

**RESCUE PETS: GAMIFICATION BASED ANIMAL  
RESCUE SYSTEM OF AKLAN ANIMAL  
REHABILITATION AND RESCUE CENTER**

A Special Problem

Presented to

the Faculty of the Division of Physical Sciences and Mathematics

College of Arts and Sciences

University of the Philippines Visayas

Miag-ao, Iloilo

In Partial Fulfillment

of the Requirements for the Degree of

Bachelor of Science in Computer Science by

CONANAN, Fely Maureen

LUPERA, Jayven

Francis DIMZON

Adviser

June 21, 2022

### **Approval Sheet**

The Division of Physical Sciences and Mathematics, College of Arts and Sciences, University of the Philippines Visayas

certifies that this is the approved version of the following special problem:

### **RESCUE PETS: GAMIFICATION BASED ANIMAL RESCUE SYSTEM OF AKLAN ANIMAL REHABILITATION AND RESCUE CENTER**

**Approved by:**

**Name**

**Signature**

**Date**

Prof. Francis Dimzon

---

(Adviser)

Prof. Arnel Tampos, PhD

---

(Division Chair)

Division of Physical Sciences and Mathematics

College of Arts and Sciences

University of the Philippines Visayas

### **Declaration**

We, Fely Maureen Conanan and Jayven Lupera, hereby certify that this Special Problem, including the pdf file, has been written by us and is the record of work carried out by us. Any significant borrowings have been properly acknowledged and referred.

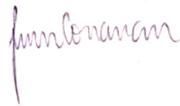
**Name**

**Signature**

**Date**

Fely Maureen Conanan

(Student)



---

Jayven Lupera

(Student)



---

## **Dedication**

“This study is dedicated to our beloved parents for giving their, spiritual, emotional, and financial support in completing this study. They gave us inspiration and guidance to still continue and finish this study despite the difficulties we are experiencing during this pandemic.

To our professor, siblings, friends, relatives and classmates who never get tired of sharing their words of advice and encouragement to finish this study.

To the management and staff of Aklan Animal Rehabilitation and Rescue Center for giving their consent and approval in partnering with us for the betterment and success of this study.

And most importantly, we dedicate this to our Almighty God for the strength, power of mind, protection and skills that You have given us to finish this study.”

## Abstract

The current available web-based systems are user-friendly because they are simple to use, but they are not particularly interesting and interactive to users. It merely displays basic information and gives a few tasks for the user to complete. Rescue pets: gamification-based animal rescue system of Aklan Animal Rehabilitation and Rescue Center aims to design and develop an animal rescue system that provides better engagement between the stakeholders of the system and the Aklan Animal Rehabilitation and Rescue Center itself by implementing gamification features and applying log-in features in the system being built. Gamification which is the primary feature applied in the study is the process of incorporating gameplay principles and game thinking to increase user engagement and resolve issues. Log-in features were also used to improve user and system engagement by allowing users to log in to their accounts so that transactions made in the system is monitored through users' accounts.

**Keywords:** Pet, Rescue Center, Gamification.



# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Overview of the Current State of Technology . . . . .	1
1.2	Problem Statement . . . . .	2
1.3	Research Objectives . . . . .	3
1.3.1	General Objective . . . . .	3
1.3.2	Specific Objectives . . . . .	3
1.4	Scope and Limitations of the Research . . . . .	4
1.5	Significance of the Research . . . . .	4
<b>2</b>	<b>Review of Related Literature</b>	<b>7</b>
2.1	The Rise of Animal Welfarism . . . . .	7
2.2	Philippine Animal Welfare Society . . . . .	8

2.3	The Albert Foundation . . . . .	9
2.4	Gamification . . . . .	10
2.5	Gcash Forest . . . . .	12
2.6	Automatic Login of Account . . . . .	13
<b>3</b>	<b>Research Methodology</b>	<b>15</b>
3.1	Design of the Study . . . . .	15
3.1.1	Agile Methodology Phases . . . . .	16
3.2	Procedures . . . . .	18
3.3	System Specifications . . . . .	20
3.3.1	Use Case Diagram . . . . .	20
3.3.2	Functional Requirements . . . . .	20
3.4	User Specifications . . . . .	24
3.5	Technical and Software Specifications . . . . .	24
3.6	Persons Involved . . . . .	25
<b>4</b>	<b>Results and Discussions</b>	<b>27</b>
4.1	Account Creation . . . . .	28
4.1.1	Sign-up Page . . . . .	28

<b>CONTENTS</b>	<b>ix</b>
4.1.2    Account Verification . . . . .	29
4.1.3    Google Login . . . . .	30
4.1.4    Edit Profile . . . . .	31
4.2    User Page . . . . .	31
4.2.1    Profile Page . . . . .	31
4.2.2    Home Page . . . . .	35
4.2.3    Information Page . . . . .	36
4.2.4    Contact Page . . . . .	37
4.3    Admin Verifying Actions . . . . .	38
4.4    Gamification . . . . .	39
4.4.1    Virtual Pet . . . . .	39
4.4.2    Virtual Points . . . . .	41
<b>5    Conclusion</b>	<b>45</b>
5.1    Conclusion . . . . .	45
5.2    Recommendation . . . . .	46
<b>6    References</b>	<b>49</b>

<b>A Acceptance Letter</b>	<b>51</b>
----------------------------	-----------

<b>B Resource Person</b>	<b>53</b>
--------------------------	-----------

# List of Figures

3.1	Agile Methodology Phases . . . . .	16
3.2	The figure shows the use case diagram for the user and admin of the system. . . . .	20
4.1	User's Sign-up Page . . . . .	28
4.2	User's Sign-up Form . . . . .	28
4.3	Account Verification Message sent to User's Email . . . . .	29
4.4	Account Successfully Verified . . . . .	29
4.5	Edit Profile Form . . . . .	31
4.6	Adoption Form . . . . .	32
4.7	Donation Form . . . . .	33
4.8	Volunteer Form . . . . .	34
4.9	Home Page of the System . . . . .	35

4.10 AARRC's About Us . . . . .	36
4.11 AARRC's Official Website Accounts . . . . .	36
4.12 Contact Information of AARRC and the Developers . . . . .	37
4.13 Admin Panel of the System . . . . .	38
4.14 Transition of Virtual Cat's Appearance . . . . .	39
4.15 Transition of Virtual Dog's Appearance . . . . .	40
4.16 Transition of Virtual Rabbit's Appearance . . . . .	40
4.17 Level 1 of the virtual pet's appearance . . . . .	42
4.18 Level 2 of the virtual pet's appearance . . . . .	42
4.19 Level 3 of the virtual pet's appearance . . . . .	43
4.20 Level 4 of the virtual pet's appearance . . . . .	43
4.21 Level 5 of the virtual pet's appearance . . . . .	43
4.22 Level 6 of the virtual pet's appearance . . . . .	44

# **Chapter 1**

## **Introduction**

This chapter introduces the study conducted by the researchers. This includes an overview of the current state of available animal rescue systems and why a gamification-based animal rescue system is being developed, general and specific objectives of the system, the scope and limitations, and the people who will benefit from the study.

