

Implementation of Web-Based System for Pigeon Post Competition in Galaxy Community

Dhanar Intan Surya Saputra ^{a,1,*}, Yudhistira Janice Al Sava ^{a,2}, Yusmedi Nurfaizal ^{b,3}, Didit Suhartono ^{a,4}, Sitaresmi Wahyu Handani ^{a,c,3}

^a Department of Informatics, Faculty of Computer Science, Universitas Amikom Purwokerto, Indonesia

^b Departement of Digital Business, Faculty of Business and Social Sciences, Universitas Amikom Purwokerto, Indonesia

^c Department of Computer Science and Information Engineering, National Taiwan University, Taiwan

¹ dhanarsaputra@amikompurwokerto.ac.id; ² yudhistirajance@gmail.com; ³ faizalamikom75@gmail.com; ⁴ didit@amikompurwokerto.ac.id;

⁵ rita.handani@amikompurwokerto.ac.id

* Corresponding Author

ABSTRACT

Pigeons Post are sophisticated birds with a good memory, navigation skills and an instinct to return to the nest after a long absence. Over time, has become popular as a pet, and a sport. In Indonesia, the Pigeons Post championship is legally protected through POMSI (in Bahasa Indonesia: Perkumpulan Olahraga Merpati Pos Seluruh Indonesia), held by local, and national communities, this hobby continues to grow. This competition technique is that participants register, bring the bird to a place have prepared, and fly it with applicable conditions. Many competition participants cause problems because the conventional processes lead to data entry errors, flight speed calculations, lost registrations, and human errors. This community service activity is to help, and facilitate the implementation system of the Pigeons Post competition in the community - POMP Galaxy (in Bahasa Indonesia: Perhimpunan Olahraga Merpati Pos). The results prove that the system has been created to facilitate the committee in managing and improving the competition's judging accuracy. This system is tested using alpha testing, which shows all features are running well. On the other hand, the acceptance test results through the questionnaire resulted in a response percentage of 89.99%, with the system's calculation criteria strongly agreeing.

KEYWORDS

Pigeons Post;
Pigeons Post Competition;
Web-Based System;
System of Competition



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1. Introduction

The Pigeon Post is a type of Pigeon (*Columbia livia*) [1]. It is one of the birds with wide geographical coverage and easily adapts to its environment [2]. Postal pigeons are animals that young people favor to parents who are bird lovers, used as collections and hobbies and competitions [3]. The Pigeon Post is one type of bird that is quite smart, has a strong memory, navigation ability, and has an instinct to return to the nest even though it has been away for a long-distance and a long time [4]. Travelers and even the military used the Pigeon Post's capacity to convey communications in the past [5], [6].

The Pigeons post or homing pigeon are often known as mail carriers, but carrier pigeons are now used as pets and competitions over time [7]. This type of pigeon has a strong memory to return to the cage where he was born or raised [8]. The pigeon's memory and intelligence help it return to the cage. Pigeons are often contested between local, national, and international communities [9]. That's why this hobby continues to grow [10]. In communities in several regions in Indonesia, animal fighting activities, especially pigeon racing, are still ongoing [11], [12]. As a descendant of the Belgian homer, Pigeons are birds with high speed and are well-known for being tough and able to cover distances quickly [13], [14].

There are many fans of carrier pigeons, which then form a community [15]. This community aims to gather carrier pigeon fans to share information about everything about how to care for and strategies to improve the quality of the bird to win the competition [16]. The homing pigeon competition is carried out by flying birds at a release point that the committee has determined, and the distance is from 100 –

1.000 KM [17]. To take part in the competition, several conditions must be followed, first the coordinates of the pigeon coop must be measured using GPS (Global Positioning System) [18]. These coordinates are needed to calculate the distance between the cage and the bird's release location [19]. The two birds participating in the competition must use a community ring, and the last condition is that the bird must be in good health [20]. When the bird is declared unhealthy, it will be returned, and when it is declared healthy, it is ready to participate in the competition [21].

