

Design and Development of a Web-Based IT Helpdesk Ticketing System with Service Level Agreement Implementation

Bryan Aditya Dachi^{1)*}, Alena Uperiati²⁾

¹⁾²⁾ Software Engineering Technology, Politeknik Negeri Batam, Indonesia

¹⁾bryanadityadachi@gmail.com, ²⁾alena@polibatam.ac.id

Submitted :xxxxxx | Accepted : xxxx | Published : xxxxxx

Abstract: The efficient functioning of KTU Shipyard depends significantly on information technology assistance. Nonetheless, the reporting of IT problems is presently decentralized and still relies on traditional methods, complicating the monitoring of repair statuses, overloading the technical team with administrative duties, and obstructing the documentation of resolution history. This matter is classified as a widely-defined issue due to the inefficiencies in communication between departments and operational documentation, necessitating a systematic and effective resolution. This Final Project seeks to create a web-based IT Helpdesk system to centrally handle reporting, automate ticket classification, enforce Service Level Agreements (SLAs), and display IT service assessment data in an organized way. The issue was addressed utilizing the Rapid Application Development (RAD) approach alongside the PHP programming language, the Laravel framework, and a MySQL database. The system effectively employed keyword-matching logic to automatically identify ticket categories and priorities, which is seamlessly linked with the SLA module to track response and resolution times. The usability of the system was assessed via the System Usability Scale (SUS) involving 10 participants from different departments. The test results indicated a final score of 77.5, designated as "Good" and categorized as "Acceptable." In summary, the system successfully streamlines the reporting process, ensuring a more organized and efficient operational workflow.

Keywords: Ticketing; IT Helpdesk; Keyword Matching; Service Level Agreement; Rapid Application Development;

INTRODUCTION

In a business setting, operational and administrative tasks occur simultaneously and rely on each other. The effective execution of these activities is significantly affected by the IT assistance employees rely on for their everyday responsibilities. Consequently, an information technology system is crucial for businesses to maintain the continuity of their operational processes. With the rise of information technology in the business setting, the likelihood of issues with systems and devices similarly grows. This highlights the importance of IT Support in resolving any issues that occur, ensuring that operational activities remain seamless without hindering work processes or employee efficiency.

Companies with intricate operational activities, such as those in the maritime sector, also recognize the necessity for structured IT support. KTU Shipyard is a notable company that runs shipyard facilities in Batam, with one situated in Sagulung. In executing its functions, KTU Shipyard employs different information technology systems and tools to assist with administrative and operational activities. At present, the procedure for reporting IT problems at KTU Shipyard is not centralized within one cohesive system. Communication among employees facing problems, the designated technicians, and supervisors overseeing the situation continues to take place via traditional methods. Reports are typically sent through private messages on WhatsApp or through phone calls. This disjointed communication pattern results in a buildup of reports, hindering the ability to monitor the history of issues or for technicians to seek additional information if the initial details from the reporter are vague..

The absence of a structured reporting system directly affects issue management. From the users' viewpoint, there is an absence of transparency concerning the status of their support tickets particularly, their current progress in the process or if they have been addressed along with a definitive, step-by-step update. Conversely, the IT

*name of corresponding author



This is anCreative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Support team faces extra administrative duties technicians are required to manually classify priority levels and categories, and even enter each report entry individually into a Microsoft Excel summary table. These administrative issues stemming from manual data gathering correspond with results from related studies showing that non-centralized data collection methods create substantial obstacles in accessing repair history records and obstruct monthly performance reporting (Mazia et al., 2021). The choice of an online platform as a digitization solution has been frequently suggested due to its excellent accessibility without needing complicated installations (Fuadi, 2023). This combined digital strategy has also demonstrated the ability to enable real-time monitoring of repairs while enhancing the precision of IT service information (Wonohardjo et al., 2022). Nonetheless, most prior systems continue to emphasize fundamental reporting functionalities and have yet to incorporate automated prioritization methods along with service time limit assessments.

Considering these factors, we suggest creating a web-based IT Helpdesk system intended to be straightforward while directly enhancing operational efficiency. This system incorporates automatic keyword-matching identification to classify issue categories and priorities, and applies Service Level Agreement (SLA) criteria to deliver quantifiable resolution time metrics. The main aim of this research is to create and develop a web-based IT Helpdesk system that can centrally manage and accurately document IT issue reports, offer a method for systematically categorizing and prioritizing issues, implement handling time tracking via an SLA module, and deliver functionalities for processing and presenting service data for the structured analysis of IT Support operational performance..

