

Design Of an Alumni Tracer Study Information System for Vocational High Schools

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ARTICLE INFO	ABSTRACT
<p>Article history Received Dec 24, 2024 Revised Dec 15, 2025 Accepted Dec 28, 2025</p> <hr/> <p>Keywords Tracer study alumni Survei Information systems</p>	<p>The increasing demand for skilled labor in the industry has highlighted the crucial role of Vocational High Schools in meeting this need by preparing competent graduates. One way to assess the success of SMK education is through the implementation of a tracer study program. A tracer study is a method used to track alumni data and gather information regarding their activities after graduation. However, the implementation of tracer studies in SMKs often encounters challenges, particularly in terms of tracking efficiency, due to the limitations of using traditional media such as paper questionnaires and Google Forms. To address these challenges, this study aims to design a web-based tracer study information system that enhances the efficiency of alumni data tracking in SMKs. The goal of this research is to develop a web-based tracer study information system that assists SMKs in tracking their alumni effectively. The system development follows the Rapid Application Development (RAD) model, which comprises the following stages: (1) needs planning, (2) user design, (3) construction, and (4) implementation. In the development of this website, validation was conducted by system experts, media experts, and end-users. This validation process was used to assess the feasibility and suitability of the website in meeting its intended requirements.</p>

I. Introduction

With the rapid growth of the industrial sector, Vocational High Schools have become a bridge for preparing students to enter the workforce. Vocational High School, as a formal secondary education level in Indonesia, equips students with knowledge and skills relevant to the job market. Additionally, Vocational High School fosters professionalism and helps students adapt to workplace environments. [1]. Through vocational education, students can also establish their own businesses in fields aligned with their expertise.

The success of Vocational High Schools (SMK) can be measured, among other factors, by the quality of their graduates [2]. SMKs are considered high-quality institutions if their alumni have a high workforce absorption rate. To improve alumni employability, SMKs must align their curricula with industry conditions and needs. This alignment can be achieved by evaluating the curriculum in line with developments in education and the industrial sector. Such evaluations influence the competencies students acquire and can be conducted through various methods, including the tracer study program.

A tracer study is an alumni-tracking method used to gather information about alumni activities and understand their status after graduation. By assessing alumni employability in the workforce, Vocational High Schools can conduct evaluations and implement further development to enhance the quality of vocational education.

Tracer study tracking is conducted to obtain information on alumni activities and feedback, with the main target being alumni of the respective SMK [2]. This tracking aims to document alumni activities after graduation. Alumni can provide information and feedback to be used as a benchmark for aligning educational competencies with job requirements [3]. The tracer study survey also serves as a means for SMK to evaluate their academic curriculum, improve teacher performance, develop teaching methods or strategies, and support school accreditation. According to Circular Letter Number 02 of 2022 regarding the implementation of tracer studies in SMK, it is essential to conduct tracer study programs to gather information on alumni employability and feedback. Tracer studies are crucial for SMKs as they enable the collection of feedback to enhance education and improve the quality of SMK graduates [4].

Based on observations and interviews with several vocational high schools (SMKs) in Malang, several issues were identified in the implementation of SMK tracer study programs. Interviews and observations were conducted with the Special Job Placement Agency (BKK) or teachers at several SMK in Malang, revealing the following challenges: (1) The implementation of tracer study programs still relies on conventional media such as printed questionnaires and Google Forms, (2) The use of media with many limitations, (3) Difficulty reaching alumni located far from the school, and (4) Inefficient data management and collection processes.

Observations showed that the tracer study process in SMKs still relies on conventional methods, such as printed

questionnaires or Google Forms. These media pose challenges for SMKs in obtaining information, as printed questionnaires require alumni to visit the school to complete them. On the other hand, using Google Forms prevents SMKs from updating the data and poses a risk of data duplication.

Additional problems were identified in data management, where the use of printed questionnaires led to ineffective data collection due to the large number of files to manage. Although SMKs use Google Forms to reach alumni in remote locations, this medium has limitations, such as the inability to update data. If alumni wish to update their information, they must re-enter data from the beginning, leading to data duplication.

The tracer study implementation also remains focused on surveying alumni activities after graduation, without including surveys evaluating the learning system and services. Consequently, the information collected is limited to alumni profiles and post-graduation activities.

In conducting alumni tracking, SMK has yet to utilize advances in information technology, as evidenced by the reliance on conventional media for tracer study activities. Based on these issues, the author considers it necessary to conduct research and development titled "Designing an Alumni Tracer Study Information System for Vocational High Schools." This research and system development aim to provide a solution for improving the effectiveness of tracer study programs, which have so far been less than optimal.