In Indonesia, the Pigeons Post championship is legally protected through POMSI (in Bahasa Indonesia: Perkumpulan Olahraga Merpati Pos Seluruh Indonesia), held by local and national communities, this hobby continues to grow [22]. The postal pigeon competition technique uses participants bringing birds to a place that the committee has prepared to register for the competition [23]. The registration stage is carried out by bringing a form containing bird data containing the ring number, bird color, and bird sex [24], [25]. Many participants in the competition resulted in several problems that arose due to conventional processes such as data entry errors, missing registration forms, and human errors. After the registration stage is complete, the birds will be checked for health by the bird committee. Birds who have passed all stages will be affixed with a hologram sticker on the ring and inserted into the "dondang" to be brought to the bird release location. Based on these problems, this service contributes to providing assistance and community service activities aimed at the Galaxy Community or POMP (Indonesian: Merpati Pos Sports Association) to implement a Web-Based System for Pigeon Post Competition.

2. Method

The development of information technology impacts the development of applications and the variety of information systems, especially in data processing as a tool for humans to process data into information. The utilization of information systems also varies in all fields, such as E-Office, Competency Test, Electronic counseling, Entertainment, Sport, and many others.

Pigeons are one type of bird in great demand by people in several regions in Indonesia to be kept and often used as animal fighting activities [26]–[28]. In society, animal fighting activities, especially pigeon racing, are still ongoing. Initially, this dove only functioned as a mail delivery tool usually used as a carrier pigeon [29] [30]. However, along with the development of the times, the emergence of certain people's creativity, the dove is used as one of the animals used for fast-paced activities [31]–[33].

A Pigeon Post is a pigeon that has been trained to deliver letters or messages [34]. Pigeons are one type of bird that is quite smart, has a strong memory, navigation ability, and an instinct that can return to the nest even though it has been away for a long-distance and a long time [35]. The delivered letter will arrive at its destination, or it is very unlikely that the letter will get lost [36]. In feeding, carrier pigeons are given special food in a mixture of potassium carbonate and fish oil, which can be vitamins that can make pigeons stronger and easier to train [37]–[39].

This activity uses the Extreme Programming (XP) method as software development, which is a method that provides a sequential software approach from the planning stage, design stage, coding stage, and testing stage. At the coding stage, there is an iteration, where if there is a sudden change, there is no need to repeat the analysis process, but it is enough to do it at the coding stage.

XP is an agile software development methodology that is lightweight and capable of responding quickly to changing requirements. XP is a methodology that has continued to evolve since the early 90s until today, which has the values of simplicity, communication, feedback, and courage.

3. Results and Discussion

3.1. System Planning and Design

System design determines how the system will meet these objectives, in this case, namely: user needs, system requirements, hardware, software, network infrastructure, user interfaces, forms and reports, and special programs, databases, and files that will be needed. System design is an advanced stage of system analysis where the system design describes the system to be built before being coded in a programming language. In designing a system cannot be separated from the results of the analysis.

We conducted interviews with potential users and several entities we felt would use and interact with the current system. In organizing the competition, it turns out that the registration file documentation process is very large show in Fig. 1; one event holding a competition at least almost 500 form sheets, usually followed by many participants in a very crowded situation show in Fig. 2 and is carried out conventionally, of course, will cause many problems during the competition. The Pigeon Post Competition requires a system that can organize competitions from registration and management of participants to determining the winner of the competition that can provide convenience, efficiency, and economic value in its implementation.