### **1.1 Overview of the Current State of Technology**

The Animal Welfare Act (1998), the Wildlife Resources Conservation and Protection Act (2001), and many supporting Administrative Orders govern many processes and facilities that affect animal lives in the Philippines, such as farm animal transport and pet shops. It is recommended that the Philippines' government consolidate all animal welfare legislation and jurisdictions into a single government department with adequate resources for education, enforcement, and

continuing to improve animal welfare. It is also recommended that the government revise and reassess all Administrative Orders affecting animal welfare to ensure that they are in line with modern OIE standards and current scientific thinking. Furthermore, the Philippine government is strongly encouraged to prohibit cruel practices such as fur farming, keeping wild animals as pets, and long-distance animal transportation. Additional legal and policy recommendations are linked to each Animal Protection Index (API) indicator and are included in the relevant sections of this report (Index, n.d.).

Many animal rescue centers and organizations are already in place throughout the country. These animal rescue centers have their own web-based systems that allow them to operate not only physically, but also virtually. These rescue centers' web-based systems provide information about the various services they can provide to rescued animals. The systems allow for online adoption applications, cash or in-kind donations, and volunteer work at the rescue center. A vision statement, mission statement, successful projects and programs, contact information, and social media accounts are some of the information that is also provided in the system.

## **1.2 Problem Statement**

The animal rescue systems of various animal rescue centers can help in supporting Administrative Orders that govern many processes and facilities that affect animal lives in the Philippines by providing web-based systems that assist users or aspiring pet owners in looking for new homes for pets abandoned by their owners or pets

separated from their family after birth.

The web-based systems currently available are user-friendly because it is simple to use, but it is not particularly interesting to users. It lacks user engagement because it only displays basic information and provides a few activities for the user to do. It is simple to use because there is no need to log in, but it does not allow you to save the transactions you generate in the system. The study aims to build a more interactive system by applying gamification and log-in features.

## 1.3 Research Objectives

### 1.3.1 General Objective

The general objective of this study is to design and develop an animal rescue system that provides better engagement between the stakeholders and the Aklan Animal Rehabilitation and Rescue Center.

### 1.3.2 Specific Objectives

The specific objectives of the study are the following:

1. Create an animal rescue system where users can:

- Donate cash for AARRC;
- Adopt available stray animals from AARRC; and
- Volunteer work in AARRC.

2. Create an animal rescue system where the admin can:
  - Track donations from the users;
  - Monitor list of adopted animals from AARRC; and
  - Update volunteer applications for AARRC.
3. Implement a gamification feature in the system by having a virtual pet that records points for every activity done by the user that enables the virtual pet to level up.

## **1.4 Scope and Limitations of the Research**

The study focuses on designing a system for a local animal rescue center, which is the Aklan Animal Rehabilitation and Rescue Center. This study focuses on the application of gamification features to the existing system of the chosen animal rescue center and allows account creation and automatic log-in when using the system.

## **1.5 Significance of the Research**

The study is significant to the following:

**AKLAN ANIMAL REHABILITATION AND RESCUE CENTER.** This study helps the AARRC provide better services to the public in terms of rescuing, adopting, and caring for stray animals. This also assists the rescue center in

finding more people willing to help not only these animals, but also other recipients of the funds collected by the rescue center.

**AKLANON COMMUNITY.** This study helps in adding a way to improve pet health in the community of Aklan. This study assists the Aklanon community in locating an animal rescue system that cares for their rescued pets. It also helps them locate rescue organizations when they want to adopt a pet or make a donation.

**PET LOVERS.** This study provides satisfaction to pet lovers who want to adopt pets not only from Aklan but also from nearby places.

**COMPUTER SCIENTISTS.** This study is an important step toward continuing to provide information to the public in order to promote the use of gamification features to increase the level of engagement between a user and a system.

**RESEARCHERS.** This study serves as baseline data to conduct better research and build new systems in the future regarding animal rescue systems. Future researchers will be given the responsibility of improving the present study.



# **Chapter 2**

## **Review of Related Literature**

This chapter presents and reviews related literature and studies, which have bearing on the conduct of the study. The literature and studies cited include local animal welfare systems, gamification features and applications, and some integration of account creation and federated login in building a system.

### **2.1 The Rise of Animal Welfarism**

The 1944 legal reforms were portrayed as a set of rules in the government proposal response and resolution to a long list of animal-treatment-related issues. The old anti-cruelty legislation law from 1921 should be replaced with an animal protection law that provides a comprehensive regulatory framework to set standards for preventing animal mistreatment in a broader sense. The primary social function of the old law was to regulate excessive animal use and to police the borders of animal exploitation. The use of animals had changed and evolved because of the

anti-cruelty regime. Things like the expansion of large-scale breeding and farming, longer and more frequent animal transports, an increase in the number of animal experiments, and so on were bound to raise new questions about the systemic nature of animal abuse and was the real problem that needed to be addressed (Svärd, 2015).

Svard(2015) believes that the 1944 reform's most important contribution was not simply expanding legal protection for nonhuman animals, but also bringing closure and political control to a progressively broken discursive regime. The 1944 reforms achieved what proponents of the current system had fought for in the past: a fully contextualized problematization that would have been troubled by norms contradictory to the human-animal relationship.

The 1944 reform advocates to broaden the legal protection to animals by legalizing the punishment to animal abusers. However, the present study focuses on rescuing and taking care of the stray animals found in the streets by building a web-based system responsible for these activities.

## **2.2 Philippine Animal Welfare Society**

The organization is dedicated to animal protection and humane treatment. The organization advocates for the elimination of animal cruelty and pet neglect. In addition, the organization works to educate and disseminate information about animal welfare and protection.

People donate cash or in-kind to the organization, they adopt a pet, and the

organization rescues animals and rehabilitates them. The organization does not accept previously owned pets. Humane education, where educational tours, interviews, school visits, and seminars are provided for free, spay and neuter surgeries, where a low-cost clinic is available to the public, animal therapy, and disaster relief operations are among the other programs offered by the organization(Philippine Animal Welfare Society, 2013).

