



DOI: <https://doi.org/10.38035/dit.v4i1>
<https://creativecommons.org/licenses/by/4.0/>

Design of A Correspondence Website in Minggirsari Village using the Scrum Method

Sintia Qona'ah Hapsari¹, Muhamat Maariful Huda², Tito Prabowo³

¹Universitas Nahdlatul Ulama Blitar, Blitar, Indonesia, sintiahapsari1201@gmail.com

²Universitas Nahdlatul Ulama Blitar, Blitar, Indonesia, hudha.maariful@gmail.com

³Universitas Nahdlatul Ulama Blitar, Blitar, Indonesia, titoprabowo@unublitar.ac.id

Corresponding Author: sintiahapsari1201@gmail.com¹

Abstract: This research aims to design a website for the correspondence process in Minggirsari Village using the Scrum method, as the current correspondence process is still done manually and is less than optimal. By applying the Scrum method, this research focuses on creating a system that is adaptive and responsive to the needs of village staff. The designed website is equipped with digital features that support village administrative activities, such as automatic letter generation, which is expected to speed up service and increase transparency. The system design results show that the correspondence website in Minggirsari Village was successfully created using the Scrum method, providing a solution for village staff and the community. The data collected during the development process, including user feedback, indicates that the system is well-equipped to meet the administrative needs of the village. This research shows that using a digital system in the correspondence process in Minggirsari Village is the right step to update the administrative system, thus improving the quality of service to the community.

Keywords: Scrum method, web-based system, document archive

INTRODUCTION

The development of information technology (IT) has brought about many changes across various aspects of life, including administration and document management. One of the documents still frequently used in administration is letters, whether incoming or outgoing. Although it has long been part of official communication, its management is still largely manual, especially in areas that are not yet accustomed to using digital technology. Conventional methods often lead to slow, less transparent, and less accessible processes for the public (Kuswantoro et al., 2022). Currently, Websites serve as one of the most effective tools for disseminating information rapidly and efficiently. Websites not only display text but can also include various elements such as images, videos, and even sound to make information easier for users to access (Fattah & Azis, 2021). However, in Minggirsari Village, Blitar Regency, the letter management system remains manual, relying on physical circulars and manual recordkeeping in books. As a result, the public often receives important

information less timely, including administrative documents from the Blitar Regency Communication and Information Service.

After conducting observations and interviews with the Head of Minggirsari Village, it was found that the management of correspondence in Minggirsari Village still relies on a manual system. This certainly poses difficulties in several aspects, ranging from work efficiency to transparency in administrative services. To address this issue, technology-based solutions are highly needed; one is to build a web-based communication system so that all processes can be conducted digitally and more efficiently (Gede et al., 2024). In the ever-evolving digital era, the development of software, products, and services has become a central focus for many organizations striving to remain competitive and relevant in the market. One proven method for managing these projects is Scrum, an Agile-based project management framework that provides an iterative, collaborative approach to achieving optimal results (Gutama & Dirgahayu, 2022).

The Scrum method was chosen as the primary approach. Scrum is a popular method in software development due to its flexibility and the ability to manage it incrementally through work cycles called Sprints (Alignment, 2025). Compared to Waterfall, as described in The Scrum Guide, the official guide to Scrum, they state that Scrum is more suitable for complex and dynamic projects that require flexibility, high team collaboration, and rapid response to change, according to Ken Schwaber and Jeff Sutherland. With the scrum approach, each part of the system can be tested and improved periodically based on user feedback, resulting in a final product that better aligns with user needs (Taibi et al., 2022).

METHOD

To support this research, the Agile software development approach combined with the Scrum framework will be applied. Scrum provides clearly defined roles and structures the workflow so that tasks can be prioritized and completed more efficiently. The Scrum process consists of several stages, including Requirements, Product Backlog, Sprint Planning, Sprint, Review, and Sprint Retrospective (Case & House, 2026). Figure 1 presents the development method framework.