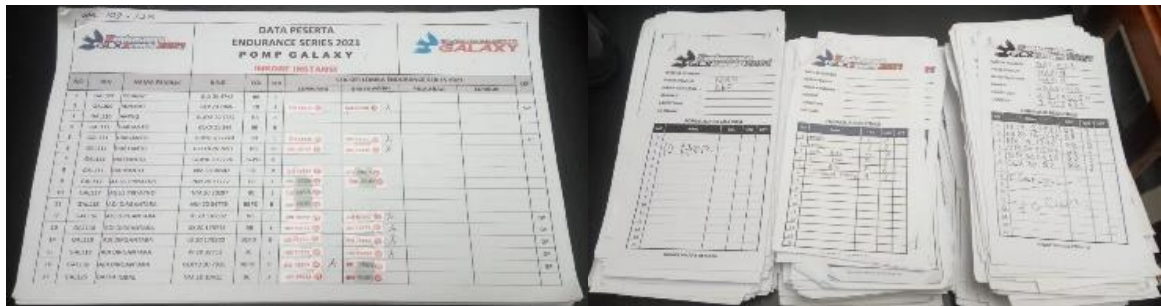


Fig. 1. Form Sheets Competition



Fig. 2. Crowded competition citations

After the analysis and planning stages, we can implement the system according to the planned requirements. At this implementation stage, the researcher has done the coding and design of the display according to the plan. So that the processes in the running system can be better understood, it can be seen from the use case diagram show in Fig. 3.

Use case diagram Fig. 3 is explained in "Actor User" can perform processes such as "Registrasi", "Login", "Halaman Utama", "Info Terbaru", "Lomba", "Pos", and "Burung". While the "Actor Admin" is divided into four rules, namely "Super Admin", "Admin Administration", "Admin Konfeyor", and "Admin Juri". "Admin Administration" can perform processes such as "Pos", "Peserta", and "Informasi". "Admin Konfeyor" can perform processes such as "Informasi" and "Terbang Burung". "Admin Juri" can

carry out processes such as the “Perhitungan and “Informasi” form. Meanwhile, “Super Admin” can perform all the processes carried out by “Admin Administrasi”, “Admin Konfeyor”, and “Admin Juri” plus the process of setting “Otorisasi”, “Akun”, and “Daftar Lomba”.

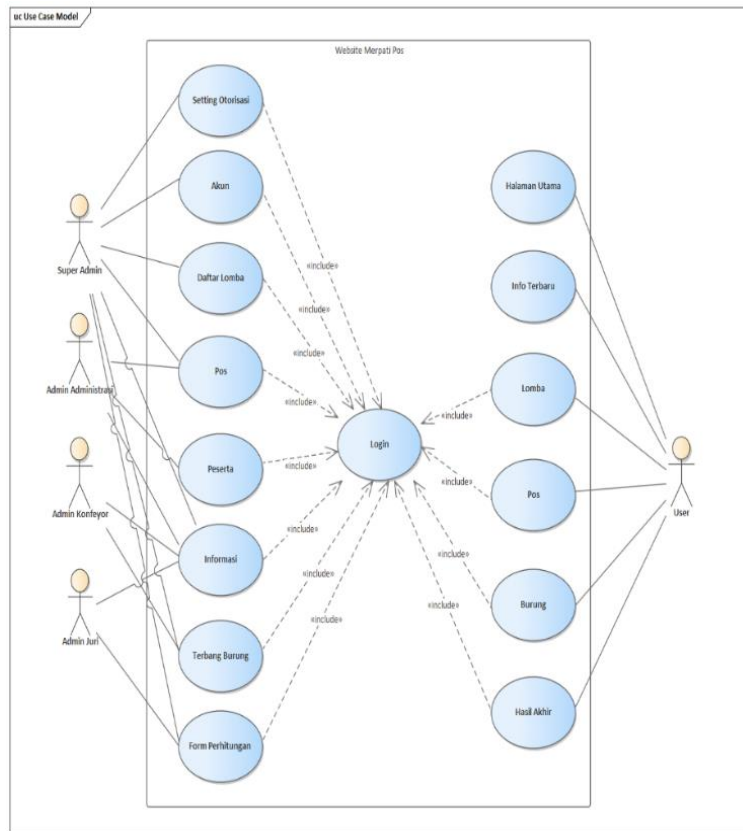


Fig. 3. Use Case Diagram

The class diagram, Fig. 4 explains the existing database in the Pigeon Post Competition application, consisting of the following table: “admin”, “peserta”, “burung”, “warna burung”, “info”, “tambah lomba”, “jadwal lomba”, “pos”, “hasil sementara”, “skor”, “hasil akhir”, and “hadiah lomba”.

