

Serenitech: A Technology-Integrated Virtual Counseling Safe Environment for PSU Alaminos City Campus

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ABSTRACT

The Serenitech system addressed the critical challenges faced by guidance counselors and students, focusing on enhancing the accessibility, privacy, and efficiency of mental health services within educational institutions. Using the Agile development methodology, this study aimed to design and develop a robust platform that integrated essential features such as virtual counseling sessions, appointment scheduling, and a digital resource hub. The system was specifically developed to provide students with a safer and more convenient environment for seeking guidance and counseling services while improving the workflow and management processes of counselors and administrators. Through interviews, observations, and document analysis, insights were gathered regarding the limitations of the existing manual counseling processes, including delays in scheduling, difficulties in record management, limited accessibility, and the barriers caused by stigma and privacy concerns. A purposive and convenience sampling method was employed to select respondents, resulting in a total of 50 participants, including guidance counselors, staff, IT experts, and students. The developed system was evaluated using the ISO 25010 Software Quality Standards to assess its user acceptability and software quality characteristics, including functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. Weighted mean analysis was utilized to analyze respondent evaluations and determine the overall acceptability of the system. Findings revealed that the developed system improved accessibility to counseling services, streamlined appointment management, and promoted confidentiality for students seeking assistance. By addressing the inefficiencies in documentation, scheduling, and service delivery, this study contributed to the modernization of school counseling systems and empowered students to seek help without hesitation while supporting institutions in providing more effective, accessible, and technology-driven mental health services that support accessible, confidential, and technology-driven counseling service delivery within educational institutions.

Keywords: Virtual counseling, Mental health, Agile methodology, ISO 25010, Student support.

INTRODUCTION

All through the educational landscape, support systems have constantly evolved to meet the holistic needs of learners, yet mental health services often face logistical and social barriers. School counseling centers play a vital role in supporting students' well-being, but they face a dual challenge: the rising demand for services and the need to adjust delivery methods due to evolving circumstances (Capurso et al., 2020). Research indicates that a significant number of students experience anxiety and depression, with reports highlighting increased stress and feelings of loneliness (MacPhee et al., 2021). The COVID-19 pandemic heightened global awareness of the interconnectedness of cultures, as its physical impact spread worldwide alongside a significant decline in mental health (Panchal et al., 2022).

As educational institutions adapt, the role of school counselors becomes even more essential in addressing these mental health concerns. However, individuals with mental health conditions often face limited access to services

in regions where support is critically needed (World Health Organization, 2022). Counselors themselves encountered significant challenges, including an unprepared transition to remote services due to limited training and resources (Akgul et al., 2021). Staffing shortages further intensified these difficulties, often leading to role ambiguity as counselors were required to manage multiple responsibilities.

The Pangasinan State University – Alaminos City Campus (PSU–ACC) Guidance Office faces substantial issues regarding manual documentation, space constraints, and the stigma associated with seeking help. The combination of small counseling areas with limited privacy and the reliance on paper-based records makes these operational problems reach their peak. The current counseling process, which involves intake interviews and manual scheduling, often leads to inefficiencies and discourages students from seeking necessary support due to fear of being overheard or judged.

Serenitech addressed current scheduling, record-keeping, and communication challenges with modern technological approaches to provide superior student privacy and convenience. This study examined Serenitech’s developmental journey and assessed its impact on student satisfaction and operational efficiency. Long delays coupled with the fear of stigma regularly make students less comfortable when seeking counseling. Current approaches to both scheduling and documenting sessions prove inefficient, resulting in disorganized records and missed opportunities for intervention.

Through an innovative web-based platform, Serenitech provides a secure environment for students to access mental health resources and connect with counselors. The system adjusts to the needs of the users by offering features such as audio and video calls, chatrooms, and self-help resources, allowing students to engage in counseling sessions in a secure digital space. The key element of Serenitech includes simple navigation patterns which enable users to access the system without difficulty; through its dashboard, users can book appointments while ensuring confidentiality. The system developers optimized the application interface to accommodate a broad spectrum of users, including those who may be hesitant to seek face-to-face interaction.