LITERATURE REVIEW

Table 1. Tabel of Related Studies

Peneliti/Tahun	Judul/Topik Penelitian	Metode/Teknologi	Kelebihan	Kekurangan/ Celah
(Wardhani et al., 2020)	Perancangan Sistem Informasi <i>Helpdesk Ticketing System</i> Berbasis Web Pada PT Bank Mega KCP Metro	<i>Waterfall, UML, PHP, MySQL</i>	The process flow is designed in great detail in accordance with banking operational, including rigorous data validation and a tiered approval process.	The system focuses on administrative record-keeping procedures, but does not yet include a Performance Analysis module (Statistics Dashboard) to quantitatively measure technicians' speed.
(Tarigan et al., 2022)	Rancang Bangun Sistem Informasi <i>Helpdesk Ticketing System</i> Berbasis Web Pada PT Indonesia Nippon Seiki	<i>Waterfall, CodeIgniter, MySQL</i>	Digitalization solutions for factory/manufacturing environments (relevant to shipyards) with high technician mobility.	They are still using an older version of the framework and have not yet implemented the Automatic Priority (High/Medium/Low) logic based on the urgency of the issue.
(Simanjuntak & Effendy, 2024)	Aplikasi <i>Helpdesk Ticketing</i> berbasis Website pada PT Pertamina EP Limau Field Zona 4 dengan Metode <i>Agile</i>	Metode <i>Agile, Web Based</i>	A rapid development cycle to ensure that core ticketing features can be used by users right away, without having to wait for the system to be perfected.	Despite its rapid development, the system has not yet integrated complex Service Level Management (SLM) modules (such as a countdown timer) to

*name of corresponding author



This is anCreative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

				measure service quality.
(Wildan, 2022)	Perancangan Sistem <i>Ticketing Helpdesk</i> pada PT Arthatech Selaras Berbasis Web	<i>RAD, PHP, MySQL, DFD,</i>	Digitizing the ticketing process, which was previously done manually (using Excel), so that data is more structured and centralized.	The system does not yet emphasize SLA management and measurable analysis of IT support performance.
Penelitian Ini (2025)	Design and Development of a Web-Based IT Helpdesk Ticketing System with Service Level Agreement Implementation	Metode <i>RAD (Rapid Application Development), PHP, Laravel, MySQL</i>	Combines the development speed of RAD with the Automated SLA Module (Timer & Alert) and a Performance Analysis Dashboard for precise evaluation.	-

According to the analysis in Table 1, many past attempts have been made to create IT helpdesk systems; however, notable research deficiencies still exist. Wardhani, et,al (2020) along with Tarigan, et, al (2022) effectively digitized ticket tracking; however, the application of linear methods resulted in slower adaptation to pressing demands. Recent research by Simanjuntak and Effendy (2024) and Wildan (2022) has transitioned to more adaptable and swift methods like Agile and Rapid Application Development (RAD), yet their main emphasis still centers on fundamental ticketing features. This research seeks to address this shortcoming by utilizing the adaptability of the RAD approach to create a system that is not just a recording tool but also seamlessly incorporates a quantifiable Service Level Management (SLA) component. This integration features a countdown timer for each priority level and displays a real-time performance analysis dashboard elements that have not been fully explored in earlier research employing similar techniques.

A helpdesk operates as a service and management system that aids individuals in solving problems, especially concerning information technology resources, while acting as a central hub for all reports and technical inquiries (Adam et al., 2020). A digital Helpdesk system is crucial for handling incidents in an organized way since manual approaches that depend entirely on messaging applications are frequently inadequately documented, hindering management's ability to identify the underlying causes of issues later (Alfian et al., 2020). For this management, a ticketing system serves as a mechanism for reporting disruptions, allowing for the monitoring of the identification and resolution of several issues; this system has now evolved into a web-based application to guarantee that each incident is systematically documented (Suryono & Saptono, 2017). The adoption of a digital ticketing system coupled with a help desk is an essential measure to avert the loss of reports stemming from human mistakes, as it retains all report characteristics in a centralized database to enhance the access to historical data and performance summaries (Liharja et al., 2022).