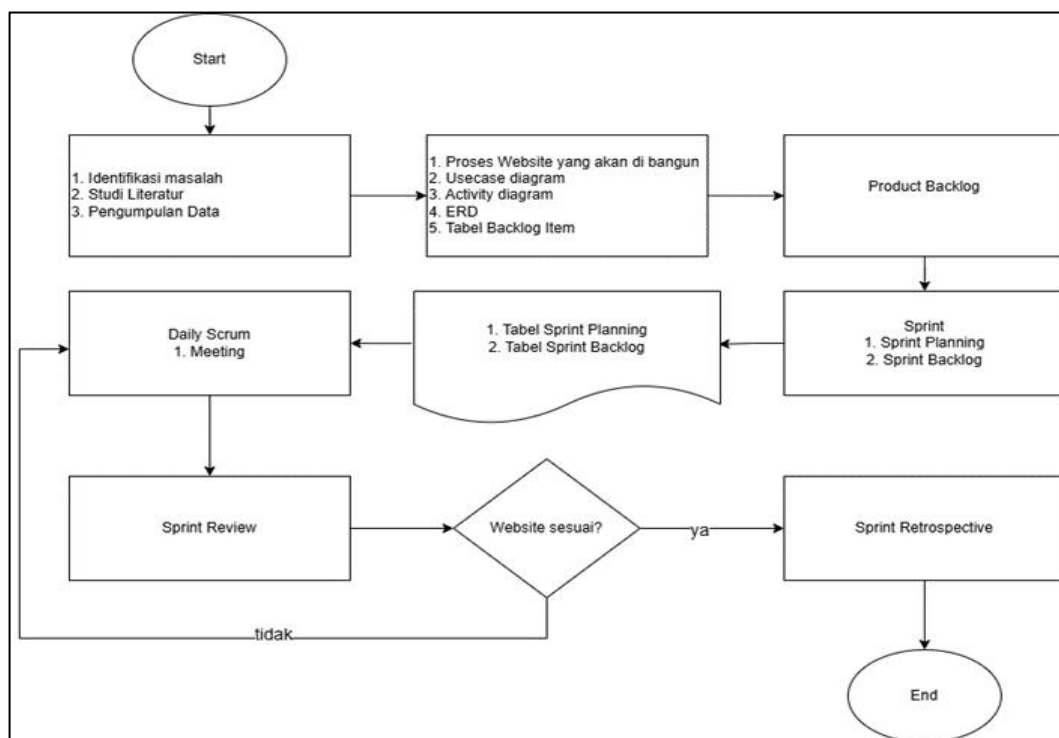


Figure 1. SCRUM framework

There are five main activities performed in Scrum: Sprint, Sprint Planning, Daily Scrum, Sprint Review, and Sprint Retrospective. Here's a more detailed explanation of each of these activities:

Product Backlog

The Product Backlog is an ordered, evolving list of what is needed to improve the product (Dzaky & Kurniawan, 2023). The Product Backlog is a list of all features, improvements, and changes required for product development, sorted by priority (Fitriani et al., 2024). The Product Backlog functions as the primary source of work for the Scrum Team. Items in the Product Backlog that can be completed by the team within a single Sprint are considered ready to be selected during Sprint Planning. The Scrum Team must regularly review and update the Product Backlog to ensure that the most important and high-value items receive first attention (Schwaber & Sutherland, 2020).

Sprint

The Sprint represents the core phase of Scrum, during which ideas are converted into tangible value. It is a time-boxed event lasting no longer than one month, designed to maintain consistency in the development process (Alfarizi et al., 2023). A new Sprint begins immediately after the previous one is completed. Within each Sprint, all activities aimed at achieving the Product Goal are carried out, including Sprint Planning, Daily Scrums, Sprint Review, and Sprint Retrospective (Nurmansani, A., Setiawan, A., & Hartanto, 2024). The Sprint ensures predictability by evaluation and adapting progress toward the Product Goal each month. If a Sprint becomes excessively long, the Sprint Goal may lose relevance, while complexity and risk tend to increase. Shorter sprints allow for more learning cycles and limit the risk of cost and effort.

Sprint Planning

The Sprint begins with planning the work for the Sprint, which is done collaboratively by the entire Scrum team (Garcia et al., 2022). The Product Owner ensures that all necessary preparations are in place to discuss key Product Backlog items and their alignment with the Product Goal. During Sprint Planning, the Product Owner proposes ways to enhance the product's value and usability. Meanwhile, the Scrum Team collaborates to establish a Sprint Goal that clarifies the Sprint's significance to stakeholders. The team then selects relevant items from the Product Backlog to be completed during the Sprint, while further refining their understanding and confidence in those items. After that, Developers plan the work needed to complete each item, ensure the work meets the Definition of Done, and often break it down into smaller tasks (Müller, 2021). Sprint Planning has a maximum duration of 8 hours for a 1-month Sprint and is typically shorter for Sprints with shorter timeframes. The backlog refers to a collection of Product Backlog items that the development team is expected to complete within a single Sprint cycle (Fitriani et al., 2024). A backlog is a part of the Product Backlog that includes all prioritized Items from the main list, and team members are responsible for completing all necessary tasks to deliver those features.