This study assessed both the technical aspects of Serenitech and evaluated its potential benefits for student well-being and institutional efficiency. The analysis presented in this study examines every step of the system's development path, adding substantial value to educational technology research. The main objective of the study was to design and develop a technology-integrated virtual counseling safe environment for Pangasinan State University Alaminos City Campus (PSU-ACC). Specifically, the study aimed to identify the existing counseling processes, identify the challenges encountered, develop features needed for the proposed system, and determine its user acceptability using ISO 25010.

METHODOLOGY

The system was developed using the Agile Model to combine descriptive and developmental approaches as the research framework. Surveys and interviews were used to gather user feedback for system effectiveness evaluations. The Agile Model methodology, chosen for its collaborative effort and capability to optimize the development process, consists of six phases: Requirements Analysis, Design, Software Development, Testing, Deployment, and Maintenance which shown in Figure 1.

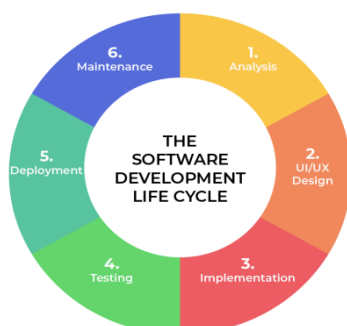


Figure 1. Agile Model

During Requirements Analysis, a combination of interviews and observations were conducted to collect data for system needs identification alongside potential issues discovery. The proponents gathered primary data by interviewing the Guidance Counselors, Dr. Brandy N. Celino and his staff, to understand the user's needs.

The Design phase focused on system architecture, utilizing tools like Figma to create prototypes and flowcharts for process evaluation. In this phase, the proponents used all the information gathered to design the system based on the needs of the institution, including Entity Relationship Diagrams (ERD) and database structures.

The Software Development phase involved using Laravel, PHP, and JavaScript to construct the system until all essential requirements became satisfied. This was the longest phase of the entire software development lifecycle where coding and interface creation took place.

During the Testing phase, the system underwent rigorous checking by the proponents to ensure functionality. Group testing was performed to identify faulty code, followed by collaborative testing with the locale.

Research activities took place at the PSU-ACC Guidance Office where researchers assessed the difficulties faced by counselors and students. We gathered primary data by interviewing the Guidance Counselors, including Dr. Brandy N. Celino and his staff. Through their input, the research team obtained significant details concerning operational obstacles and privacy concerns. Observational data collection took place to provide first-hand observation of how counseling sessions are requested and conducted.

The researchers used a purposive and convenience sampling method to select respondents from the PSU-ACC community to gain valuable information about user experiences. A total of 50 participants as presented in the Table 1.

Table 1. Respondents of the Study

Category of Respondents	Frequency
Guidance Counselors	3
Guidance Staff	2
IT Expert	1
Students	44
Total	50

The developed system was evaluated using a survey questionnaire adapted from the ISO 25010 Software Quality Standards to assess user acceptability and system quality performance. The evaluation covered the following criteria: functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. Weighted mean analysis was employed to interpret the collected responses and determine the overall level of system acceptability among respondents. The researchers measured system assessment using a 5-point Likert Scale, where Excellent received the highest rating of 5. The set acceptance threshold for this system stood at 3.41, below which made the system unacceptable as shown in Table 2.

Table 2. The Scale of Measurement for Acceptance Test

Scale	Statistical limits	Rating	Interpretation
5	4.21 - 5.00	Excellent	Accepted
4	3.41 – 4.20	Very Good	Accepted

3	2.61 – 3.40	Good	Accepted
2	1.81 – 2.60	Fair	Not
1	1.00 – 1.80	Poor	Not

RESULTS AND DISCUSSION

The proposed Serenitech: A Technology-Integrated Virtual Counseling Safe Environment utilized a robust web-based architecture intended for security and accessibility. The system effectively transitions the manual, paper-based processes of the PSU-ACC Guidance Office into a streamlined digital workflow.

To identify the root causes of current operational inefficiencies, the researchers implemented a Fishbone Diagram illustrating potential system issues across four main categories: Process, People, Environment, and Management.

Within the process category, the reliance on manual and paper-based documentation was found to lead to the risk of misplaced or incomplete files, while manual scheduling frequently resulted in overlapping appointments.

Regarding the people involved, students often misunderstood the purpose of counseling or feared being seen entering the office, while counselors faced difficulty managing increasing demand manually.