In practice, IT service management necessitates a Service Level Agreement (SLA) as a key element that acts as a contract specifying service time goals between the provider and the user to establish anticipated quality standards (Schaaf & Brenner, 2008). In the execution of this system, the SLA is converted into two quantifiable time objectives: response time, which is the upper limit for technicians to address a new ticket; and resolution time, which automatically determines the completion deadline according to the ticket's priority. This method is anticipated to speed up technicians' reactions to urgent issues in comparison to systems lacking defined time benchmarks. To achieve these goals, Service Level Management (SLM) is necessary as a management practice that involves ongoing assessment of operational performance (Schaaf & Brenner, 2008). In this study, the SLM process was executed directly via a statistical dashboard function that displays performance data in real time, including tracking the count of overdue tickets and the average resolution time by technicians..

METHOD

The methodology for software development used in this research is Rapid Application Development (RAD), a linear sequential process emphasizing brief and swift development cycles (Ardhiansyah, 2019). This approach was selected since it enables users to engage in offering feedback on the interface design, confirming that the developed system genuinely satisfies operational requirements (Zarnelly & Suwito, 2022). This study's application of RAD is categorized into four primary stages (Nurman Hidayat & Kusuma Hati, 2021). The initial phase is requirements

*name of corresponding author



This is anCreative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

planning, intending to recognize issues along with both the functional and non-functional needs of the system through observations and discussions with pertinent stakeholders. The second phase is user design, where these specifications are converted into an architectural design utilizing the Unified Modeling Language (UML), Entity-Relationship Diagrams (ERDs), and interface wireframes. The flexibility of RAD at this phase permits design revisions influenced by direct feedback from users prior to commencing the coding stage.

The third stage is construction, which is a crucial phase for implementing the design into a functional application. In this phase, system development is carried out through the coding process using the PHP programming language with the support of the Laravel framework, as well as database management using MySQL. The system's core algorithms, such as the keyword-matching logic for automatic prioritization and the service level agreement (SLA) timer calculation, are fully implemented at this stage. The final stage is cutover, which focuses on comprehensive system testing and validation using the Black Box Testing method to evaluate the alignment of input and output functionality. Through this testing method, any errors are immediately identified and corrected to ensure all features operate according to specifications, thereby declaring the IT Helpdesk application ready and suitable for implementation in the KTU Shipyard operational environment.

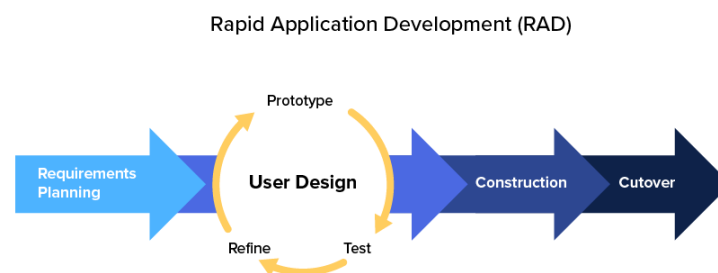


Fig 1. RAD Diagram

This research employed the System Usability Scale (SUS) evaluation technique to assess the effectiveness and usability of the system interface (Hartina et al., 2022). This approach is deemed sufficient and effective for assessing the dimensions of effectiveness, efficiency, and user satisfaction, as outlined in the ISO 9241-11 usability standard (Puspito, 2024). The test included staff members acting as reporters and the IT support team managing tickets. An adaptive questionnaire including 10 standard SUS questions was used for the testing, featuring a five-point scale from Strongly Disagree (1) to Strongly Agree (5) (Kosim et al., 2022). The method for determining the final score adhered to a structured process: for questions with odd numbers, the score was determined by deducting one from the user's answer value, while for questions with even numbers, the score was calculated by taking the user's answer value away from five. All modified scores were then added together and multiplied by a factor of 2.5 to generate a final score ranging from 0 to 100. The overall score of all participants is subsequently categorized according to the SUS score scale, with the main aim of reaching a rating of no less than "Acceptable," signifying that the system is practical and user-friendly (Hartina et al., 2022). The following is the list of questions posed during the testing:

Table 2. List of Questions

NO	List of Question
1	I think I'll be using this help desk system quite often.
2	I feel that this Helpdesk system is too complicated to use.
3	I think this system is easy to use for reporting and handling tickets.
4	I need technical assistance from someone else to use this system.
5	I feel that the system's features are working as they should.
6	I think there are a lot of inconsistencies in this system.
7	I think most people will quickly figure out how to use this system.
8	I find this system very confusing.
9	I don't feel there are any obstacles to using this system.
10	I need to get used to it first before using this system.