The developed information system is a website with two user types: Admin and Alumni. This tracer study website is designed to track alumni activities and collect data. The main features of the website include: (1) A questionnaire for collecting personal data, (2) A questionnaire for tracking alumni activities, (3) A feedback questionnaire, and (4) Data export/download options for alumni data.

- The objectives of this research and development include:
- Analyzing the requirements for a tracer study information system in vocational high schools.
- Designing and developing an alumni tracer study information system for vocational high schools.

Assessing the feasibility test results of the alumni tracer study information system implementation at SMK Negeri 2 Malang.

II. Method

The development model in this research aims to develop an alumni tracer study information system for vocational high schools (SMK) using the Rapid Application Development (RAD) method. The RAD development method is a software development approach

that focuses on creating prototypes and gathering user feedback. This method is more adaptive to changes in user needs [4], [5].



Fig. 1. Stages of the RAD method

The RAD (Rapid Application Development) method is used to align with the research conducted, which is a development study. Below are the explanations of each stage in the RAD method:

A. Requirements Planning

This stage is the initial step in determining the system requirements to be developed [6]. It involves identifying the needs before the system design development by conducting a needs analysis with user involvement. This includes interviews at several vocational high schools in Malang City. This phase aims to plan the requirements or identify the necessary system functionalities.

B. User Design

The user design stage involves creating a comprehensive system design for subsequent stages. This design is based on earlier observations. The design process is carried out in detail to facilitate decision-making during the development phase. This stage includes creating flowcharts and UML diagrams to conceptualize the system and prototypes for each webpage to be developed. The system design process is iterative, ensuring that the system aligns with user needs.

C. Build the System

This stage marks the beginning of the software development process, which follows the design created in the previous stage. It involves developing the website and its features as planned. Website development uses the Laravel framework and Visual Studio Code. After the development process is completed, the product undergoes validation by system and media experts to assess its feasibility before implementation.

D. Implementation

In the implementation phase, the agreed-upon system is introduced and tested with users. The testing involves conducting product trials with users. At this stage, the product has completed development and been validated by experts. This allows direct trials with users to gather responses and assess the implementation outcomes.

The data collection technique involves gathering data that serves as a benchmark for assessing the feasibility and functionality of the developed information system. The testing and validation phases are conducted with system experts and media experts. System expert validation assesses whether the system functions as intended, while media expert validation evaluates the media aspects of the developed website.

The collected data is analyzed by describing it and evaluating it against product assessment criteria. The analysis involves calculating percentages by comparing the frequency of observed results with the expected frequency. The calculation can be performed using the formula equation presented in Table I.

$$\text{Percentage} = \frac{\text{Obtained score}}{\text{Maximum score}} \times 100\%$$

The results of the calculations are presented as percentages, which are used to draw conclusions and determine the next steps regarding the feasibility of the developed product. Product feasibility assessment is conducted based on the percentage criteria outlined in the relevant guidelines [7]. The feasibility criteria are detailed in Table II.

Table 1. Criteria Assessment

No	Percentage	Criteria	Explanation
1	81% - 100%	Very Decent	Can Be Used Without Revision
2	61% - 80%	Decent	Can Be Used Without Minor Modification
3	41% - 60%	Quite Decent	Can Be Used Without Major Revisions
4	36% - 50%	Not Worth It	Cannot Be Used Without Significant Changes
5	0% - 21%	Very Not Worth It	Forbidden to Use

III. Results and Discussion

This study resulted in a web-based tracer study information system. The website is designed as a platform to conduct tracer study programs or alumni tracking for Vocational High Schools (SMKs). The developed website includes several features, such as: (1) Personal data tracking questionnaire; (2) Activity tracking questionnaire; (3) Feedback questionnaire; and (4) Alumni data export. The website also offers supporting features, such as login/sign-up, survey data dashboard, and data download options. In its implementation, these features align with the requirements of the SMK tracer study program. The website underwent testing stages, including: (1) System expert validation, and (2) Media expert validation.

The tracer study website is available at <https://tracerstudysekolahmenengahkejuruan.my.id> and can be accessed on computers, laptops, or smartphones,

making it easy for all users. The website was developed based on feature designs tailored to user needs. Its development used the Laravel framework, supported by Visual Studio Code. The questionnaires were also developed in alignment with the tracer study guidelines from the Ministry of Education and Culture (Kemendikbud), ensuring they comply with the latest standards. The website is available in two versions: a user version (for alumni) and an admin version (for teachers).