The organization uses a web-based system to post and record all activities. The system includes options for adopting, donating, and volunteering. The current study will also create a system for a local organization concerned with animal welfare and protection. The Aklan Animal Rehabilitation and Rescue Center has been chosen as the local organization.

## 2.3 The Albert Foundation

The Albert Foundation/Stiching Albert is a registered charity in the Netherlands that collects donations and sponsors the Aklan Animal Rehabilitation and Rescue Center. It was founded by Michel and Neressa Van Der Kleij. The foundation has a web-based system in place for AARRC to post information about the rescue center. The AARRC rescues animals for them to be sponsored or adopted and live a better life. Most of the animals came from Aklan's streets, but only a few came from people who no longer wanted to care for their animals because dumping animals is strongly discouraged by the center.

According to the Aklan Animal Rehabilitation and Rescue Center (2020), supporting the local community by purchasing and hiring locally is an integral feature

of the AARRC philosophy of "Animal Welfare Equals Human Welfare." We cannot exist without our fellow beings, and they require our assistance. We start serving the human community by improving public health and safety through our work with stray animals (Aklan Animal Rehabilitation and Rescue Center, 2020).

The web-based system is simply one in which you do not need to log in because you can access everything about the AARRC without creating an account. The system contains information about the founder, the mission and vision, the programs that have been implemented, and instructions on how to donate. Their email, Facebook, Twitter, Instagram, and YouTube accounts are also linked by the system. The system is available in English, Dutch, and Spanish.

The current study adapt AARRC's current system while adding new features such as account creation and having a virtual pet. The current study adds account creation and gamification features to the system to increase user engagement. By including account creation, users were able to create an account before engaging in any transactions with AARRC. Account creation also aids in the monitoring of users who have a virtual pet that is automatically gifted to them after creating an account.

## **2.4 Gamification**

Gamification is the process of incorporating games or game-like elements into something (such as a task) in order to increase participation (Merriam-Webster, n.d.). A study titled "Does Gamification Work?" was conducted. — A Literature Review of Empirical Studies on Gamification" (Hamari, Koivisto, & Sarsa, 2014)

examined 24 scientific studies that shared a high-level research question (not always clearly stated): Does gamification work? The various studies examined use a variety of gamification mechanics . According to the findings, the majority of the studies examined yielded a positive outcome and benefits. It is also important to note that some of the studies had limitations, such as a limited sample and a lack of control groups. Gamification is the method of using gameplay mechanics and game thinking to user engagement and resolve issues (Zichermann & Cunningham, 2011). It is a powerful tool that encourages players to complete a task or use customer support that they would not have done normally. Giving users a satisfying and rewarding experience will not only provide them with entertainment, but will also give people something to look forward to and encourage them to use the service repeatedly.

Moreover, Zichermann and Cunningham (2011) think that the player is the root of gamification. In a gamified system, the user's or the player's motivation to use the system drives the outcome. Therefore, understanding player motivation is paramount to building a successfully gamified system. A good video game values its player more than others, a developer listens to the opinion of the player of the game and provides patches for the game to be better. This should also be adapted in any gamified system as it is a powerful tool to gain more engagement and for the long-term success of the system. Predicting how the “players” of the system would act will allow the builder to reach the main objectives of the system.

The current study employs gamification features to improve user engagement. This is done by having a virtual pet after logging in. Each transaction made by the users equates to a certain number of reward points earned by the virtual pet. Once the virtual pet has accumulated a certain number of points, it will level up

and change appearance.

## **2.5 Gcash Forest**

Gcash forest is a GCash gamified in-app feature that allows users to plant virtual trees via the Gcash app. Green Heroes are people who use the Gcash forest. After three days, the users collect Green Energy, which is then used to plant trees. Previously, the period for planting trees was only 24 hours.

The feature helps save the environment through the Gcash app, which has 20 million users. Despite the situation, Martha Sazon, CEO and President of Gcash, believes that the changes will allow users to plant more trees because digital transactions are becoming the new norm (Gabriel, 2020).

According to Anthony Tomas, Mynt CEO, Gcash forest addresses the issue of citizens who want to help save the environment but don't know-how. Making a difference is much easier now that they can plant trees with their smartphones. The feature is modeled after Alipay Ant Forest, which is run by Ant Financial. Gcash Forest worked in partnership with the Department of Environment and Natural Resources (DENR), the World Wildlife Fund (WWF), and the Biodiversity Finance Initiative (BIOFIN). The DENR made available land resources, the WWF equipped trees and workforce, and BIOFIN provided monitoring expertise (Magazine, 2019).

The present study uses a gamified feature as well, but instead of virtual trees, a virtual pet is used because the system is for animal rescue. The Gcash forest

harvests green energy, whereas the present study employs digital points to fund the virtual pet. The virtual pet's goal is to validate every user's help and support in saving and protecting animal strays via the system built.

## 2.6 Automatic Login of Account

The internet is a vast world, and its user base is growing by the day. This is more common now that the pandemic has resulted in lockdowns that have brought everything online. People create various user accounts, social media sites, educational sites, lifestyle applications, and a variety of other things. As a result, there are many accounts signing in credentials to remember, and we all know how passwords can be a pain, and we can't help but forget them. Some users may choose to use the same password on multiple accounts in order to avoid forgetting it, which poses a significant security risk. Using federated login is one way to avoid this problem without jeopardizing the user's safety. Federated login means that the user authenticates by using a third-party service, such as Google or Facebook, rather than entering credentials or profile information again (Developers, n.d.).

A lot of web-based and even mobile applications make use of account signing. That's why we often forget our credentials. The present study makes use of the automatic log-in of accounts to enable the users to log-in their account easily without the need to input credentials.



# **Chapter 3**

## **Research Methodology**

This chapter discusses the activities and methodologies employed by the researchers in developing the animal rescue system.

### **3.1 Design of the Study**

Aklan Animal Rehabilitation and Rescue Center is the province of Aklan's only animal shelter. This research focuses not only on the development of an animal system, but also on the incorporation of gamification and log-in features to it.

Merriam-Webster defines gamification as the process of incorporating games or game-like elements into something (such as a task) in order to increase participation. Zichermann and Cunningham (2011) believe that this framework for understanding gamification is both powerful and adaptable, as it can be easily applied to any problem that can be solved by influencing human motivation and

behavior.

The agile methodology is used by the researchers in the development of the system. Agile Methodology is a practice that promotes continuous testing and development throughout the development lifecycle of the system. In the Agile model of software testing, both development and testing activities are carried out concurrently. It is beneficial because the chosen animal rescue center will be given frequent and early opportunities to inspect the product and make judgments and revisions to the system before it will be implemented (Hamilton, 2021).