Environmentally, the study found that limited office space reduces privacy, as conversations can be overheard, which discourages students from seeking help. Finally, management challenges included the absence of an established system for secure digital storage and limited institutional support for updating counseling processes. Through this systematic categorization, the Fishbone Diagram clarified which causes required technological intervention to protect the integrity of the counseling system which shown in Fig 2.

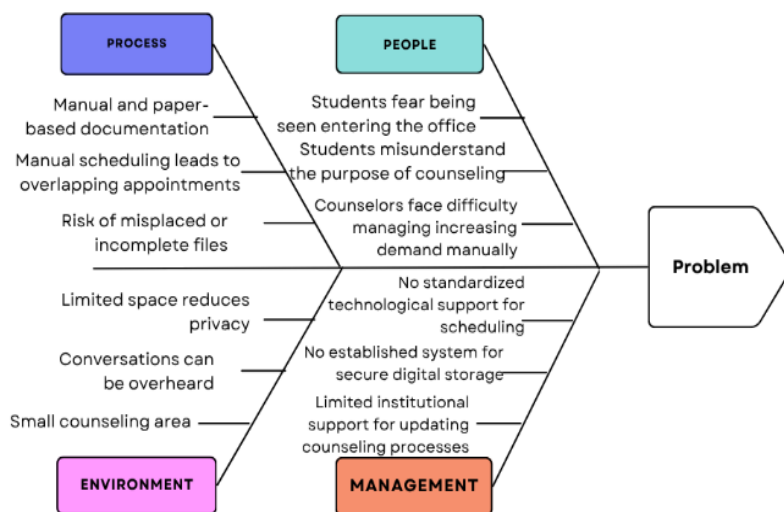


Figure 2. Fishbone Diagram

Based on the identified problems, the researchers developed Serenitech to provide a secure and accessible virtual counseling environment for students and counselors. The system was designed to digitize counseling services, simplify appointment management, and improve communication between users while maintaining confidentiality and data security.

The developed system contained several integrated modules that support the overall counseling process. These include appointment scheduling, virtual counseling sessions, user management, and a digital resource hub containing mental health and wellness materials. Through these features, the system provides an organized and technology-integrated approach to counseling services within PSU-ACC.

To demonstrate the implementation of the proposed system, the researchers present the major interfaces of Serenitech. These interfaces highlighted the core functionalities developed to support efficient, accessible, and secure counseling services.

System User Interface and Feature Implementation

Figure 3. Login Interface of Serenitech

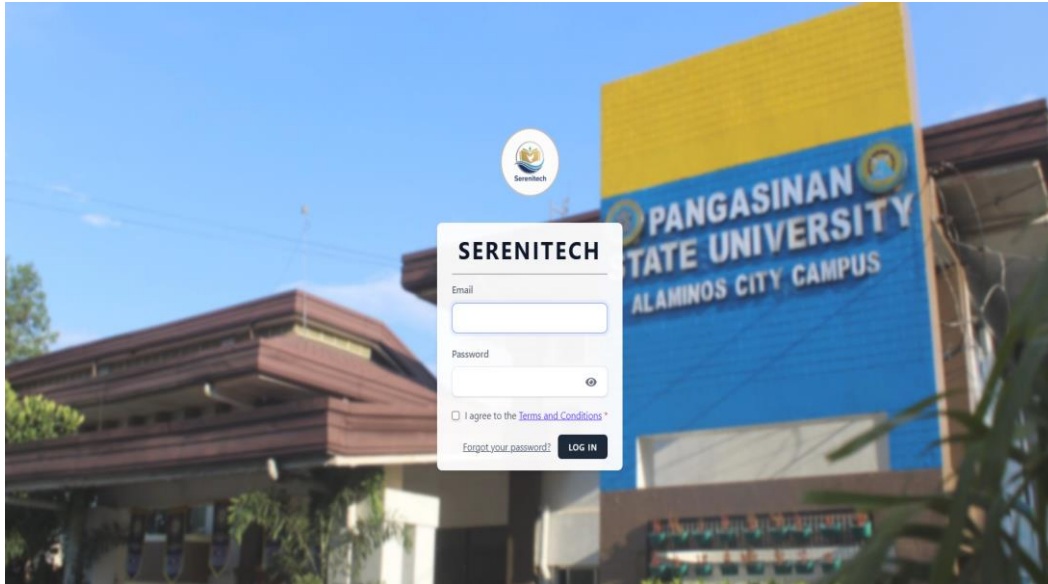


Figure 3 presents the secure login interface of Serenitech, which serves as the primary authentication gateway for students, counselors, and administrators. The interface requires authorized user credentials before access to system functionalities is granted, helping ensure confidentiality and controlled access to counseling-related information. The login module was designed with a simple and user-friendly layout to support ease of access while maintaining the security and privacy of sensitive user data.

