation of the system.

Here developed and operated an online Web counselling system by use of agile software development methodologies to prevent mental health problems from worsening by early negligence for those assigned overseas in Asia. The system is constructed in cooperation with a clinic. The system can offer mental healthcare services by Japanese professionals working in Japan to a lot of Japanese nationals that work in foreign countries. The central focus is on China and Taiwan. All messages are stored in the database of the system to prevent the information from leaking outside. Counsellors can provide consultation via the Web without going to the client's location and the system does not limit the time. (Kato *et al.*, 2011)

The results of the system evaluation showed that demand for original functions outside the system design is high under a system that has a clear intended purpose. It is also important to make someone feel less inhibited by increasing security and improving the system image. Information secrecy and security carry great weight in online counselling systems that are closely associated with mental issues. In the future, we plan to improve the user interface from a psychological standpoint and increase

confidentiality and security. We aim to establish counselling services over the Internet, with a focus on psychological testing.

#### F. Student counselling management system – A web portal for student counselling

The first phase of a person's life is confined mainly by education and training. While progressing from vocational education and training or to higher education one has the opportunity to build a career. During this transitional stage, one may get diverted from their goals and give information that misleads the parents. Hence, counselling is an important aspect for the students of the current technological generation as an individual counsellor may remain in contact with all individual students as well as parents. Counselling is a process to have two-way communication with students and find out their attributes.

Here, students are allowed to speak whatever they think about their academic environment, the curriculum, and their learning progress. So, collecting all necessary information about the student and making their parents aware of their life becomes essential nowadays. Student Counselling Management System (SCMS) is developed to enhance the counselling process. The current system maintains its records in MS Excel & Microsoft Word documents; however, it is not possible to maintain the data from multiple systems in multi-user environments.

There is a possibility of a lot of duplication and chances of mistakes. Whenever some records are changed, counsellors need to update every document. Also, there is no option to find and print previously saved records. Manual record maintenance also faces various problems like no security; anybody can access any report and with sensitive data, also no summary is available for saved records. SCMS will simplify the process and reduce the manual paperwork. It is used to smoothen the work of each counsellor who is facing problems currently and make complete atomization of manual processes to a computerized system.

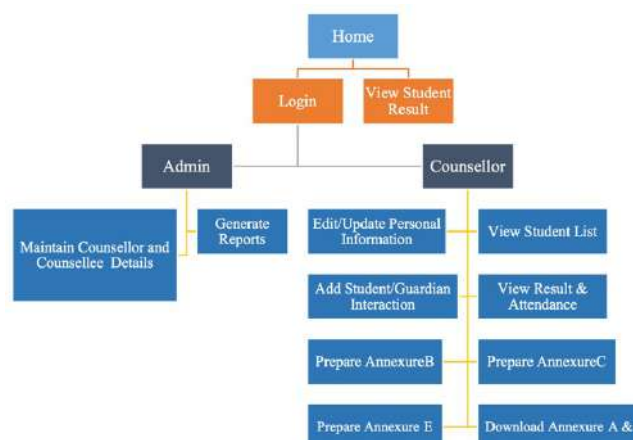




Figure 4: Flow Layout of Student Counselling Management System (SCMS)

Source: Student counselling management system – A web portal for student counselling

SCMS provides a way to store and evaluate the student counselling process in an automated computerized system. It will provide notifications to a counsellor about irregularity or disturbed students whether it is because of mental/emotional or academic stress. Using this system, the counsellor can take necessary action and also notify the guardian or parents about their child. SCMS also provides weekly or monthly reports providing the growth of the students in an academic or social environment. (Patel, 2018)

### 3. Methodology and Design

#### A. Requirements gathering and analysis

This study is initiated to find out how to choose a suitable counsellor to help students solve their psychological problems. For that, a survey was conducted using 80 students. The survey was kept as simple as possible to ensure that each participant was comfortable responding. With the results obtained from this survey, the research objectives were defined and then the design of the proposed system was started to meet each of them. The main psychological problems faced by the students are as follows.

- a) Fear of failing
- b) Family pressure
- c) Competitive Pressure
- d) Depression
- e) Academic Stress
- f) Homesick
- g) Relationship Issues

The study problem was identified, and it was then separated into different sub-questions to determine what the exact project goals should be. The following research questions were formulated with the aim of identifying areas that need to be studied in more depth to find a proper solution to the research problem. They clearly define the research study's aim and specify exactly what needs to be learned. Additionally, to address all user requirements, these research questions identify the important features of the proposed system.

Question 1: What is the web-based solution that can be given to solve the research problem?

Question 2: What kind of information should the system provide?

Question 3: What should be the most important functions of the proposed system?