### 3.1.1 Agile Methodology Phases

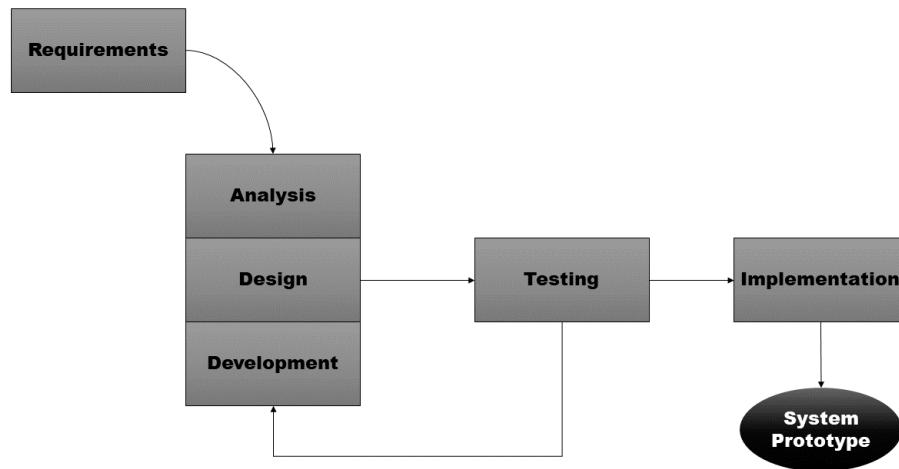


Figure 3.1: Agile Methodology Phases

### **Requirements**

This phase involves an overall assessment to discuss, determine and describe the software and system requirements as well as the resources needed for the development of the animal rescue system.

### **Analysis - Design - Development**

The specified requirements are reviewed in the analysis phase to identify which functions and features are feasible in terms of time and resources to include in the animal rescue system being designed.

The requirements agreed upon by the developers during the analysis phase are utilized to develop the system mockup in the design phase. This allows developers to examine the functionality and features to see if anything needs to be changed, and the software and system requirements are identified.

Furthermore, the previous steps are done as many times as needed until the developers are satisfied that the final product is appropriately presented based on the prototype.

### **Testing**

This is the phase that ensures the system's operability and functionality. Testing is necessary to elicit supplementary details and information to enhance and improve the system.

People involved in the testing were asked to provide suggestions and recommendations for enhancing and improving the system.

The study is tested by the following users: a) AARRC representative b) researcher's adviser c) researchers d) random users and e) system administrator.

### **Implementation**

The system is now fully available to users. The animal rescue system being built incorporates the requirements agreed upon by the developers.

### **System Prototype**

The system prototype's final implementation, as envisioned by the researchers, is web-based. The mobile development of the system is further pursued based on the researchers' decision or can be done by future researchers who will conduct the same study.

## **3.2 Procedures**

The following are the procedures done by the developers during the system development:

- Account creation is a method implemented in the study, so users must create an account before engaging with the system. The user can be a random user

or a system administrator. In creating an account, the username, email, and password are asked from the users.

- Account verification is needed for the users to finally log in to the system. The database will be accessed if the following user is already available or not. To enable the user to validate his or her account, an email verification is sent to the user's email address.
- The system also allows users to log in using their Google Account. The user has the option of manually logging in with the account they created or using their Google account.
- A virtual pet is automatically owned by the user once the account is created. The user can choose between a cat, a dog, or a rabbit as their virtual pet. The graphical representation of virtual pets are designed by the use of Clip Studio Paint.
- Gamification is applied in the system by recording the engagement of the user with the system by the use of virtual points. Every transaction made by the user has an equivalent virtual points that enable the user's virtual pets to level-up.
- The user can donate, adopt, and volunteer to Aklan Animal Rehabilitation and Rescue Center through the system. The main database and the database of the virtual points are updated after every transaction of the user.
- The admin can track donations, monitor a list of volunteers, and animals available to adopt by verifying their action requests.

## 3.3 System Specifications

### 3.3.1 Use Case Diagram

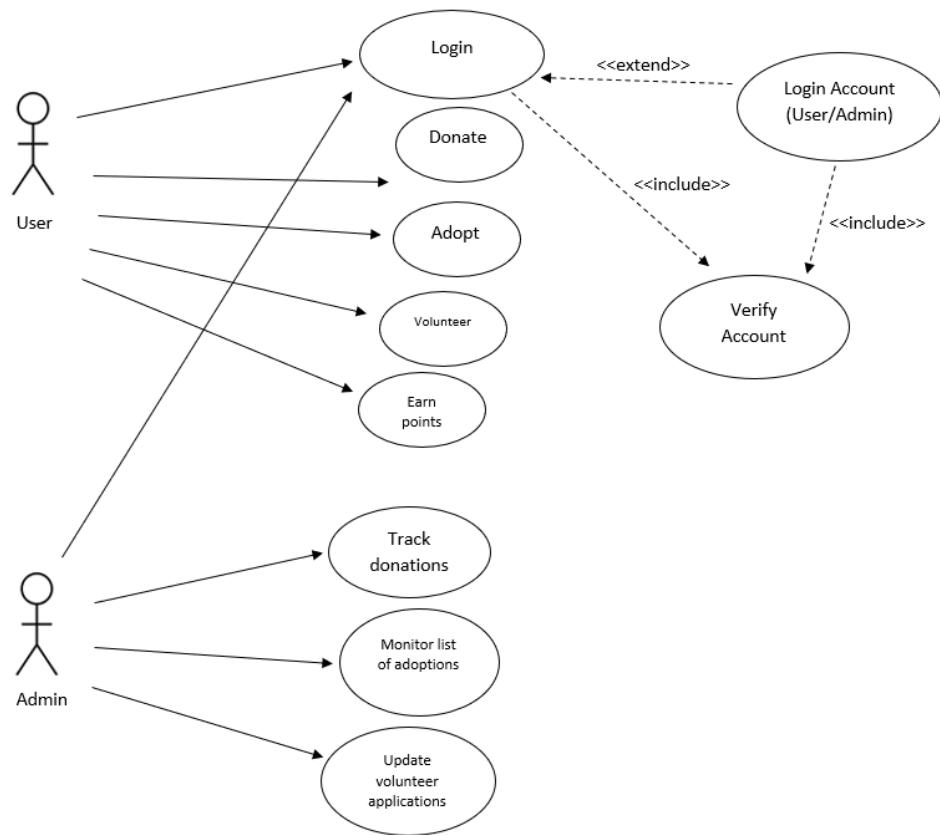


Figure 3.2: The figure shows the use case diagram for the user and admin of the system.