Figure 4. Student Dashboard

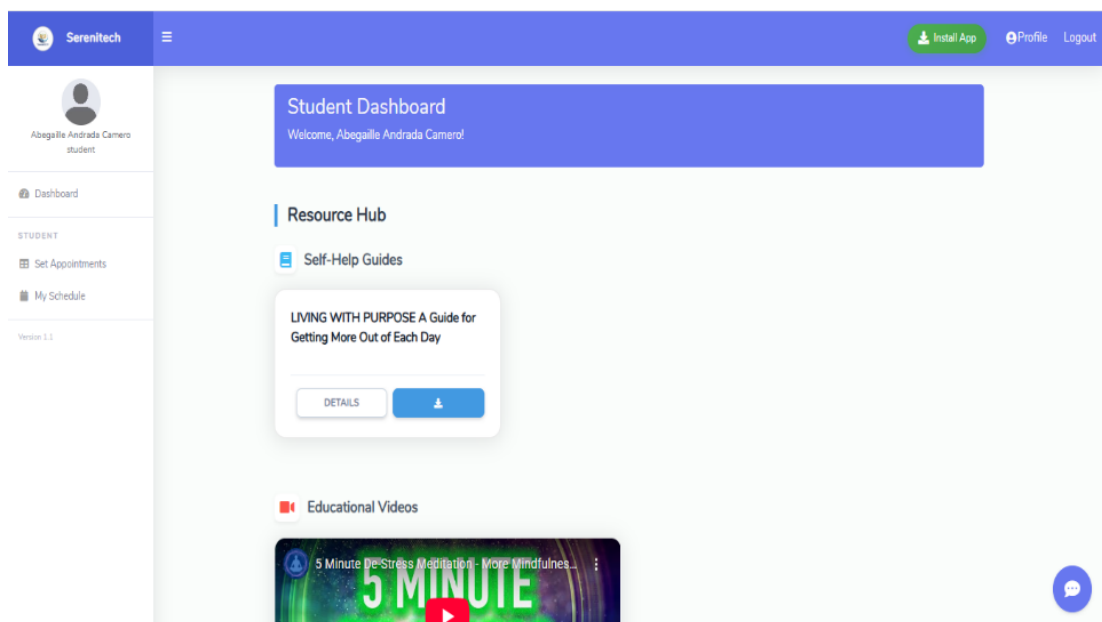


Figure 4 presents the student dashboard interface of Serenitech. The dashboard provides students with quick access to upcoming counseling appointments, wellness resources, notifications, and navigation tools. The interface was designed to improve accessibility and encourage students to seek counseling services conveniently through a user-friendly environment.

Figure 5. Appointment Scheduling Interface

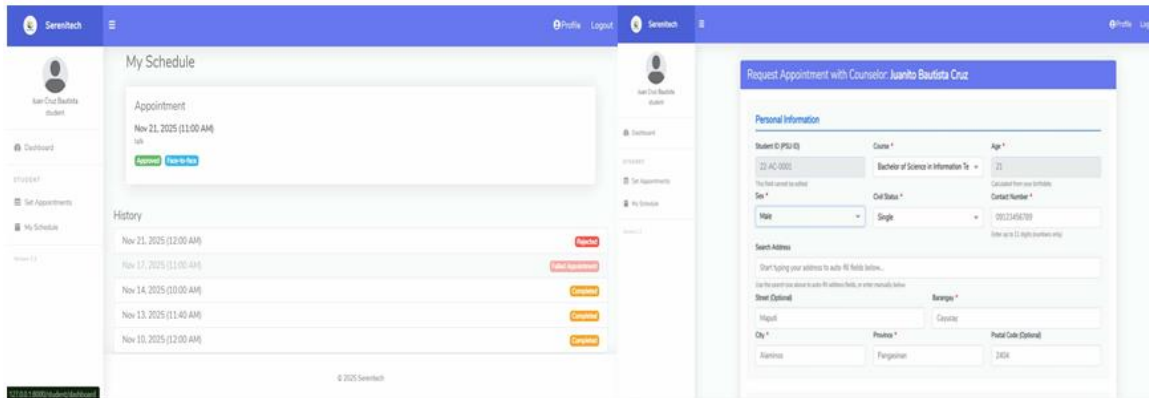


Figure 5 illustrates the appointment scheduling module of the system. This feature allows students to request counseling sessions digitally while enabling counselors to review, approve, or reschedule appointments efficiently. The automated scheduling process minimizes scheduling conflicts and improves the organization of counseling sessions.