A. Login Feature/Registration Website:

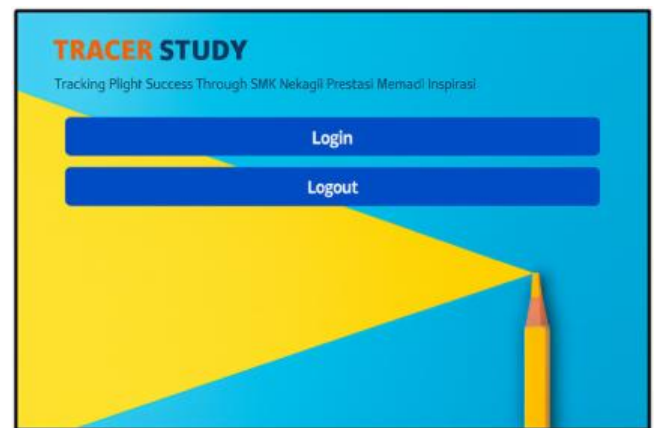


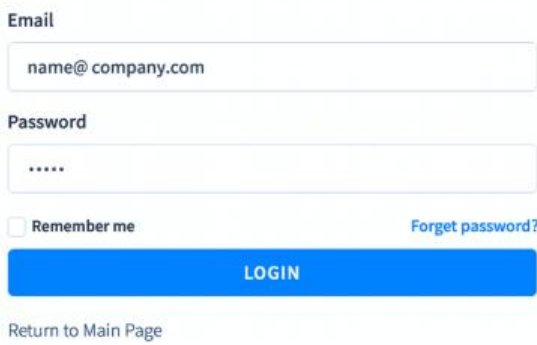
Fig. 2. Login Page

When users access the website, they are directed to the login or sign-up page, as shown in Fig. 1. This page serves as the initial screen for logging in to the account and is accessible to both users and admins.

Before logging in, users can register for an account by clicking the "sign up" button and providing the required information, including full name, email, and password. The registration page is shown in Figs. 2 and 3. The login feature is used by users who already have an account, while the sign-up feature is used by users who have not registered yet.

Fig. 3. Account Registration Page

Tracer Study SMK



The login page features a blue header with the text 'Tracer Study SMK'. Below the header, there are two input fields: 'Email' with a placeholder 'name@company.com' and 'Password' with a masked password '.....'. Below the password field, there is a 'Remember me' checkbox and a 'Forgot password?' link. A prominent blue 'LOGIN' button is centered below these elements. At the bottom left, there is a 'Return to Main Page' link.

Fig. 4. Account Login Page

B. User Version Website (Alumni)

In the user (alumni) version, the website redirects to the dashboard page. The dashboard features a graph comparing alumni activity statuses after graduation, a graph showing the number of alumni who completed the data collection, and a top-left menu that displays other website features. The dashboard layout is shown in Fig. 5.

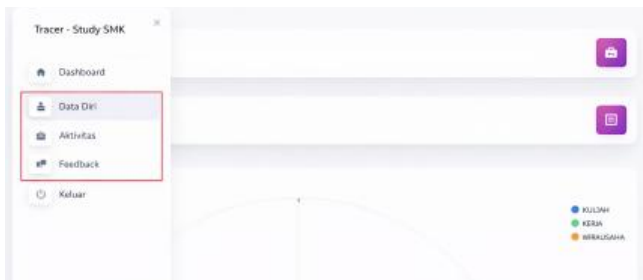
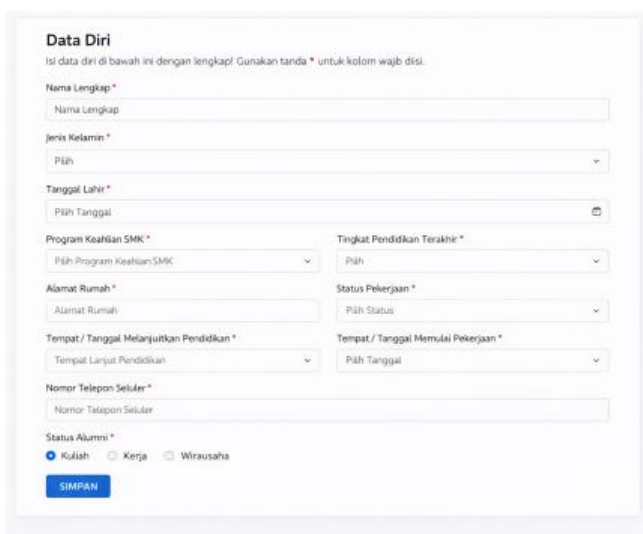


Fig. 5. Website Dashboard Page

The activity questionnaire is divided into three sub-features. The personal data questionnaire feature displays a form for collecting alumni personal data, including fields for personal information and background details. The layout of the personal data questionnaire feature is illustrated in the following figures.