Daily Scrum

The Daily Scrum is a 15-minute event intended specifically for Developers. The purpose is to monitor progress toward the Sprint Goal and to adjust the Sprint Backlog when necessary, allowing the team to refine and update the plan for the upcoming work (LAIL, 2020). The Daily Scrum provides an iterative and collaborative approach that helps the team manage the project more efficiently (Lindsay, 2024). Daily Scrums are conducted at the same time and location each day throughout the Sprint to minimize complexity. During this meeting, Developers determine the most suitable structure, focus on tracking progress toward

the Sprint Goal, and outline the steps for the following day. The Daily Scrum improves communication, identifies obstacles, and speeds up decision-making, while also reducing the need for other meetings.

Sprint Review

The Sprint Review is conducted at the end of the Sprint to assess the outcomes and determine the next course of action. During this session, the Scrum Team presents the completed work to stakeholders, reviews the progress made toward the Product Goal, and evaluates any changes that may have occurred. Based on the evaluation results, they collaborated to determine the next steps and adjust the Product Backlog if necessary. The Sprint Review is the second-to-last event in the Sprint cycle and is time-boxed to a maximum of 4 hours for a 1-month Sprint. For shorter Sprints, the duration of this event is generally reduced. During the sprint review, the team can also discuss items in the product backlog and plan the next sprint's steps (Kong et al., 2023).

Sprint Retrospective

The Sprint Retrospective provides an opportunity for the Scrum Team to assess their performance and identify improvements to be implemented in the following Sprint (Schwaber & Sutherland, 2017). During the Sprint Retrospective, the team reflects on the previous Sprint, considering individual performance, team interactions, processes, tools, and the Definition of Done. Based on this evaluation, they identify the most beneficial changes that could enhance the team's effectiveness.

The most significant improvements are implemented as soon as possible and may also be included in the Sprint Backlog for the upcoming Sprint. This event marks the final stage of the Sprint cycle (Alfarizi et al., 2023). The purpose of a sprint retrospective is to improve team effectiveness by identifying and addressing issues that arose during the sprint. In a sprint retrospective, the team commits to continuous improvement so that each subsequent sprint can run better and more efficiently (CHANGDER, 2024). This event is time-boxed to a maximum duration of three hours for a one-month Sprint. For Sprints with shorter durations, the time allocated for this event is generally reduced. Constructive feedback is crucial in sprint retrospectives to create a better and more productive work environment. Sprint retrospectives are typically held at the end of each sprint, allowing teams to regularly assess and improve their performance (Kania et al., 2023).

RESULTS AND DISCUSSION

Product Backlog

The Product Backlog is a comprehensive list of requirements or features that must be addressed during the product development process. This Product Backlog process was obtained from observations and interviews conducted by the Head of Minggirsari Village (Kades) at the Minggirsari Village Office in Kanigoro. The findings revealed that Minggirsari Village still uses manual letter management. Here are some reasons why the Head of Minggirsari Village needs a website for this correspondence: 1. If many residents of Minggirsari need to create letters, they have to queue first. 2. Information about signature requests is unclear because residents are unsure when the letter will be signed by whom and when it needs to be signed. 3. It takes a long time and effort to find letters, and the writing is still manual. Here is a table showing the defined Backlog Items:

Table 1. Backlog Item

No	Backlog item
1	Use Case Diagram
2	Sitemap Struktur Menu

3	Class Diagram
4	Design User Interface (UI)
5	Login Page
6	Dashboard Page
7	Add letter page
8	Edit letter page

Sprint

After entering the Product Backlog stage, the next step is to perform a series of Sprint activities. This Sprint stage consists of 2 types: Sprint Planning and the Sprint Backlog. The outcomes of the Sprint Planning process are presented in Table 2.