### 3.3.2 Functional Requirements

The following system's functional requirements are applicable to both the random user and the system administrator:

*REQ1* The system enables the user to create an account.

- The user will enter credentials such as username, email, and password.
- Verification of account by checking if:
  - Username is still available.
  - Email is active and not the same user.
  - Password includes needed characters.
  - Password is the same as the confirmed password.
- Account is added to the database if the input credentials are valid.

*REQ2* The system enables the user to log in to their accounts.

- The user provides the username and password registered in the database.
- If credentials match an account registered in the database, access is granted; otherwise, access is denied.

*REQ3* The system enables the user to visit profile page.

- The profile page consists of three subpages:
  - Home page
  - Information page
  - Contact page
- Information saved is displayed on the profile page.

*REQ4* The system enables user to log-out.

- The user will be logged out of the system when logout is clicked.

The following system's functional requirements are applicable to the random user:

*REQ1* The system enables the user to own a virtual pet.

- The virtual pet is automatically owned by the user who has an account.
- The user can choose to have either a cat, a dog, or a rabbit as a virtual pet.
- The virtual pet levels up its appearance once the user reached a certain number of virtual points.

*REQ2* The system enables the user to earn virtual points.

- The virtual points serve as the basis for leveling up.
- Leveling up includes additional accessories for the virtual pet.

*REQ3* The system enables the user to adopt a pet.

- The list of animals available for adoption is available to the user.
- Names and descriptions of the animal are displayed for the users to choose who to adopt.
- An application form is needed to be filled out.
- The information will be saved to the database.
- Virtual points is then earned by the user.

*REQ4* The system enables the user to volunteer at the Aklan Animal Rehabilitation and Rescue Center.

- An application form is needed to be filled out.
- The information will be saved to the database.
- Virtual points is then earned by the user.

*REQ5* The system enables the user to donate to the Aklan Animal Rehabilitation and Rescue Center.

- A donation form is needed to be filled out.
- Once donation is done, the information will be saved to the database.
- Virtual points is then earned by the user.

The following system's functional requirements are applicable to the system administrator:

*REQ1* The system enables the admin to monitor the list of animals available for adoption by verifying their action requests. The request is verified if the system admin receives a confirmation from AARRC that the adoption was successfully completed by the user.

*REQ2* The system enables the admin to monitor and update the list of volunteers for the rescue center by verifying their action requests. The request is verified if the system admin receives a confirmation from AARRC that the volunteers successfully completed the application.

*REQ3* The system enables the admin to track donations made by the users by verifying their action requests. The request is verified if the system admin receives a confirmation from AARRC that the donation was successfully completed by the user and the money was received by AARRC.

### **3.4 User Specifications**

The possible users of the study are the following:

**RANDOM USER.** This user can create an account to use the animal rescue system. This user can donate, adopt and volunteer to AARRC through this Rescue Pets animal rescue system.

**SYSTEM ADMINISTRATOR.** The admin is responsible for managing the overall activity of the random users of the system. This user can track donations from the users can monitor the list of adopted animals from AARRC, and can update volunteer applications for AARRC.

**THESIS ADVISER.** The thesis adviser is the person with authority having the full knowledge of the special problem being conducted. The thesis adviser guides and provides meaningful advice to the researchers on the duration of the research activities.

**RESEARCHERS.** The researchers serve as the first user and beneficiaries of the study. If implemented, the researchers are the primary user to engage in doing activities in the system such as donating, adapting, and volunteering in AARRC.

### **3.5 Technical and Software Specifications**

Various software applications used for the study are considered during the planning and development phase conducted by the researchers.

**Microsoft Windows 10.** This tool was used as the main operating system for developing the system.

**TexStudio and Microsoft Word.** These tools were used for documentation purposes. They were used for the compilation of initial drafts and final copy of the SP document.

**Zoom application.** This was used for consultations and meeting with the adviser since face-to-face is not possible, this application was used by the researchers for consultations and meetings with the adviser.

**Github.** This was used for version control of the system and for easier collaboration. Github lets the researchers work together remotely.

**Adobe XD.** This is a prototyping tool for user experience and interaction designers. The tool was used for the initial prototype of the system.

**Sublime Text** This is a text editor used by the researchers in documenting the codes used to build the system

## 3.6 Persons Involved

**ADVISER.** Being the co-author of the study, this person helps and supports the researchers on the duration of the conduct of the study.

**RESOURCE PERSON.** Representative from Aklan Animal Rehabilitation and Rescue Center is the resource person to ensure that the system is appropriate for the users and the information is validated from the organization.

**PROGRAMMER.** The programmer develops the appropriate system to perform methods and generate results in applying the gamification and log-in features.

**RESEARCHERS.** The researchers perform the handy activities from inquiry, consultation, data gathering, system development, testing until the study is accomplished.

# **Chapter 4**

## **Results and Discussions**

This chapter discusses the results and discussions of the study. As specified, the study focuses on building an animal rescue system that implements gamification for the Aklan Animal Rescue and Rehabilitation Center in Kalibo, Aklan.

## 4.1 Account Creation

### 4.1.1 Sign-up Page

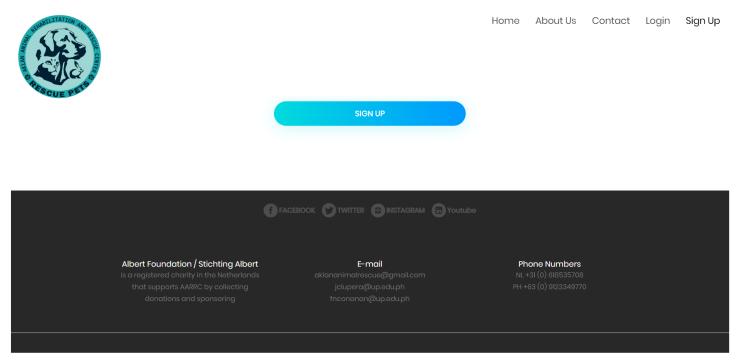


Figure 4.1: User's Sign-up Page

Figure 4.2: User's Sign-up Form

Upon visiting the website, the user is given the option to sign up or not. Once a first-time user, the user is greeted with the sign-up page as shown in Figure 4.1.

After opting to sign up, the user must complete the sign-up form, as shown in Figure 4.2. A unique username, email address, and password must be provided by the user. A valid password must be at least 8 characters in length and contains at least one uppercase letter, one digit number, and one special character. After

signing up, the system greets the user by a thank you page and prompted to check email for verification.