The 'Data Diri' form includes fields for: 'Nama Lengkap', 'Jenis Kelamin', 'Tanggal Lahir', 'Program Keahlian SMK', 'Tingkat Pendidikan Terakhir', 'Alamat Rumah', 'Status Pekerjaan', 'Tempat / Tanggal Melanjutkan Pendidikan', 'Tempat / Tanggal Memulai Pekerjaan', 'Nomor Telepon Seluler', and 'Status Alumni' (with radio buttons for 'Kuliah', 'Kerja', and 'Wirausaha'). A 'SIMPAN' button is at the bottom.

Fig. 6. Questionnaire Personal Data Page

Then the activity questionnaire is divided into 3 sub-features, namely college, work, and entrepreneurship. The questionnaire is divided into 3 sub-questionnaires to survey alumni activities after graduation, namely working, studying, or entrepreneurship. The following is a picture of the activity questionnaire sub-feature display:

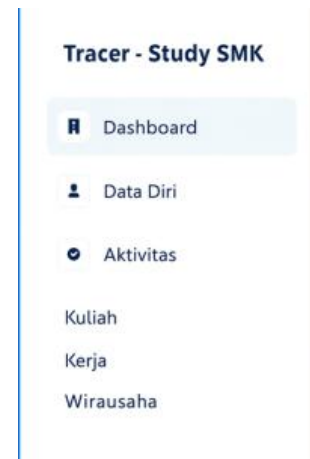
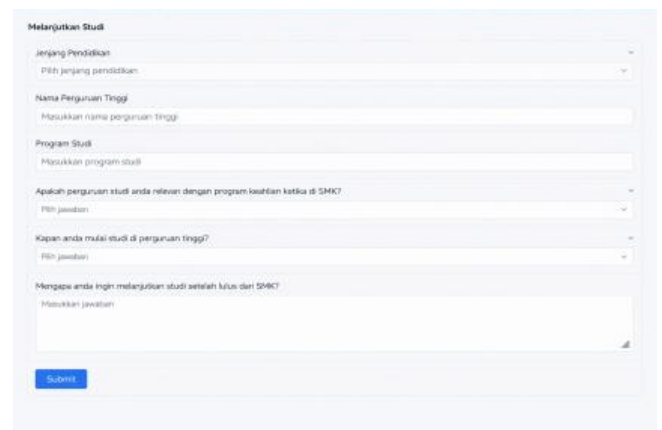


Fig. 7. Feature Activity Page

The entrepreneurship activity questionnaire displays a form containing questions about entrepreneurial activities conducted by alumni after graduation. Alumni can fill out more than one form if they engage in multiple activities after graduation. For example, if an alumnus is both studying and developing a business, they can complete more than one activity questionnaire. The college activity questionnaire includes a form to collect information about alumni's academic activities, while the employment activity questionnaire includes a form to collect information about their current employment. The layouts of these activity questionnaires are shown in the following figures.



The 'Melanjutkan Studi' form includes dropdown menus for 'Jenjang Pendidikan', 'Program Studi', 'Apakah perguruan studi anda relevan dengan program keahlian ketika di SMK?', 'Kapan anda mulai studi di perguruan tinggi?', and 'Mengapa anda ingin melanjutkan studi setelah lulus dari SMK?'. A 'SUBMIT' button is at the bottom.

Fig. 8. College Activity Questionnaire

The screenshot shows a questionnaire titled "Bekerja" (Working). It contains several questions with dropdown menus for "Pilih jawaban" (Choose answer). The questions are: "Apakah anda telah bekerja sebelum lulus SMK?", "Berapa lama anda menunggu untuk mendapatkan pekerjaan yang pertama kali setelah lulus SMK?", "Bagaimana cara anda mendapatkan pekerjaan yang pertama kali setelah lulus?", "Dimana lokasi tempat anda bekerja?", "Berapa lama anda menunggu untuk mendapatkan pekerjaan yang pertama kali setelah lulus SMK?", "Apa jabatan anda dalam tempat anda bekerja?", "Sejauh berapa lama anda menjabat pekerjaan sekarang?", "Apakah pekerjaan anda relevan dengan program keahlian pada SMK?", and "Apa alasan tempat anda bekerja?".