Table 2. Sprint Planning

No	Backlog item	Estimated Time (Hour)	Difficulty level
1	Use Case Diagram	8	High
2	Manu Structure	8	High
3	Class Diagram	12	High
4	Design User Interface (UI)	24	Medium
5	Login Page	10	Medium
6	Dashboard Page	12	High
7	Add letter page	14	High
8	Edit letter page	10	High

Based on the sprint planning table 2, the next process is sprint backlog, resulting in a use case diagram (Figure 2) and a menu structure (Figure 3) that illustrate access to each page for the admin and village Chief.

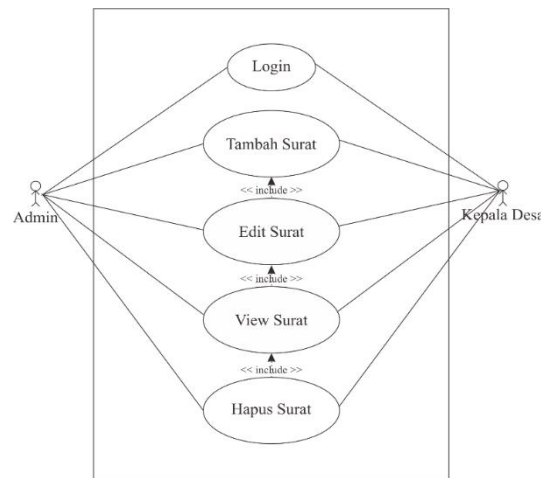


Figure 2. Use Case Diagram

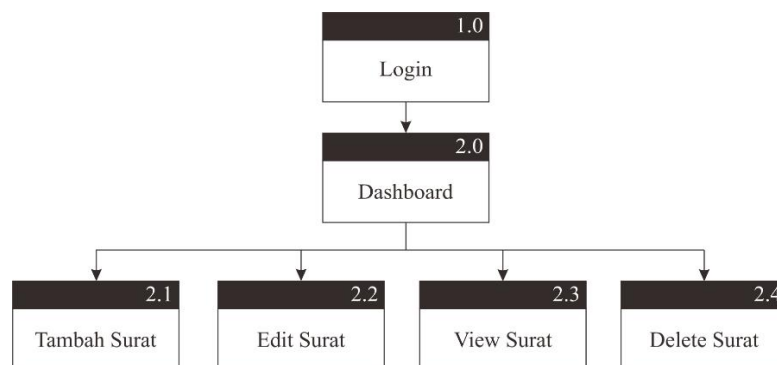


Figure 3. Menu Structure

From Figure 3, we can see the menu options available on the Minggirsari Village Correspondence System website. To understand the explanations of the displays in Figure 4, please refer to Table 3.

Table 3. Menu Structure

No	Menu Name	Description
1.0	Login	Contains the username and password to log in to the Dashboard page.
2.0	Dashboard	This is the main display of the Correspondence System.
2.1	Tambah Surat	This is a menu that can be used to add letters upon request.
2.2	Edit Surat	This is the menu used to edit letters if there are any errors.
2.3	View Surat	This is the menu where you can view and download the created letter files.
2.4	Delete Surat	This is the menu for deleting letters if there are errors or if they are no longer in use.

After the use case diagram and menu structure process, the next step is to design the class diagram (Figure 4) and the user interface (Figure 5).