Figure 6. Virtual Counseling Session Interface



Figure 6 shows the virtual counseling session interface utilized for communication between counselors and students. The feature supports secure video and audio interaction, allowing counseling sessions to be conducted remotely while maintaining user privacy and confidentiality.

Figure 7. Administrative Dashboard

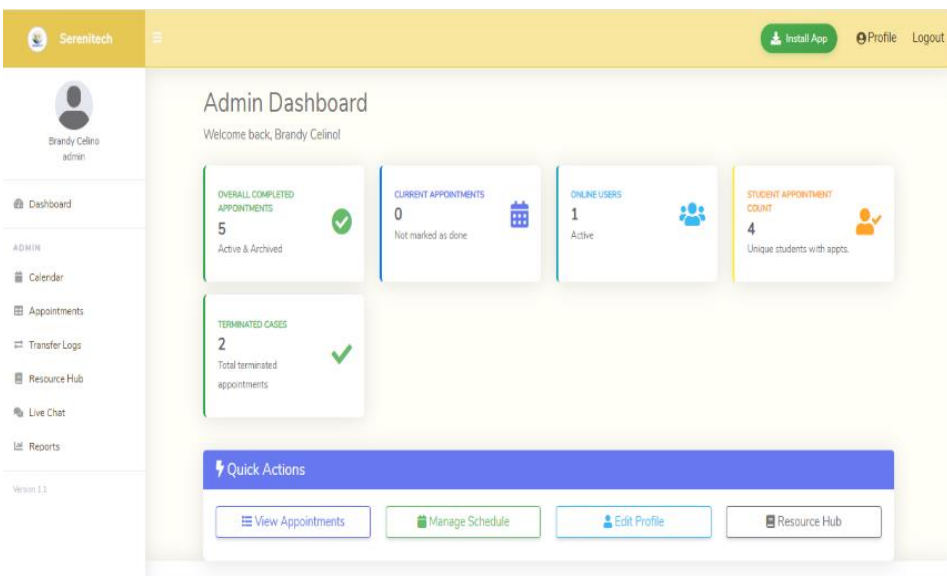


Figure 7 presents the administrative dashboard used by counselors and administrators. The dashboard provides access to user records, appointment monitoring, session management, and counseling resources. This feature enables efficient supervision and management of counseling-related activities within the system.

Figure 8. Resource Hub

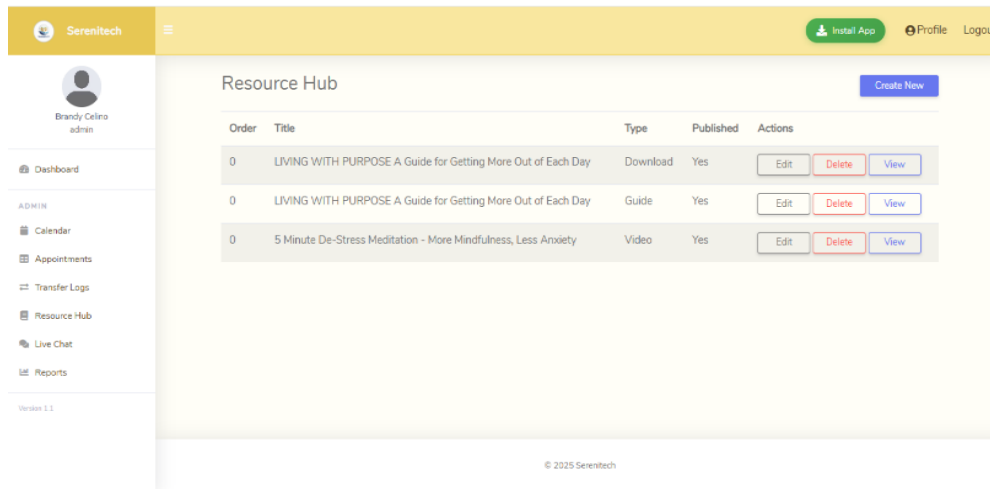


Figure 8 displays the resource hub feature containing mental health materials, self-help guides, and wellness-related content. This component supports students by providing accessible information and resources that may help address stress, anxiety, and other personal concerns outside scheduled counseling sessions.