Fig. 9. Work Activity Questionnaire

The screenshot shows a questionnaire titled "Wirusaha" (Entrepreneurship). It contains several questions with dropdown menus for "Pilih jawaban" (Choose answer). The questions are: "Apakah anda telah berwirausaha sebelum lulus SMK?", "Mengapa anda mendirikan atau mendirikan usaha?", "Apakah program studi anda relevan dengan program keahlian ketika di SMK?", "Apakah program studi anda relevan dengan program keahlian ketika di SMK?", "Apa bentuk usaha yang anda sukakan?", "Pada usaha berjalan pada bidang apa?", "Dimana lokasi usaha anda berjalan?", "Berapa banyak jumlah tenaga kerja dalam usaha anda?", and "Butuh berapa lama untuk mendapatkan modal untuk mendirikan usaha?".

Fig. 10. Questionnaire Activity

The tracer study website also includes a feedback questionnaire to collect alumni evaluations of SMK performance. Alumni feedback serves as a benchmark to assess the effectiveness of the learning programs. The results can be used as a tool to evaluate and improve the SMK's learning system and curriculum. Additionally, the feedback data can support the SMK's school accreditation process. The alumni feedback feature layout is illustrated in the following figures.

The screenshot shows a feedback interface with a "Feedback" header and a "Submit" button. Below the header, there are two main sections: "Umpan Balik Layanan" (Service Feedback) and "Layanan Akademik" (Academic Services).

Fig. 11. Feedback Feature

The feedback questionnaire consists of two sub-features: service feedback and academic service evaluation. The service feedback feature displays a form for alumni to assess their satisfaction with the SMK's learning process and curriculum. Meanwhile, the educational service evaluation feature includes a feedback

form with questions about the effectiveness of the SMK's learning service programs. The layouts of the service feedback and academic service evaluation questionnaires are shown in the following figures.

The screenshot shows a questionnaire titled "Umpan Balik Layanan" (Service Feedback). It contains several questions with radio button options for "1 Sangat tidak puas", "2 Tidak puas", "3 Cukup puas", "4 Puas", and "5 Sangat puas". The questions are: "Sejauh mana, bagaimana kepuasan anda terhadap layanan di SMK?", "Seberapa efektif SMK untuk benefit diperoleh di SMK?", "Bagaimana kualitas program/proyek yang dilaksanakan di SMK?", "Apakah pengetahuan dan keterampilan di SMK relevan dengan kebutuhan pasar kerja saat ini?", "Apakah pengetahuan dan keterampilan di SMK relevan dengan kebutuhan jasa kerja saat ini?", "Apakah keterampilan dan pengetahuan di SMK sesuai dengan perkembangan industri atau kerja di bidang anda saat ini (working skills related field)?", "Apakah anda memiliki sertifikat/pengalaman dalam keterampilan/keahlian yang sesuai/terkait dari SMK/SMK pendidikan di SMK?", and "Tuliskan saran terkait kualitas pembelajaran yang anda terima".

Fig. 12. Service Feedback Questionnaire

The screenshot shows a questionnaire titled "Service Assessment Questionnaire". It contains a table with 15 rows and 5 columns. The columns are labeled "1", "2", "3", "4", and "5". The rows are: "Produk/ Materi", "Fasilitas", "Teknologi Pendukung", "Fasilitas Kelas", "Toilet", "Fasilitas Perpustakaan", "Kedaki Buku", "Lingkungan Sekolah", "Kebersihan Ruangan", "Bimbingan", "Pengembangan Keterampilan", "Konsultasi", "Praktis", "Pengembangan Keterampilan", and "Konsultasi". Each cell contains a radio button for the corresponding number.

Fig. 13. Service Assessment Questionnaire

C. Admin Version Website (Teacher)

On the admin version of the website dashboard page, there is a display of the total number of alumni who have registered for an account and the total number of alumni who have completed the tracer study questionnaire. The dashboard also includes a graph comparing alumni activities of those studying, working, or pursuing entrepreneurship. In addition, the website also displays activity graphs and graphs of the number of graduates per year.

Admin can view the tracer study results, which include the names and graduation year of alumni who have filled in their personal data. Fig. 14 illustrates the results data display. Additionally, the tracer study website includes a download/export feature that allows administrators to download the tracer study summaries easily.