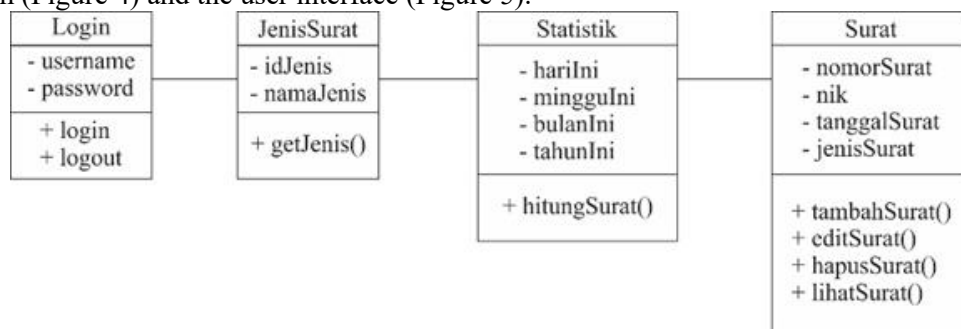


Figure 4. Class Diagram

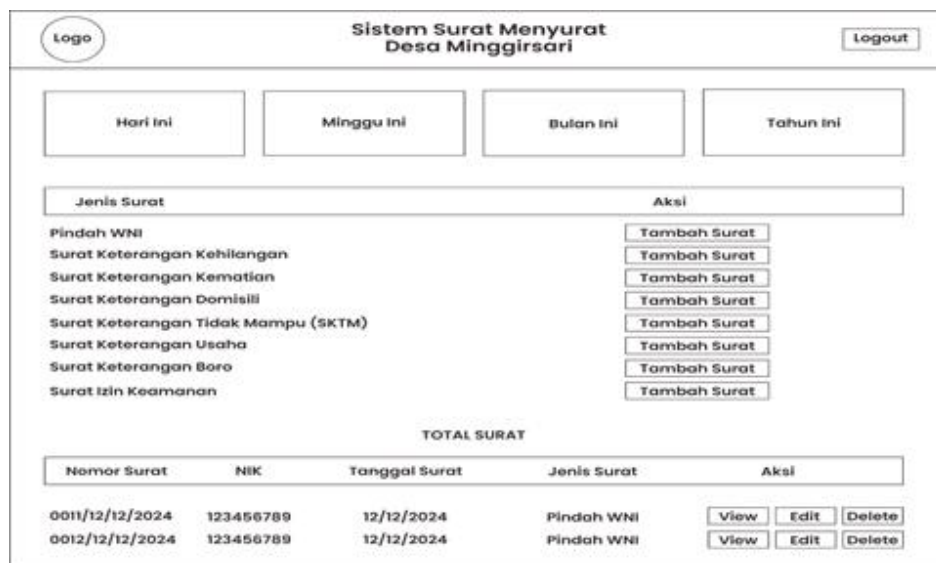


Figure 5. User Interface

For further explanation regarding the User Interface, please refer to Table 4.

Table 4. User interface

No	Menu Name	information
1	Logo	The logo on the UI displays the institution's logo, which is the Minggirsari Village Government.
2	Title	The title section displays the application title.
3	Button Logout	Used to exit the website.
4	Hari ini	This is a summary of letters created today.

5	Minggu ini	This is a summary of letters created within 1 week.
6	Bulan ini	This is a summary of letters created over a 1-month period.
7	Tahun ini	This is a summary of letters written over a year.
8	Button Tambah Surat	Used for adding letters
9	Button View	Used to view and download mail files.
10	Button Edit	Used to edit letters if there are any mistakes.
11	Button Delete	Used for deleting letters

The final step in the sprint backlog process is user interface design, as shown in Figure 6.

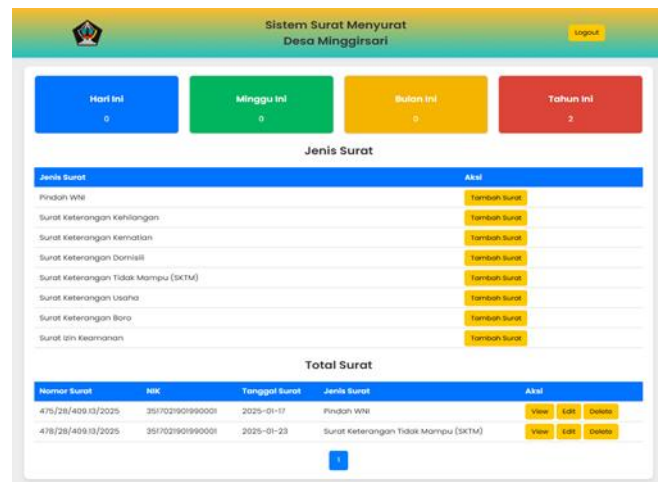


Figure 6. Dashboard Page

Daily Scrum

During the Daily Scrum, activities are performed with the product owner. This activity aims to measure the progress of the Letter Management System website's development. The results of the Daily Scrum process are shown in Table 5.

Table 5. Daily Scrum Meeting

Week	Aktivitas Meeting
1	Discussion regarding the design of the interface and structure of the system to be created.
2	Discussion regarding the progress of the User Interface (UI) design draft.
3	Discussion regarding the database design process for the system
4	Discussion to monitor development progress
5	Discussion for finalizing the system that has been created.

Table 5 describes the weekly process carried out with the product owner to ensure website development runs optimally and aligns with predetermined goals.