*name of corresponding author



This is anCreative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

RESULT

A web-based IT Helpdesk ticketing system has been effectively created and implemented from beginning to end utilizing the Rapid Application Development (RAD) framework. This method's application has shown to be effective in enabling a software development cycle that is brief, flexible, and organized to align with the operational processes at KTU Shipyard. The outcomes of the system's design and execution are thoroughly outlined, focusing on the four key stages of the RAD approach that were finished, starting from the initial requirements gathering phase to the concluding testing and assessment of the application.

The initial stage of this system's creation is requirements planning, focusing on recognizing operational challenges and establishing the specifications for the system to be developed by centrally consolidating all IT incident reporting processes using a web-based client-server architecture. This system is structured to support three tiers of participants with defined activity limitations: Staff as incident reporters, IT Support as technical implementers, and IT Supervisors who maintain managerial oversight of master configurations and service reports. Drawing from information gathered via interviews and observations, the requirements analysis developed essential automation strategies to lessen administrative burden, specifically automatic categorization and prioritization through keyword-matching algorithms that analyze and evaluate the reporter's input text, subsequently combined with service time limit assessments or Service Level Agreements (SLAs). This SLA logic is created to be flexible by utilizing an active working hours system, allowing the timer to automatically halt outside of standard working hours or when the ticket status is updated to pending. At this point in the identification process, a total of 26 Functional Requirements (FR) were identified, encompassing the full operational cycle from reporting to the retrieval of analytical reports, along with 2 Non-Functional Requirements (NFR) to guarantee stringent access authorization security (NFR-01) and the uniformity of English use in the application interface (NFR-02). The overall specifics of the functional interactions among the three primary participants and the system were thoroughly outlined and represented as a Use Case Diagram.

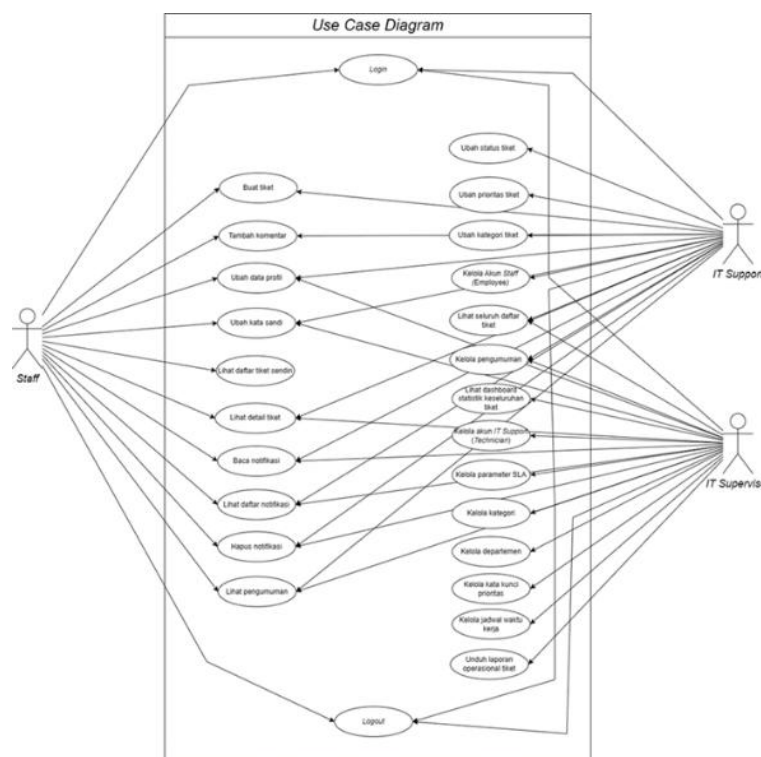


Fig 2. Use Case Diagram

The subsequent stage is user design (system design), which intends to convert the requirements specifications from the earlier stage into a thorough architectural design, logical flow, and visual representation of the application. Given these specific requirements, system modeling utilizes the Unified Modeling Language (UML), which involves creating Use Case Diagrams to define the limits of operational access rights among participants; developing Use Case Scenarios to detail interaction steps and the system's responses for each functionality scenario; and generating Activity Diagrams to depict the ongoing sequence of user workflows. Besides UML modeling, this stage also comprises the design of the database framework via an Entity-Relationship Diagram

*name of corresponding author



This is anCreative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

[illegible]

Support ▾

Ticket

● ITKTU001

Anggi

Business Development

Report :

Respond :

Closed :