#### 4.1.2 Account Verification

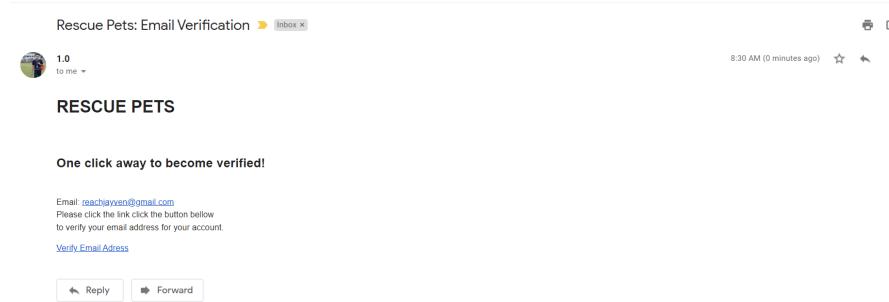


Figure 4.3: Account Verification Message sent to User's Email

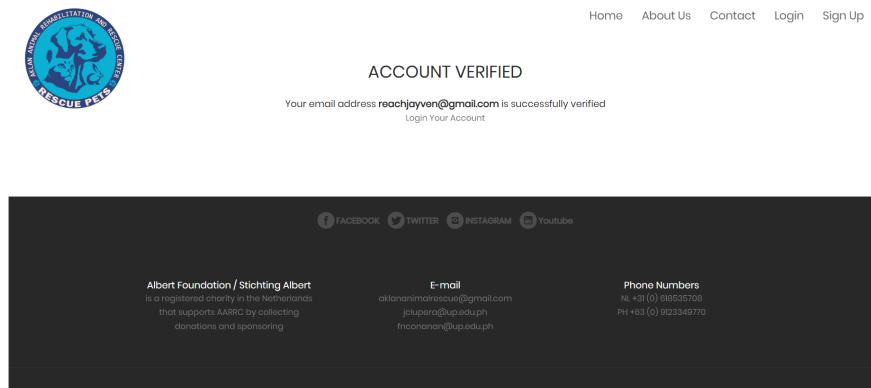


Figure 4.4: Account Successfully Verified

The account generated once the user has signed up in the system is not yet fully functional. When attempting to log in, the user is notified that the account has not yet been verified, and is given the option to do so via email.

The system sends an account verification message to the user's email address as shown in Figure 4.3. To fully verify the account, the user simply clicks the "verify"

email address” option in the email sent by the system.

After verifying email address, the action displays “Account Verified” message on the page and allows the user to login to their account again by displaying a “Login Your Account” button as shown in Figure 4.4. When the user clicks the login your account, the system redirects the user to the login page and allows the user to log in using now the user’s verified account.

#### **4.1.3 Google Login**

The user has two alternatives for logging in after creating and verifying an account. The user can either manually log in by typing the credentials from the created account or use Google account to log in.

#### 4.1.4 Edit Profile

The form consists of three input fields: 'First Name' containing 'Jayven', 'Last Name' containing 'Lupera', and 'Phone number' containing '09179961061'. A green 'Confirm' button is located at the bottom right.

Figure 4.5: Edit Profile Form

Only the user's username, email address, and password are asked during signup. In the navigation bar, the username will automatically appear as the user's name.

The user must edit important credentials such as first name, last name, and phone number after logging in as shown in Figure 4.5. The system saves the profile information edited by the user and automatically updates the username in the navigation bar based on the firstname and lastname given by the user.

If the profile information is already saved, the system only overwrites the details in the forms needed for adoption, donation, and volunteering.

## 4.2 User Page

### 4.2.1 Profile Page

The system will automatically allow the user to own a virtual pet after logging in. The user can have a virtual pet that is either a cat, a dog, or a rabbit. On

the user's profile page, the user's chosen virtual pet is displayed. The virtual pet begins at level one. The more the user interacts with the system, the more points the virtual pet will accumulate, allowing it to level up. Moreover, the profile page also displays that the user can opt to adopt, donate, and volunteer for AARRC.

## Adopt

The screenshot shows a web-based adoption form. It consists of several input fields and a submit button. The fields are arranged in pairs: First Name (Jayven) and Last Name (Lupera), Email (jclupera@up.edu.ph), and Phone number (09179961061). Below these is a section for Pet to adopt, which contains two checkboxes:  Cat and  Dog. The final section is Inquiry, which has a placeholder text "Ask something..". At the bottom right of the form is a green "Submit" button.

Figure 4.6: Adoption Form

If the user selects the *Adopt* option, an adoption form must be completed as shown in Figure 4.6. Available animals for adoption are shown on the system's home page. If the user's profile information has already been updated, the user just need to choose between a dog or a cat for the pet to adopt and can ask for

inquiries if needed.

### Donate

The screenshot shows a donation form titled "Donate". The form consists of several input fields and a dropdown menu. The input fields are: First Name (Jayven), Last Name (Lupera), Email (jclupera@up.edu.ph), Phone number (09179961061), and Amount (Amount of donation..). Below these is a dropdown menu labeled "Mode of donation" with options: • Paypal, • Paypal (selected), • Bank Transfer, and • Gcash. At the bottom right is a green "Submit" button.

Figure 4.7: Donation Form

If the user selects *Donate* option, a donation form must be completed as shown in Figure 4.7. If the user's profile information has already been updated, the user needs to indicate the amount of donation, mode of donation, and can ask for inquiries if needed. The user can choose the mode of donation between Gcash, Paypal, and bank transfer.

## Volunteer

First Name	Jayven
Last Name	Lupera
Email	jclupera@up.edu.ph
Phone number	09179961061
Volunteer's Tasks	<ul style="list-style-type: none"> <li>• Cleaning cat kennels</li> <li>• Clean the dog enclosures</li> <li>• Walking dogs to the beach (Andagao) or to the river (Linabuan Sur) on leash</li> <li>• Play with kittens and puppies for socialisation</li> <li>• Landscaping, gardening and other odd jobs around the house</li> <li>• Maintain web site or other AARRC social media</li> <li>• Raise funds for events</li> <li>• Organise events to raise funds</li> </ul>
Inquiry	

**Submit**

Figure 4.8: Volunteer Form

If the user selects *Volunteer* option, a volunteer form must be completed as shown in Figure 4.8. If the user’s profile information has already been updated, the user is asked to choose from the tasks that can be done in the rescue center. The tasks that the volunteers can do are: cleaning cat kennels; cleaning the dog enclosures; walking the dog to the beach or to the river; playing with kittens and puppies for socialisation; landscaping, gardening, and other odd jobs around the house; maintaining the website or other AARRC social media; raising funds through events; and organising events to raise funds. Additionally, the user can ask for inquiries if needed.