The user acceptability and technical performance of the system were evaluated based on the ISO 25010 Software Quality Standards, yielding a high level of acceptance among respondents. Functional Suitability achieved a weighted mean of 4.06, described as "Very Good," indicating that the platform effectively covers all specified tasks and user objectives, with functional completeness specifically scoring 4.15. Performance Efficiency received a rating of 4.09, reflecting quick response times through a time behavior score of 4.18 and efficient resource utilization at 4.06. Security, a critical aspect of virtual counseling, was rated at 4.08, with confidentiality scoring 4.18 to ensure data is accessible only to authorized users, and non-repudiation scoring 4.01 to ensure accountability for all user actions. The implementation of authentication mechanisms, hashed credential storage, and role-based access control contributed to the positive security evaluation of the system.

The system's usability obtained a weighted mean of 3.94, indicating that respondents generally found the platform user-friendly and accessible. Operability achieved a score of 4.08, demonstrating that users were able to navigate and utilize the system efficiently. However, learnability received a comparatively lower score of 3.09, suggesting that some first-time users experienced minor difficulties in understanding certain system functions and navigation processes. This finding indicates the need for future improvements such as onboarding tutorials, simplified navigation structures, and user guidance features to enhance the learning experience of new users. The positive evaluation results extended across all other quality criteria, including Compatibility at 4.16, Reliability at 3.86, Maintainability at 3.82, and Portability at 3.92. These evaluation results, falling consistently within the "Very Good" range, validate the system's readiness for deployment and its potential to significantly improve the counseling experience at PSU-ACC by providing a modern, secure, and adaptable digital framework.

Overall, the findings indicate that Serenitech successfully addressed the identified challenges in the existing counseling process by integrating digital technologies that enhance accessibility, privacy, organization, and efficiency. The developed system demonstrates strong potential as a sustainable counseling support platform for PSU-ACC students and counselors.

Limitations Of The Study

This study was limited to the evaluation of system acceptability and software quality characteristics based on the ISO 25010 standards within Pangasinan State University–Alaminos City Campus. The respondents were

limited to 50 participants composed of students, guidance personnel, and IT experts. The study primarily focused on the development and evaluation of a technology-integrated counseling support platform intended to improve counseling accessibility, scheduling efficiency, record management, confidentiality, and service delivery processes.

The evaluation concentrated on user acceptability and system quality performance rather than the clinical effectiveness of counseling services. Consequently, the study did not measure long-term mental health outcomes, psychological improvement, counseling effectiveness, student retention, or stigma reduction, as these areas require specialized mental health assessment methodologies beyond the scope of an information technology implementation study. In addition, the study did not include comparative benchmarking with existing counseling or telehealth platforms, inferential statistical analysis, or longitudinal deployment evaluation across multiple academic periods.

Future studies may incorporate larger sample sizes, comparative system benchmarking, longitudinal evaluation, and advanced statistical methods to further validate the effectiveness, usability, and institutional impact of the system in supporting modern counseling service delivery.

CONCLUSION

The Serenitech system presented a promising solution to the counseling challenges faced at Pangasinan State University – Alaminos City Campus, offering significant improvements in privacy, accessibility, and administrative efficiency. Through the integration of advanced web technologies, including virtual session capabilities, secure record-keeping, and automated scheduling, the system aimed to mitigate the barriers of stigma and physical space constraints.

By providing students with a confidential platform to seek help and access resources, Serenitech addressed issues such as fear of judgment and manual inefficiencies while promoting mental health awareness. The robust architecture ensures secure data management, while user involvement in the Agile development process guarantees that the system meets their needs effectively.

By enhancing the guidance services, Serenitech contributes to a more supportive and responsive educational environment. Ultimately, the Serenitech platform set a precedent for modernizing student support services, offering a comprehensive solution to improve student well-being and establish a more connected and safe counseling network.

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