Posted at 12:45 AM
20 aug 2025

Respond at 12:45 AM
20 aug 2025

Respond at 12:45 AM
20 aug 2025

Software

Lorem ipsum dolor sit amet, consectetur adipiscing elit.Lorem



Medium Priority ▾

Closed ▾

IT note:
Need update again in next week

Confirm

As the construction phase begins, the planned system and database structure that were designed are developed into real software. The development of this web application utilizes the PHP programming language along with the Laravel framework, and employs MySQL for database management. At this point, all functional specifications—covering automation logic and dynamic SLA calculations—have been completely executed. Fig

This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

4 illustrates the interface implementation on the ticket detail page for an active (open) ticket, showcasing the development results. This page thoroughly presents fundamental details like the title, description, and supplemental attachments, combined with sophisticated tracking functions, including the visual SLA Timer display, the management timeline (Reported – Responded – Resolved), and the modification activity log. Along with offering a comment section to enable two-way communication between the reporter and IT Support, this page also allows IT Support to implement essential changes like modifying the status, priority level, and issue category to confirm the accuracy of the data in the concluding report. The system is built with rigid logical rules, where each modification allows for a note to be added; however, it explicitly mandates that a note must be provided for alterations to the “Pending” and “Resolved” statuses. Every aspect of this record is automatically documented in the change log with particular access limitations, allowing staff members serving as reporters to see only the rationale for the record while the ticket is in Pending status.

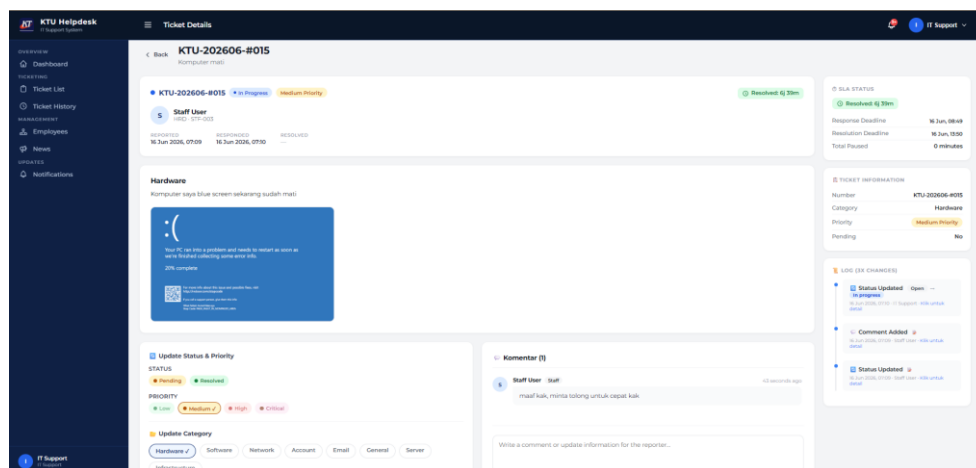


Fig 5. Details Ticket Page Implementation

The last phase of the RAD approach is cutover, concentrating on the conclusive testing and verification of the system through the Black Box Testing technique. This testing focuses on the alignment between the system's inputs and outputs to confirm that each feature functions according to the Use Case Scenario design. This thorough assessment involves testing the five primary operational modules. Within the authentication and account management module, the system is verified for its capability to oversee credential access, avoid duplication of departmental data, and manage bulk profile uploads. Additionally, in the ticket reporting and automation section, testing concentrated on the seamless generation of tickets, limitations on attachment sizes, and the system's precision in automatically categorizing and prioritizing tasks through keyword-matching algorithms. The assessment revealed the dependability of Service Level Agreement (SLA) metrics, encompassing the accuracy of service time countdowns and the system's ability to automatically suspend time calculations during non-operational hours. Furthermore, a thorough assessment was carried out on alert features, performance chart display on the dashboard, announcement verification, and the precision of date range functionality when generating reports in PDF and Excel formats. From a range of performed test scenarios, the system's total functionality exhibited fully valid outcomes. The system has been proven to operate stably without any technical errors, and has therefore been conclusively deemed highly suitable and ready for implementation to support operations at KTU Shipyard.