Question 4: How to use novel concepts and technologies to increase efficiency, user-friendliness, and privacy?

#### B. Proposed System Design

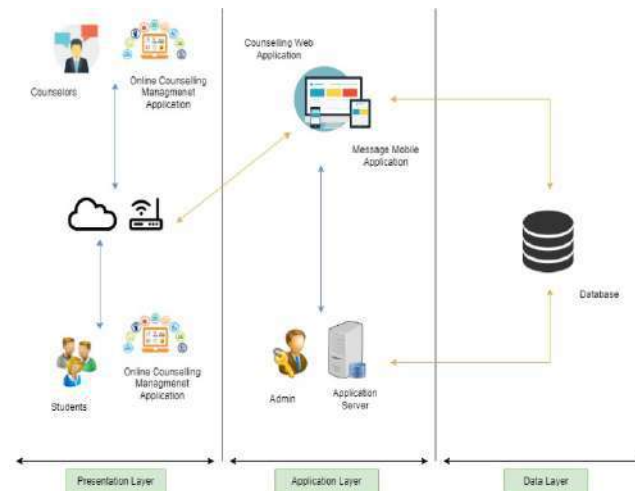


Figure 5: Overall System Architecture

Source: Author

1) Overall System Architecture: The overall architecture of the system and the relationships between the system's components are shown in Figure 5. Three layers - the presentation layer, the application layer, and the database layer make up the layered architecture that contains the architectural design.

2) Modular Architecture:

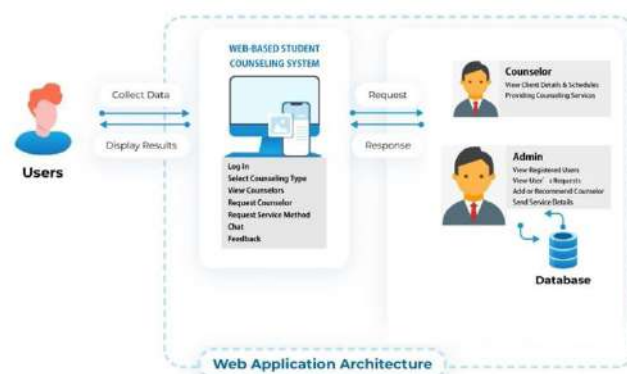


Figure 6: Modular Architecture

Source: Author

#### C. Data Gathering

In developing a system, the stage of collecting related data and information is a very important and hard step. As mentioned above, KDU has a helpdesk system, but no such system has been introduced before to contact a counsellor through this kind of zoom technology and video conference.

During this data collection step, it was very difficult to connect with the students and find out what their problems, challenges, and needs were. It was also a difficult process to make time to meet them physically due to their busy schedules. Finally had to collect them through the questionnaire to gather the required information and it was a time-consuming process.

Through this questionnaire, the researcher was able to get an idea about the problems faced by the students and the domain of the system they expect in the data collection method. However, the KDU student counselling services will be able to manage, facilitate KDU students' pursuit of their academic and personal goals, protect student privacy, develop and enhance student potential, mental health, and well-being, as well as provide additional counselling services to prevent spending money on and provide an efficient and reliable service. Also, it's an advantage for them to get counselling services from their university rather than dealing with some outsources.

#### D. Technology Adaptation

**Website Development:** The main requirement according to the identified research problem is a standard database with details of students and counsellors. They're occurred doubt about whether a website or an android application is more appropriate. For this, the earlier mentioned google survey was used to ask the preferences of selected 80 students. The majority of them opted for a website over an android application. The website is implemented using the Laravel framework and node.js.

**Database Architecture:** When computerizing students' information, the next question was what specific information counsellors should know about students. Students can register into the system by filling out the registration form shown in Figure 7 and there collect information such as First name, last name, and email. Here the researcher decided to use a normal registration form.

Figure 7: Student Counselling Management System for KDU Registration Form

Source: Author

Figure 8: Student Counselling Management System for KDU Login Form

Source: Author

In the data-gathering phase, the techniques that have been used are google forms and interviews conducted over the phone. Regarding the collected data, the data of the students and the counsellor in the proposed system are stored in a MySQL database. Currently, there are 3 tables (Students Details, Counsellors Details, and Counselling Details) which will increase later.

#### 4. Discussion

By use of virtual counselling expanded significantly in 2020 as a result of the COVID-19 virus. Many countries enforced quarantines due to the pandemic to prevent the virus from spreading further. As a result, mental health professionals were unable to meet with their client's face to face and were forced to rely on virtual counselling. And in the face of a crisis in the country, online counselling services became more popular to solve the mental problems of humans. Furthermore, the pandemic and ensuing quarantine made many individuals afraid and sad, leading

to a rise in the demand for mental health treatments.(Hashim *et al.*, 2013) Because virtual counselling became so popular during this time, its overall use has increased, even though the requirement for social distancing has decreased.