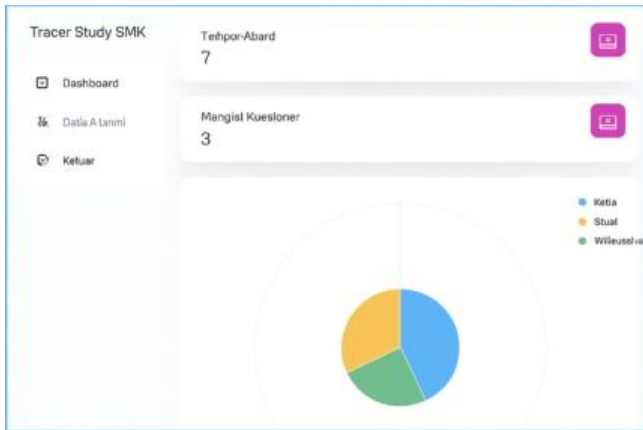


Fig. 14. Dashboard Page Admin Version

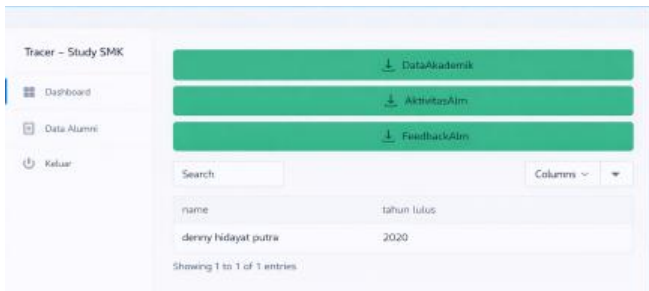


Fig. 15. Tracer Study Data (admin version)

Before conducting trials with students, the website was validated by media and system experts to assess its feasibility and gather their feedback. Validation was carried out for two versions of the website: the admin and user versions. This process involved two validators, Kartika Candra Kirana, S.Pd., M.Kom., as System Validator 1 and Media Validator 1, and Lusi Asmaraningtyas, S.Pd., as System Validator 2 and Media Validator 2.

The system validation was divided into two versions: the Admin/Teacher version and the User/Alumni version. Several aspects were assessed during validation, each evaluated for functional completeness. The user version of the website includes eight aspects, while the admin version includes seven. Further system validation was conducted with lecturers, and the results are detailed in Tables III and IV, while validation results with SMK teachers are presented in Tables V and VI.

Table 2. Test Case Functionality Admin Version (From Dosen)

No	Assessment Aspect	Tse	Tsh	Percentage	Criteria
1	Landing Page	2	2	100%	Very Decent
2	Sign Up	2	2	100%	Very Decent
3	Log In	2	2	100%	Very Decent
4	Dashboard	2	2	100%	Very Decent

No	Assessment Aspect	Tse	Tsh	Percentage	Criteria
5	Personal Data	2	3	67%	Decent
6	Activity	6	8	75%	Decent
7	Logout	1	1	100%	Very Decent
	Amount	17	20	85,00%	Very Decent

The results of the system validation for the admin version, shown in Table III, achieved a percentage score of 85.00%, categorized as Very Decent. The functionality test case for the admin version assessed the Landing Page, Sign Up, Log In, Dashboard, Personal Data, Activities, and Log Out. According to Table III, the percentages for Aspect 5 (Personal Data) and Aspect 6 (Activities) were 67% and 75%, respectively, both categorized as Quite Decent, which is lower compared to other aspects. This was due to the admin’s inability to use the edit and user data management features. During testing, these features did not allow the admin to edit user data. However, based on the validators’ recommendations, this feature was intentionally kept inactive or restricted to ensure data security. Limiting admin access to user data reduces the risk of unauthorized access and enhances data protection.

Overall, the functionality aspect of the admin version was categorized as Very Decent, indicating that the system is in good condition and ready for implementation. These findings align with studies demonstrating that robust functional capabilities can simplify operations and effectively meet user needs [8]–[11].

Table 3. Test Case Functionality User Version (From Lecturers)

No	Assessment Aspect	Tse	Tsh	Percentage	Criteria
1	Landing Page	2	2	100%	Very Decent
2	Sign Up	3	3	100%	Very Decent
3	Log In	4	4	100%	Very Decent
4	Dashboard	2	2	100%	Very Decent
5	Personal Data	2	3	67%	Decent
6	Activity	5	5	100%	Very Decent
7	Feedback	3	3	100%	Very Decent
8	Log Out	1	1	100%	Very Decent
	Amount	22	23	95,65%	Very Decent

The test case results for the functionality aspect of the user version, shown in Table IV, achieved a percentage score of 95.65%, categorized as Very Decent. The validation assessed the Landing Page, Sign Up, Log In, Dashboard, Personal Data, Activities, Feedback, and Log

Out. According to Table IV, Aspect 5 (Personal Data) scored 67%, categorized as Quite Decent, which is lower compared to other aspects. This was due to the non-functionality of the edit and user data management features. During testing, users could not edit their personal data, highlighting the need to improve system functionality to ensure the website features operate as intended.