The assessment of the system interface's usability was carried out using the System Usability Scale (SUS) approach to gauge ease of use and user satisfaction via a questionnaire. This assessment included 10 participants from different departmental units, comprising two representatives from the IT department (an IT Supervisor and an IT Support specialist) along with eight reporting staff who were intentionally chosen due to their history of actively reporting IT operational problems. The data collection process commenced with an interactive system trial, where participants engaged directly with the application's functionalities from ticket generation to tracking issue resolution. To provide an authentic testing experience, the simulation was executed through a localhost connected to the Cloudflare Tunnel service, enabling the local system to be safely accessible from the internet. By using this method, participants could perform online simulations directly from their own work devices without being limited by local network restrictions, and then complete the SUS questionnaire based on their experiences.

The gathered questionnaire data was subsequently analyzed using the standard SUS calculation guidelines to derive standardized metric scores. The calculation method was executed methodically, for odd-numbered questionnaire items (1, 3, 5, 7, 9), the score was determined by deducting one from the respondent's answer; for

*name of corresponding author



This is anCreative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

even-numbered items (2, 4, 6, 8, 10), the score was derived by taking away five from the respondent's answer. All transformed scores from each query are then totaled and multiplied by a factor of 2.5 to yield a final score for each participant on a scale of 0 to 100. Table 3 provides a thorough analysis of the SUS score computations for every test participant..

Table 3. Results of the SUS Score Calculation Process

Partici pants	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Total	Total x 2,5
R-1	4	4	4	4	3	4	3	4	3	3	36	90
R-2	4	3	3	2	4	3	3	3	2	0	27	67.5
R-3	4	2	3	2	4	3	3	2	2	3	28	70
R-4	4	3	2	1	3	3	3	3	2	1	25	62.5
R-5	3	4	3	3	4	2	4	3	2	2	30	75
R-6	4	3	4	3	4	3	4	4	1	3	33	82.5
R-7	4	3	4	3	4	4	3	3	3	4	35	87.5
R-8	4	3	3	2	3	4	3	3	4	3	32	80
R-9	4	3	3	3	4	2	3	3	3	2	30	75
R-10	4	3	3	2	4	4	4	4	4	2	34	85
Average												77.5

The processing of all respondent survey data resulted in a final average score of 77.5. When represented on the System Usability Scale (SUS) rating curve illustrated in Fig 6, the score of 77.5 categorizes into the "Acceptable" acceptance level, positioning it within the Grade C rating range, aligning with the "Good" rating. This final score clearly shows that the developed IT Helpdesk ticketing system is user-friendly, meets needs effectively, and is well-adapted for implementation to facilitate the seamless execution of business operations within the organization.

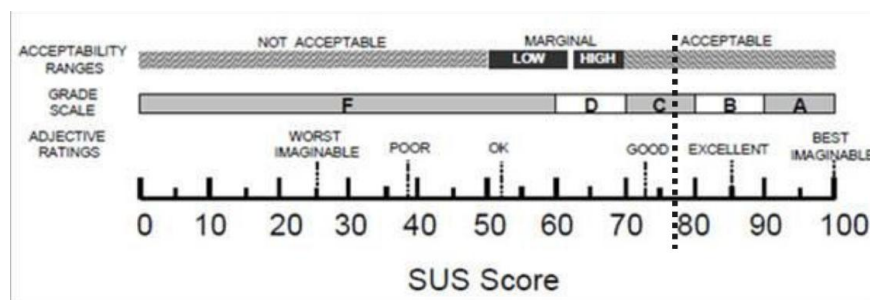


Fig 6. SUS Score Scale

DISCUSSIONS

The outcomes from the design, implementation, and testing carried out indicate that this online IT Helpdesk Ticketing System can effectively resolve operational problems that were formerly managed manually at KTU Shipyard. A key discovery from this development is the efficiency of applying automation logic, specifically keyword matching and Service Level Agreement (SLA) calculations according to active working hours. In the earlier manual system, reporters frequently encountered bias in assessing the urgency of problems, with numerous issues categorized as "Critical" lacking explicit technical reasoning. By utilizing this approach rooted in Rapid Application Development (RAD), the system has effectively objectified the process of classifying and prioritizing issues according to the importance of keywords in the reporter's issue description, thus greatly alleviating the administrative burden on IT Support in managing tickets.

Moreover, from the viewpoint of user experience, an assessment utilizing the System Usability Scale (SUS) method conducted on 10 participants produced an average score of 77.5, categorizing it as "Acceptable" with a "Good" rating (Grade C). This competitive score indicates that the application interface was crafted with straightforward, clear, and user-friendly navigation, catering to both reporting personnel and the IT management team (Supervisors and Support). The system's effective adoption was further facilitated by the deployment of the

*name of corresponding author



This is anCreative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

Cloudflare Tunnel technical solution during testing sessions, enabling respondents to securely and reliably access the local system (localhost) remotely from their work devices without being hindered by local network restrictions. The complete set of Black Box tests, demonstrating a 100 percent success rate, further verified that all business logic from the automatic halting of SLA timers during non-business hours to the checking of “Pending” status records has been carried out perfectly and corresponds with practical operational requirements in the field.