Student counselling is a critical component for students because it assists them in avoiding issues that may have a detrimental impact on their education. Students are under a great deal of stress and need to be heard, but they may not be able to express their concerns in front of counsellors because they do not feel comfortable speaking in front of them, and they also do not want to inform others that they are meeting with a counsellor. As a result, the need for an online system capable of managing all counselling operations was discovered. Even though many counselling management systems have been launched in the industry, they are not suitable for use in specific universities, institutes, or other institutions.(*BetterHelp - Help us match the right therapist for you*, no date)

The system basically focused on finding a suitable counsellor to help students find solutions to existing psychological problems and recommend treatment for them. For this, a web-based online counselling system is



Figure 9: Aware of psychological problems for students  
Source: Author

introduced and the main points that led to its development were obtained from the students through a questionnaire. Based on the information obtained from a group of 80 students, a review of their problems was done. Figure 9 shows whether the students have a psychological problem or not as an overall percentage.

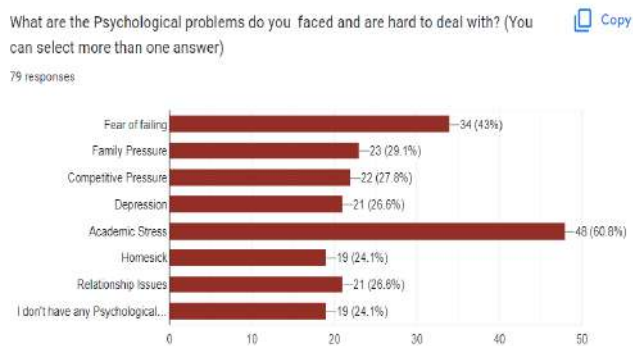


Figure 10: Common psychological problems

Source: Author

Figure 10 shows the initial rating and review of psychological problems faced and difficult to face by the students.

Figure 11 shows the reasons for KDU students didn't resort to counseling services even though they have psychological problems.

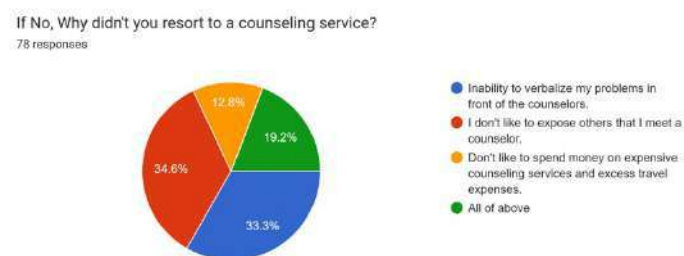


Figure 11: Reasons for not resort counseling services

Source: Author

Figure 12 shows the students' preference as an overall percentage to use an online counselling service in the KDU.

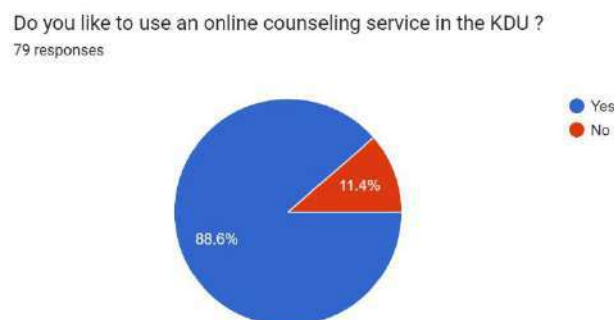


Figure 12: Preference to use an online counseling service

Source: Author

A chatbot is also designed to solve their mental problems so that the efficiency and accuracy of the proposed system are preserved as well as privacy. The chatbot enables students to have a private conversation about their mental health until the counsellor contacts them. Messaging also provides a mobile app so that the busy counsellor can answer students' questions at the same time they ask.

## 5. Conclusion and Future Works

KDU student counselling system will be able to manage, facilitate KDU students' pursuit of their academic and personal goals, protect student privacy, and develop and enhance student potential, mental health, and well-being, as well as provide an efficient and reliable service to avoid psychological problems for better academic performance.

The limitations of this system are it is only focused on counselling services in the KDU to limit the scope of the project. This system can be further improved by providing counselling services to university students all over the country.

Also, researchers can add more features to the system such as the ability to indicate the stress level through a smartwatch and assist them to reduce their stress by providing counselling services through the smartwatch and the mobile app. Stress level is a feature found on many Smartwatches allowing a user to determine their current level of stress based on their heart-rate variability. Also, Sinhala and Tamil can be added as navigation languages.

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## Author Biography



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