Overall, the functionality aspect of the user version was categorized as Very Decent, indicating that the system is in good condition and ready for implementation. These findings are consistent with studies demonstrating that strong functional aspects can enhance ease of use and effectively support user requirements [8]–[11].

Table 4. Test Case Functionality Admin Version (From Teacher)

No	Assessment Aspect	Tse	Tsh	Percentage	Criteria
1	Landing Page	2	2	100%	Very Decent
2	Sign Up	2	2	100%	Very Decent
3	Log In	2	2	100%	Very Decent
4	Dashboard	2	2	100%	Very Decent
5	Personal Data	2	3	67%	Decent
6	Activity	6	8	75%	Decent
7	Logout	1	1	100%	Very Decent
	Amount	17	20	85,00%	Very Decent

The system expert validation results for the website (admin version) in Table V show a percentage of 85.00% and a rating of Very Decent. The aspects evaluated in the Test Case for the System Functionality include Landing Page, Sign Up, Log In, Dashboard, Personal Data, Activities, and Log Out. Based on the Test Case results for the admin version of the website, Tables III and V show a percentage of 67% for aspect number 5 (Personal Data) and 75% for aspect number 6 (Activities), both of which are lower compared to other aspects, and only reached the rating Quite Decent.

The low scores on these two aspects were due to the non-functional edit and user data management features in the admin version. During testing, this function did not allow the admin to edit user data; thus, the system could not fully meet the need for flexible data management.

Overall, the functionality aspect for the admin side received a Very Decent rating. This indicates that, in principle, the system can be implemented. This result is consistent with research showing that good web functionality makes navigation easier for users, ensuring that design goals are met [8]–[11].

Table 5. Test Case Functionality User Version (From Lecturers)

No	Assessment Aspect	Tse	Tsh	Percentage	Criteria
1	Landing Page	2	2	100%	Very Decent
2	Sign Up	3	3	100%	Very Decent
3	Log In	4	4	100%	Very Decent
4	Dashboard	2	2	100%	Very Decent
5	Personal Data	3	3	100%	Very Decent
6	Activity	5	5	100%	Very Decent
7	Feedback	3	3	100%	Very Decent
8	Log Out	1	1	100%	Very Decent
	Amount	23	23	100,00%	Very Decent

The validation results for the website's functionality (user version) Test Case in Table VI show a percentage of 100.00% and a rating of Very Decent. The aspects evaluated in the validation include Landing Page, Sign Up, Log In, Dashboard, Personal Data, Activities, Feedback, and Log Out. Based on the validation results, the user version of the website achieved an average of 100.00%, meeting the Very Decent rating.

Overall, the functionality aspect for the user version of the website received a Very Decent rating, indicating that the system's functionality can be applied in principle. This result aligns with research suggesting that well-defined criteria can help users support system implementation [9]–[11].

In conclusion, the results of the functionality testing conducted by Validator 1 and Validator 2 show that the website is in good condition. This indicates that the tracer study website is Very Decent for use in supporting tracer study needs [11].

Table 6. Validation Media By Lecturers

N	Assessment Aspect	Ts	Ts	Rat a-Rat a	Percentage	Criteria
1	Usability	32	35	4.7	91.43%	Very Decent
2	Information Quality	30	35	4.3	85.71%	Very Decent
3	Service Interaction Quality	12	15	4.3	80.00%	Decent
	Amount	74	85	4.4	85.71%	Very Decent

Based on Table VII, the media validation results show an average of 85.71% and an average score of 4.4, placing it in the Very Decent category. The assessment was conducted based on three aspects: usability, information quality, and service interaction quality. In the usability aspect, the system achieved a percentage score of 91.43% with an average score of 4.7, earning a Very Decent rating. For information quality, the percentage score was 85.71%, with an average of 4.3, which is also categorized as Very Decent. However, for the service interaction quality aspect, the system scored only 80.00% with an average of 4.3, placing it in the Decent category.

Overall, the media validation results indicate an average percentage of 85.71%, placing the system in the Very Decent category. The lower score in the service interaction quality aspect was due to the lack of complete guidance on the tracer study website, which reduced user convenience in utilizing the available features. According to the validator's suggestions, it is necessary to add synchronization to the data charts and provide an asterisk (*) to mark mandatory fields in the alumni survey. Despite shortcomings in certain aspects, the overall media validation results still indicate that the system is Very Decent, consistent with studies that highlight how good media validation improves accessibility and ease of use for users [12], [13].