However, the system created has various operational constraints recognized during testing. While the keyword-matching logic showed good performance in tests, the system's precision relies heavily on keyword variations; the primary drawback of this study is the absence of an actual historical dataset of corporate reporting language. Additionally, in the SLA module centered on ticket resolution time it was discovered that the resolution process for technical issues in the field can occasionally be affected by elements outside the standard priority system parameters, necessitating a more adaptable adjustment mechanism.

CONCLUSION

Considering the full process of system design, development, and implementation that has taken place, it can be concluded that this web-based IT Helpdesk Ticketing application has been completely constructed utilizing the Rapid Application Development (RAD) approach and has effectively fulfilled all the research objectives efficiently. This system has effectively demonstrated its ability to handle the IT issue reporting process in the KTU Shipyard setting with a well-organized level of documentation. This is reinforced by the functionality of the historical audit trail (change log) feature and clear two-way communication between reporting personnel and technicians. As part of this data management, the system has effectively incorporated a smart issue-categorization feature; Black Box testing verified that the keyword-matching algorithm can objectively sort categories and establish priority levels using a keyword dataset, thus enhancing technicians' workflows while freeing reporters from the previously subjective manual categorization task.

Additionally, the deployment of the Service Level Agreement (SLA) module has demonstrated success in tracking response times and issue resolution durations, offering clarity about projected timelines for reporters, and acting as an extra KPI metric reference tool for management to assess IT service effectiveness. Alongside extensive graphical visualization tools and the ability to export managerial reports, an assessment of the interface's usability through the System Usability Scale (SUS) method resulted in a final score of 77.5. This rating positions the system in the “Acceptable” tier with a “Good” evaluation, clearly showing that the software is very effective, user-friendly, and prepared for practical use.

However, for enhancements moving forward, there are numerous recommendations for growth rooted in the constraints observed during the evaluation. Initially, concerning the execution of keyword-matching logic, the accuracy of the system was observed to be significantly influenced by the variations in keywords, stemming from the absence of a genuine dataset for corporate reporting language in the initial phases; hence, for upcoming development, it is advised to enhance the keyword dataset utilizing historical reporting records obtained directly from employees, allowing the automated prioritization system to become considerably more responsive. Second, within the SLA module concentrating on turnaround time, the resolution dynamics of technical problems in the field are occasionally affected by unexpected factors outside the scope of standard system parameters; hence, it is advisable to implement an adjustment feature or time tolerance parameters to address the operational challenges of IT Support.

REFERENCES

- Adam, S. I., Moedjahedy, J. H., & Lengkong, O. (2020). Pengembangan IT Helpdesk Ticketing Sistem Berbasis Web di Universitas Klabat. *CogITO Smart Journal*, 6(2), 217–228. <https://doi.org/10.31154/cogito.v6i2.273.217-228>
- Alfian, A., Dewi, Y. N., Fibriany, F. W., Rianto, H., & Sari, A. M. (2020). Rancang Bangun Sistem Informasi Ticketing Helpdesk pada DPMPTS Pemprov DKI Jakarta. *JURIKOM (Jurnal Riset Komputer)*, 7(2), 334. <https://doi.org/10.30865/jurikom.v7i2.2114>
- Ardhiansyah, M. (2019). Penerapan Model Rapid Application Development pada Aplikasi Helpdesk Trouble Ticket PT. Satkomindo Mediyasa. *Jurnal Teknologi Sistem Informasi dan Aplikasi*, 2(2), 43. <https://doi.org/10.32493/jtsi.v2i2.2759>
- Fuadi, K. (2023). Sistem Informasi Manajemen Pelayanan dan Pengaduan Siswa Berbasis Web. *Jurnal Ilmiah Mahasiswa Sistem Informasi dan Komputer Akuntansi*, 1(1), 1–6. <https://doi.org/10.33365/jimasika.v1i1.2494>
- Hartina, I., Nurmalasari, N., & Hidayat, T. (2022). PENERAPAN METODE DESIGN THINKING PADA MODEL PERANCANGAN UI/UX PADA FITUR REPORT HELPDESK TICKETING SISTEM. *INTI Nusa Mandiri*, 17(1), 24–31. <https://doi.org/10.33480/inti.v17i1.3451>