Sprint review

In the Sprint Review stage, testing is performed on the Sprint that was previously completed. Testing is performed by verifying that completed Product Backlog Items (PBIs) meet the quality criteria agreed upon by the developers and the product owner.

Table 6. Sprint Review

No	Backlog Item	Status
1	Use Case Diagram	Done
2	Manu Structure	Done
3	Class Diagram	Done
4	Design User Interface (UI)	Done
5	Login Page	Done

6	Dashboard Page	Done
7	Add letter page	Done
8	Edit letter page	Done

In Table 6, it can be seen that each backlog has been successfully completed and marked as "done". This indicates that the system created aligns with the sprint planning from the initial development stage.

Sprint Retrospective

In the Sprint Retrospective stage, we will review and evaluate whether the Scrum project duration set during the Sprint preparation phase was appropriate. The outcomes of the Sprint Retrospective process will be presented graphically, as illustrated in Figure 7.

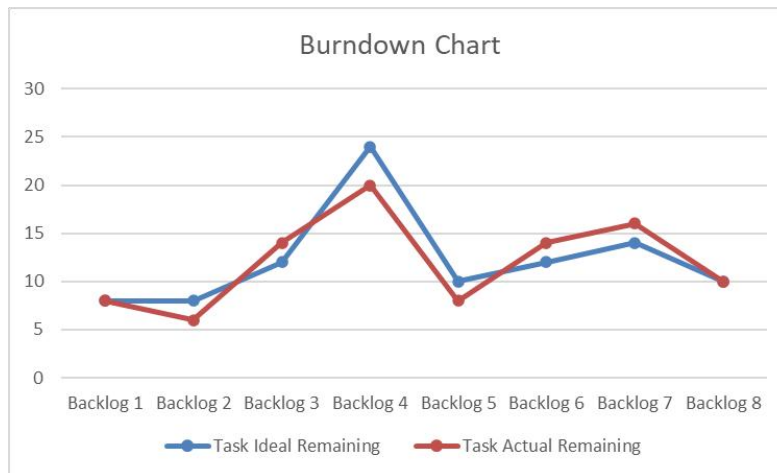


Figure 7. Burndown Chart in the Sprint Retrospective view

Figure 6 compares the Ideal Remaining Tasks (blue line) and the Actual Remaining Tasks (red line) across eight backlog items. This graph looks unique because it doesn't show a conventional linear decline but rather drastic fluctuations in workload, especially in Backlog 4, where the number of remaining tasks spikes. This indicates scope creep or the discovery of new complexities mid-project. Although there were some irregularities where the team worked slower than planned (the red line above the blue line on Backlogs 3 and 7), the team successfully resynchronized on Backlog 8, where the ideal target and actual achievement finally met at the same point.

CONCLUSIONS

Based on the results of the research and the development of the Correspondence Information System, it can be concluded that the creation of a web-based correspondence information system in Minggirsari Village, Blitar Regency, is an important step in overcoming administrative problems that have been carried out manually until now. The system is designed to improve efficiency, transparency, and ease of access in managing incoming and outgoing mail. By leveraging information technology, processes that were previously time-consuming and prone to errors can be optimized, making public services faster and more accurate. The Scrum method applied in the development of this system has proven effective in ensuring that each stage of the development process can be adjusted according to user needs. Thru a structured and iterative work cycle, this system can be continuously improved and refined based on user feedback, such as from the Village Head and administrators. This makes web-based mailing sistem not only relevant for thr present but also adaptable to future needs.

Overall, the research and development of this system not only provides a solution for Minggirsari Village but can also serve as a model for other areas facing similar challenges in administrative management.