Table 7. Validation Media by the Teacher

N	Assessment Aspect	Ts	Ts	Rat a-Rat	Percentage	Criteria
1	Usability	34	35	4.8	97.14%	Very Decent
2	Information Quality	33	35	4.7	94.28%	Very Decent
3	Service Interaction Quality Amount	15	15	5	100.00%	Very Decent
		82	85	4.8	96.47%	Very Decent

The media validation results presented in Table VIII show an average percentage of 96.47% with an average score of 4.8, categorized as Very Decent. The assessment aspects measured include usability, information quality, and service interaction quality. In the usability aspect, a percentage score of 97.14% was achieved with an average score of 4.7, categorized as Very Decent. In the information quality aspect, a percentage score of 94.28% was achieved with an average score of 4.7, also categorized as Very Decent. Meanwhile, in the service interaction quality aspect, a percentage score of 100.00% was achieved with an average score of 5.0, categorized as Very Decent.

After revisions were made following the first validation for each aspect and subsequently validated by a

second validator, the results indicate that the developed website achieved percentages exceeding 80%. This aligns with research findings that state good media validation results enhance accessibility for users [12], [13].

Table 8. Tracer Study Website Respondent Test Result

N	Assessment Aspect	Ts	Ts	Rat a-Rat	Percentage	Criteria
1	Usability	915	1050	4.4	87.14%	Very Decent
2	Information Quality	934	1050	4.4	88.95%	Very Decent
3	Service Information Quality Amount	376	450	4.2	83.56%	Decent
		2225	2550	4.3	87.25%	Very Decent

The results of user trials, as shown in Table IX, indicate a percentage score of 87.25% with an average score of 4.4, categorized as Very Decent. The aspects measured include usability, information quality, and service information quality. The usability aspect achieved an average score of 4.4 and a percentage of 87.14%, categorized as Very Decent. Information Quality aspect achieved an average score of 4.4 and a percentage of 88.95%, also categorized as Very Decent. Service Information Quality aspect achieved an average score of 4.2 and a percentage of 83.56%, classified as Decent.

The feasibility testing results from respondents indicate that this information system falls under the Very Decent category. This level of feasibility demonstrates that the testing meets the criteria for both functionality and media. These findings suggest that the system is viable for implementation. This aligns with previous research showing that ease of use on a website is achieved when both functional and media aspects are of high quality [12], [13].

System validation was conducted on two system versions, namely the administrator and user versions, and evaluated by system experts. The validation results indicate that all functional components—covering the landing page, user registration, authentication (login), dashboard, and supporting features—operated in accordance with the predefined functional requirements. Both system versions successfully met the established validation criteria, demonstrating that the system is reliable and functionally sound. These findings confirm that the developed system is capable of effectively supporting the implementation of tracer study programs in vocational high schools by ensuring accurate data collection, efficient management, and seamless user interaction.

Additionally, media validation, which measured the feasibility of usability, information quality, and service interaction quality, met excellent quality standards. This provides a strong foundation, confirming that the system not only functions well but is also user-friendly and relevant to its users. Furthermore, trials conducted with vocational school students as end users demonstrated that they could use the system effectively and were highly satisfied. Overall, the validation and testing results confirm that this tracer study website is viable for ongoing implementation and technically and visually suitable for enhancing the tracer study program's facilities.

IV. Conclusion

This study successfully designed and developed a web-based alumni tracer study information system for Vocational High Schools (SMK) using the Rapid Application Development (RAD) method. The developed system effectively addresses limitations of conventional tracer study implementation, including limited alumni reach, data duplication, and inefficiencies in data collection and management. The tracer study system provides essential features, including alumni personal data collection, post-graduation activity tracking (employment, further education, and entrepreneurship), academic and service feedback questionnaires, and data management and export facilities for administrators. The system is accessible across multiple devices, allowing both alumni and school administrators to participate in tracer study activities more flexibly and efficiently. The validation results from system experts and media experts indicate that the system achieved a "Very Decent" level of feasibility for both admin and user versions. In addition, user trials involving alumni respondents demonstrated high levels of usability, information quality, and service interaction quality. These results confirm that the system is technically reliable, user-friendly, and aligned with the needs of vocational high schools. Overall, the developed web-based tracer study information system is feasible and effective for implementation, particularly at SMK Negeri 2 Malang. The system can support schools in conducting tracer studies in a more systematic, efficient, and sustainable manner. Furthermore, this system is expected to serve as a valuable evaluation tool for improving curriculum relevance, learning quality, and graduate employability in vocational education.

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