*name of corresponding author



This is anCreative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

- Kosim, M. A., Aji, S. R., & Darwis, M. (2022). PENGUJIAN USABILITY APLIKASI PEDULILINDUNGI DENGAN METODE SYSTEM USABILITY SCALE (SUS). *Jurnal Sistem Informasi dan Sains Teknologi*, 4(2). <https://doi.org/10.31326/sistek.v4i2.1326>
- Liharja, Y., Sari, A. O., & Satriansyah, A. (2022). Rancang Bangun Sistem Informasi Helpdesk IT Support Berbasis Website. *Infotek: Jurnal Informatika dan Teknologi*, 5(1), 157–166. <https://doi.org/10.29408/jit.v5i1.4738>
- Mazia, L., Utami, L. A., & Bintang, F. K. (2021). Rancang Bangun Sistem Informasi Helpdesk Ticketing Berbasis Web pada PT. Mitra Tiga Berlian Bekasi. *Jurnal Informatika Universitas Pamulang*, 6(1), 85. <https://doi.org/10.32493/informatika.v6i1.8323>
- Nurman Hidayat & Kusuma Hati. (2021). Penerapan Metode Rapid Application Development (RAD) dalam Rancang Bangun Sistem Informasi Rapor Online (SIRALINE). *Jurnal Sistem Informasi*, 10(1), 8–17. <https://doi.org/10.51998/jsi.v10i1.352>
- Puspito, T. A. (2024). Evaluation of Website Performance and Usability Using GTMetrix, Usability Testing, and System Usability Scale (SUS) Methods. *JURNAL TEKNIK INFORMATIKA*, 17(2), 162–170. <https://doi.org/10.15408/jti.v17i2.38530>
- Schaaf, T., & Brenner, M. (2008). On tool support for Service Level Management: From requirements to system specifications. *2008 3rd IEEE/IFIP International Workshop on Business-Driven IT Management*, 71–80. <https://doi.org/10.1109/BDIM.2008.4540076>
- Simanjuntak, N. F. S. T., & Effendy, I. (2024). Aplikasi Helpdesk Ticketing berbasis Website pada PT Pertamina EP Limau Field Zona 4 dengan Metode Agile. *Jurnal Teknologi Informatika dan Komputer*, 10(2), 616–631. <https://doi.org/10.37012/jtik.v10i2.2308>
- Suryono, W. D., & Saptono, R. (2017). Implementasi Pengembangan Smart Helpdesk di UPT TIK UNS Menggunakan Algoritma Naive Bayes Classifier.
- Tarigan, R., Kusosi, I., & Usri, A. (2022). Perancangan Aplikasi Helpdesk Ticketing System Pada PT. Indonesia Nippon Seiki. *Jurnal Sisfokom (Sistem Informasi dan Komputer)*, 11(1), 9–18. <https://doi.org/10.32736/sisfokom.v11i1.1271>
- Wardhani, R. N., Utami, M. C., & Saputra, I. Y. (2020). SISTEM INFORMASI HELPDASK TICKETING PADA PT. BANK MEGA Tbk. *Jurnal Ilmiah Matrik*, 22(2), 201–207. <https://doi.org/10.33557/jurnalmatrik.v22i2.868>
- Wildan, M. S. (2022). Perancangan Sistem Ticketing Helpdesk Pada PT Arthatech Selaras Berbasis Web. *JRKT (Jurnal Rekayasa Komputasi Terapan)*, 2(01). <https://doi.org/10.30998/jrkt.v2i01.6485>
- Wonohardjo, E. P., Putra, A. H., & Yossy, E. H. (2022). Design of Web-Based Helpdesk Ticketing System at PT DENSO Indonesia. *PIKSEL : Penelitian Ilmu Komputer Sistem Embedded and Logic*, 10(1), 1–18. <https://doi.org/10.33558/piksel.v10i1.3183>
- Zarnelly, Z., & Suwito, B. A. S. (2022). Rancang Bangun Helpdesk System CV. Garuda Cyber Indonesia Berbasis Android: Design and Build Helpdesk System CV. Garuda Cyber Indonesia Based on Android. *Indonesian Journal of Informatic Research and Software Engineering (IJIRSE)*, 2(2), 109–119. <https://doi.org/10.57152/ijirse.v2i2.411>