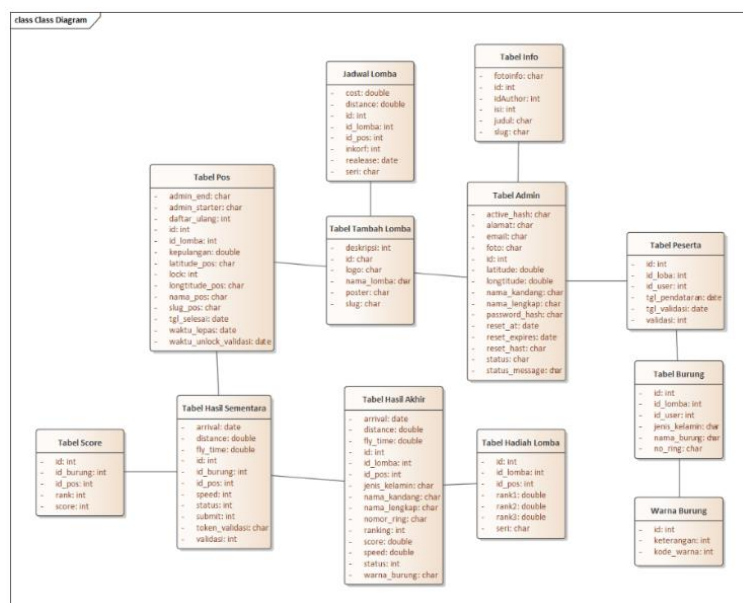


Fig. 4. Class Diagram

3.2. Code and Implementation

Fig. 5 shows the main page when the Pigeon Post Competition application is accessed. There are “Home”, “Race”, “Info Terkini”, and “Login” menus. The “Home” menu is used to view the main menu. The “Race” menu is used to view the dashboard of the race participants. The “Info Terkini” menu is used to view the latest information regarding carrier pigeons. The “Login” menu is used to enter the application.

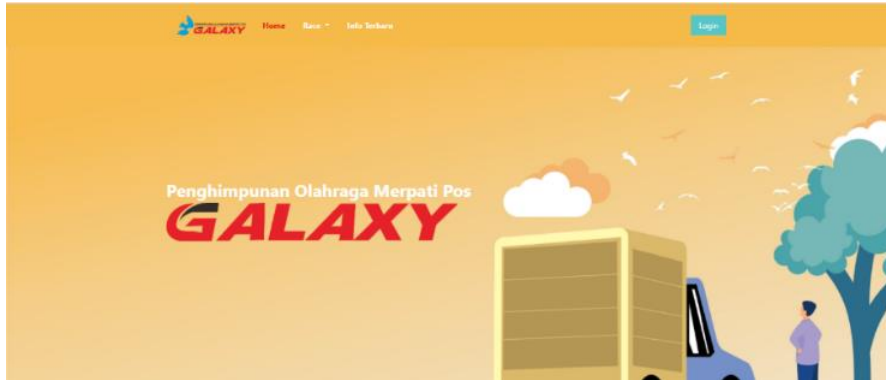


Fig. 5. The main page of the Post Pigeon Contest application

No	Nama	Kandang	Dist (m)	Nomor Ring	Col	Sex	Arrival (time)	Fly Time (minutes)	Speed (rpm)	Rank	Score	Status
1	AIN RAFFUDIN	PUNTAESTIC	171,484	GLX 20 103	BB	J	2021-06-28 21:14:06	34,4167	4.881,5976	1	8,719	UNUS
2	Seto Purnomo	Setops	148,353	GLXD 20 111	DB	J	2021-06-28 21:12:08	32,5833	4.533,0386	2	22,918	UNUS
3	Sato Purnomo	Setops	148,353	CLXD 20 112	BBN	B	2021-06-28 21:12:57	32,7167	4.534,4812	3	33,705	UNUS
4	BALEVO TEAM	BALEVO	142,511	GLY/B 20 7314	BB	J	2021-06-28 21:13:46	33,5333	4.248,6448	4	46,780	UNUS

Fig. 6. The page of the results of Post Pigeon Contest

On the Pigeon Post Competition results page, Fig. 6 displays the race results of the participants from the posts flown. In the final results menu, the system will display bird rankings from 1st, 2nd, 3rd to the last place.