### 4.2.2 Home Page

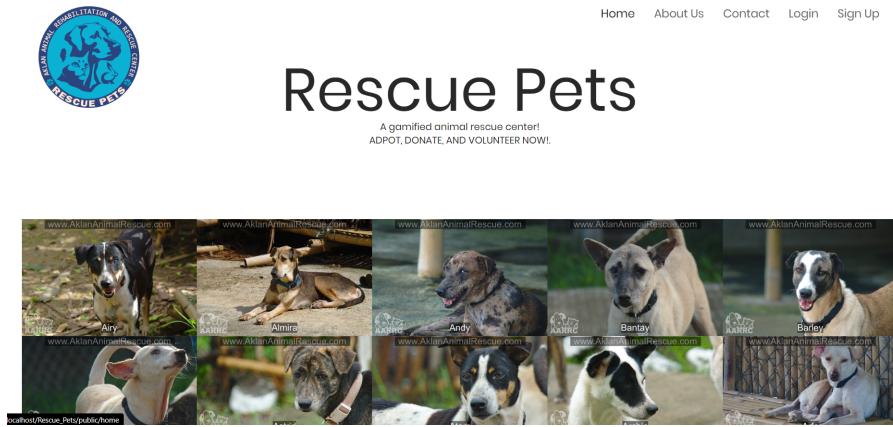


Figure 4.9: Home Page of the System

The animals that are available for adoption are listed on the system's home page as shown in the Figure 4.9. A brief description of the selected animal appears when the cursor is hovered over it. If the user clicks the image, the system redirects the user to the AARRC website, where the animal and its description are displayed.

### 4.2.3 Information Page

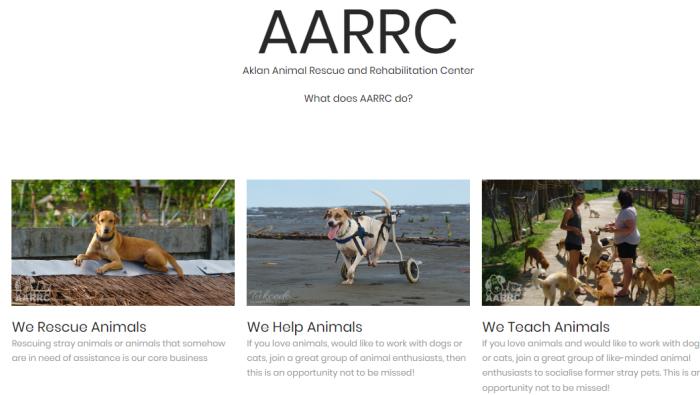


Figure 4.10: AARRC's About Us

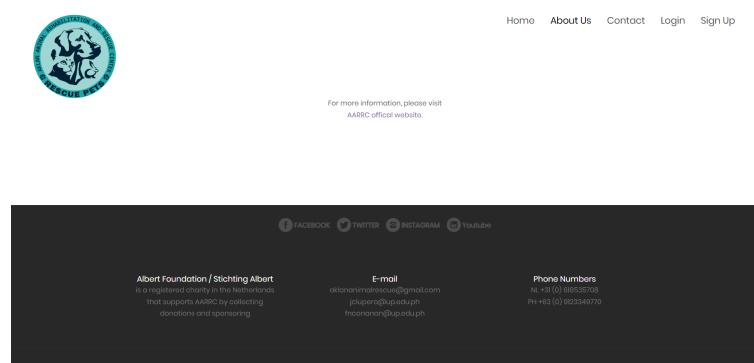


Figure 4.11: AARRC's Official Website Accounts

The information page of the system is named “About Us” in the navigation bar. In this page, the user can view what does AARRC do as shown in Figure 4.10. As part of AARRC’s activities, the organization rescue, help, and train animals. AARRC’s official website, Facebook, Twitter, Instagram, and Youtube pages are also available and the system redirects the user with links to these social media sites as shown in Figure 4.11.

#### 4.2.4 Contact Page

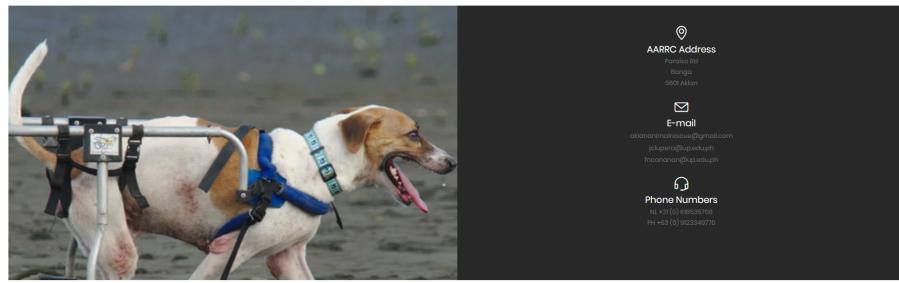


Figure 4.12: Contact Information of AARRC and the Developers

The AARRC’s address, email address and phone number can be found on the contact page as shown in Figure 4.12. For additional contact persons, the email addresses and phone numbers of the developers are made available.

## 4.3 Admin Verifying Actions

ID	Username	Name	Phone Number	Email	Request	Details	Status	Action
983	user1	Jayven Lupera	09179961061	jchupera@up.edu.ph	adopt	Pet to adopt: dog Inquiry:	Confirmed	<a href="#">Delete</a> <a href="#">Verify</a>
999	user1	Jayven Lupera	09179961061	jchupera@up.edu.ph	donate	Answer: 1 Mode of Donation: Paypal Inquiry:	Pending	<a href="#">Delete</a> <a href="#">Verify</a>
1001	user1	Jayven Lupera	09179961061	jchupera@up.edu.ph	donate	Answer: 1 Mode of Donation: Paypal Inquiry:	Pending	<a href="#">Delete</a> <a href="#">Verify</a>
1005	user1	Jayven Lupera	09179961061	jchupera@up.edu.ph	donate	Answer: 1 Mode of Donation: Paypal Inquiry:	Pending	<a href="#">Delete</a> <a href="#">Verify</a>
1006	user1	Jayven Lupera	09179961061	jchupera@up.edu.ph	donate	Answer: 1 Mode of Donation: Paypal Inquiry:	Pending	<a href="#">Delete</a> <a href="#">Verify</a>
1007	user1	Jayven Lupera	09179961061	jchupera@up.edu.ph	donate	Answer: 1 Mode of Donation: Paypal Inquiry:	Pending	<a href="#">Delete</a> <a href="#">Verify</a>

Figure 4.13: Admin Panel of the System

The system enables the admin to monitor the list of animals for adoption, track donations from the users, and monitor and update the lists of volunteers for AARRC. Through the admin panel, as seen in Figure 4.13, the admin can view the user's activity while interacting with the system. The ID, username, name, phone number, email, action request, action request details, status (approved or pending), and admin action (verify or delete the request) are available in the admin panel. Moreover, the admin can sort the ID, username, action request, and status of the request in the admin panel.