REFERENCES

- Alfarizi, N. R., Ardiansyah, F., Asfarian, A., Ridha, A., & Apriana, D. (2023). *Penerapan Game-Based Retrospective Starfish pada Proses Scrum: Studi Kasus pada Pengembangan Aplikasi Zikirin*. 35–48.
- Alignment, S. (2025). *Project Management and Business Modeling : Methodologies ,. XIV(V)*, 1–37.
- Case, S. A., & House, S. (2026). *JURNAL RESTI Recommendation for Scrum-Based Software Development Process with*. 5(158), 401–412.
- CHANGDER, N. (2024). *DEVOPS: THE AMAZING QUIZ BOOK*. CHANGDER OUTLINE. <https://books.google.co.id/books?id=diH6EAAAQBAJ>
- Dzaky, F. A., & Kurniawan, D. (2023). Implementasi Metode Agile Framework Scrum dalam Pengembangan Sistem Informasi Manajemen Aset Terpadu Universitas Diponegoro Modul Inventarisasi. *Jurnal Masyarakat Informatika*, 14(1), 2777–0648.
- Fattah, F., & Azis, H. (2021). Pemanfaatan Website Sebagai Media Penyebaran Informasi Pada Desa Tonasa Kecamatan Sanrobone Kabupaten Takalar. *Ilmu Komputer Untuk Masyarakat*, 1(1), 15–20. <https://doi.org/10.33096/ilkomas.v1i1.771>
- Fitriani, L., Setiawan, R., & Hamdi, W. H. (2024). Pengembangan E-Portofolio Berbasis Web untuk Career Development Center. *Jurnal Algoritma*, 21(1), 249–258. <https://doi.org/10.33364/algoritma/v.21-1.1619>
- Garcia, L. A., Oliveira Jr, E., & Morandini, M. (2022). Tailoring the Scrum framework for software development: Literature mapping and feature-based support. *Information and Software Technology*, 146, 106814. <https://doi.org/https://doi.org/10.1016/j.infsof.2021.106814>
- Gede, I., Hutnaleontina, P., & Indrawan, I. (2024). Influence of Mobile-Based Correspondence Information Systems on Administrative Services using SCRUM. *Jurnal Ilmiah Manajemen Dan Bisnis*, 9, 145–156. <https://doi.org/10.38043/jimb.v9i2.5566>
- Gutama, R., & Dirgahayu, T. (2022). Implementasi Scrum Pada Manajemen Proyek Pengembangan Aplikasi Sistem Monitoring dan Evaluasi Pembangunan (SMEP). *Journall UI*, 1–7. <https://journal.uui.ac.id/AUTOMATA/article/17420/10935/45697>
- Kania, M. M., Pięta, I., Gutkind, J., Marchewka, P., & Wojciechowska, K. (2023). *Basics of SCRUM*.
- Kong, P., Califano, G., & Spinks, D. (2023). *Facilitating Professional Scrum Teams: Improve Team Alignment, Effectiveness and Outcomes*. Pearson Education, Incorporated. <https://books.google.co.id/books?id=yQHbzwEACAAJ>
- Kuswanto, A., Maremitha Ungu, R. B., Rahmahwati, W. D., & Rahmawati, F. D. (2022). Manajemen Surat Masuk Dan Surat Keluar Di Universitas Negeri Semarang Melalui Siradi (Sistem Informasi Surat Dinas). *Jurnal Pustaka Budaya*, 9(1), 42–49. <https://doi.org/10.31849/pb.v9i1.7716>
- LAIL, H. (2020). *Metodologi Agile Dan Scrum Dalam Pengembangan Sistem*. 1–18. https://www.academia.edu/50118563/Metodologi_Agile_dan_SCRUM_dalam_Pengembangan_Sistem
- Lindsay, G. (2024). *Clearly Agile: A Leadership Guide to Business Agility*. Practical Inspiration Publishing. <https://books.google.co.id/books?id=2q34EAAAQBAJ>
- Müller, D. (2021). *The Effects on Social Support and Work Engagement with Scrum Events*. 101–104. <https://doi.org/10.1109/CHASE52884.2021.00019>
- Nurmansani, A., Setiawan, A., & Hartanto, A. D. (2024). *Pengembangan fitur rekognisi*

- kegiatan dengan metode scrum 1)2)3). 7(2), 95–103.*
- Schwaber, K., & Sutherland, J. (2017). *The Definitive Guide to Scrum: The Rules of the Game*. Scrum.org. <https://books.google.co.id/books?id=8ONgzgEACAAJ>
- Schwaber, K., & Sutherland, J. (2020). Scrum Guide V7. *Agile Metrics : Agile Health Metrics for Predictability*, November, 133–152.
- Taibi, D., Kuhrmann, M., & Mikkonen, T. (2022). *Product-Focused Software Process Improvement: 23rd International Conference, PROFES 2022, Jyväskylä, Finland, November 21-23, 2022, Proceedings*. Springer Nature B.V. <https://books.google.co.id/books?id=2f2CzwEACAAJ>