3.3. Testing

Alpha testing is carried out at the construction stage using black-box techniques. Testing is carried out to ensure whether the application can run well on the user's operating system or application user. Blackbox testing to test the function of the various features contained in the system. There are several tests carried out, namely:

- Feature Test “Login”
- Feature Test “Daftar Lomba Admin”
- Feature Test “Pos Admin”
- Feature Test “Setting Otorisasi Admin”
- Feature Test “Peserta Admin”

- Feature Test “Hasil Akhir Admin”
- Feature Test “Submit Admin”
- Feature Test “Kunci Pos Admin”
- Feature Test “Selesaikan Lomba Admin”
- Feature Test “Validasi Burung Admin”
- Feature Test “Hasil Akhir Admin”
- Feature Test “Informasi Admin”
- Feature Test “Akun Admin”
- Feature Test “Race User”
- Feature Test “Burung User”
- Feature Test “Info Terbaru User”
- Feature Test “Pos User”
- Feature Test “Hasil Akhir User”

Acceptance testing is done by using a questionnaire method. Calculation of the results of the questionnaire was carried out using a Likert scale calculation. Several questions were given to respondents (Table 1) with the number of respondents is shown in Fig. 7 as many as six people consist of male, and some age range 17 years to over 45 years according to system users.

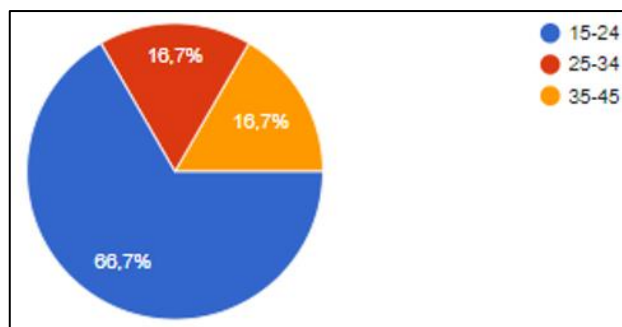


Fig. 7. Questionnaire Respondents

Option Description:

Strongly Agree (SA)	= 5
Agree (A)	= 4
Indecisive (I)	= 3
Disagree (D)	= 2
Strongly Disagree (SD)	= 1

The result of the value of each aspect is divided by the number of aspects. So the average index of acceptance testing results is 89.99% so that the interpretation of scores based on intervals is included in the category of strongly agree.

4. Conclusion

Based on the results of the implementation, mentoring, and system training on the Galaxy POMP that have been carried out, it can be concluded that this activity has succeeded in integrating the Web-

Based System for Pigeon Post Competition to facilitate the committee in managing the competition and also increase the accuracy of the judging. The implementation of the competition will be more regular with the score that has been computerized directly. This system is tested using alpha testing, which shows all features are running well and as expected. On the other hand, the acceptance test results through the questionnaire resulted in a response percentage of 89.99%, with the system's calculation criteria strongly agreeing. From a series of activities carried out, the author realizes that there are still many shortcomings. Therefore, further, development needs to be related to the Web-Based System for Pigeon Post Competition, namely application development integrated with mobile platforms. Improved User Interface (UI) and User Experience (UX) so that the application's appearance for the pigeon race judging application becomes more interactive and friendly to application users. One less important thing is the use of the GPS feature, which is highly emphasized here. Opportunities for system development by utilizing location-based services can improve the system, and the organizing committee will be made easier.

Author Contribution

All authors contributed equally to the main contributor to this paper. All authors have read and agreed to the published version of the manuscript.

Conflict of Interest

The authors declare no conflict of interest.

Acknowledgment

Our gratitude goes to POMP Galaxy, the Pigeon Post Competition Committee and our institution, Universitas Amikom Purwokerto and National Taiwan University.

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