If the admin clicks *verify* in the admin action, the action request is removed from the panel and the virtual pet automatically earn virtual points. On the other hand, if the admin clicks *delete* in the admin action, the action request is removed from the panel and no virtual points is accumulated.

The admin verifies action requests for adoption and volunteering if the application form has been thoroughly evaluated by AARRC and the user is qualified to adopt and volunteer. When it comes to donations, the admin verifies action requests if

the donation provided by the user has already been received by the AARRC.

## 4.4 Gamification

### 4.4.1 Virtual Pet

The user is given a virtual pet after creating an account. The user's virtual pet is either a cat, a dog, or a rabbit, depending on the user's choice. The system includes a virtual pet to increase user engagement and urge them to spend more time with the system. Adding a virtual pet to the system creates empathy, as humans care about something they own.

The following graphical representation of virtual pets is used to transition from the pet's initial appearance to its rescue pets appearance:

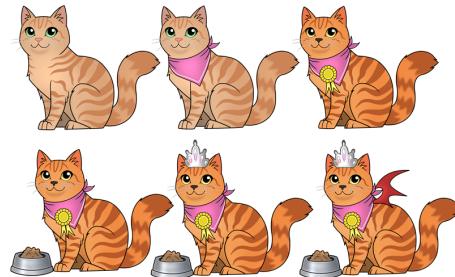


Figure 4.14: Transition of Virtual Cat's Appearance

Figure 4.14 shows the transitioning of virtual cat's appearance from level 1 to level 6. Level 1 displays a cat with no accessories, level 2 shows a cat with a handkerchief around its neck, level 3 adds a ribbon to the cat's handkerchief and darkens cat's color, level 4 adds cat food, level 5 adds a crown, and level 6 adds wings to the cat.



Figure 4.15: Transition of Virtual Dog's Appearance

Figure 4.15 shows the transitioning of virtual dog's appearance from level 1 to level 6. Level 1 displays a dog with no accessories, level 2 shows a dog with a handkerchief around its neck, level 3 adds a ribbon to the dog's handkerchief, level 4 adds dog food, level 5 adds a crown, and level 6 adds wings to the dog.

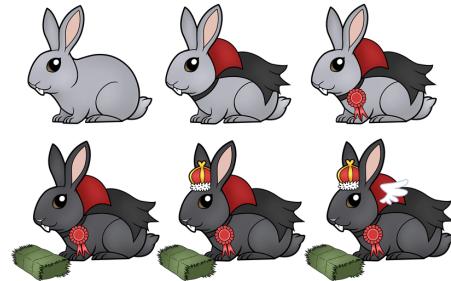


Figure 4.16: Transition of Virtual Rabbit's Appearance

Figure 4.16 shows the transitioning of virtual rabbit's appearance from level 1 to level 6. Level 1 displays a rabbit with no accessories, level 2 shows a rabbit with a cape around its neck, level 3 adds a ribbon to the rabbit, level 4 adds rabbit's food and darkens rabbit's color, level 5 adds a crown, and level 6 adds wings to the rabbit.

#### 4.4.2 Virtual Points

The virtual points are used to integrate the gamification feature into the system. Virtual points validate the users' efforts and generosity in helping the AARRC because virtual points are earned from each transaction completed by the user. Earning virtual points to level up allows the pet to transition from its original appearance to its rescue pet appearance.

The blue bar (which denotes level) progresses as the virtual points progress, and the appearance of the virtual pet progresses as the level progresses.

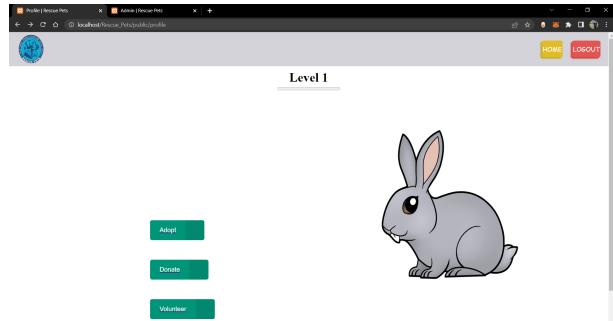


Figure 4.17: Level 1 of the virtual pet's appearance

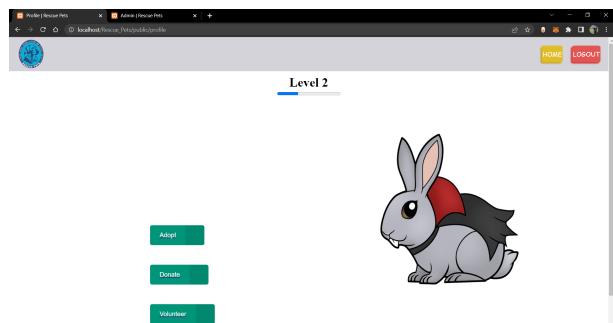


Figure 4.18: Level 2 of the Virtual pet's Appearance

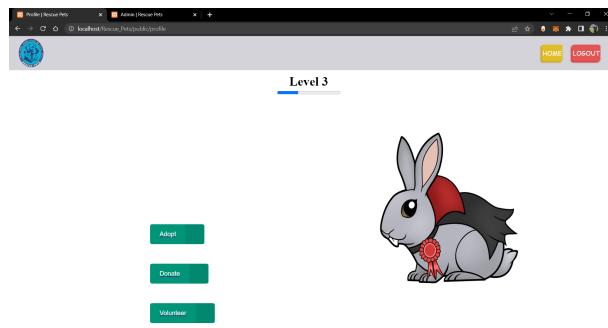


Figure 4.19: Level 3 of the Virtual pet's Appearance

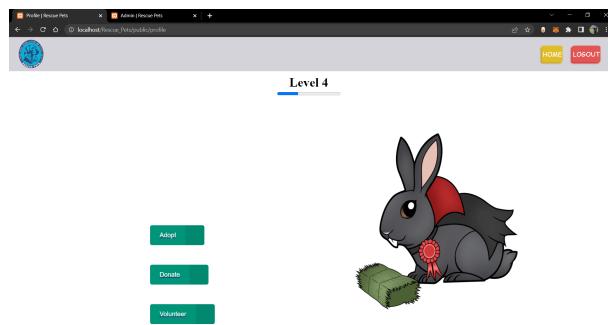


Figure 4.20: Level 4 of the Virtual pet's Appearance

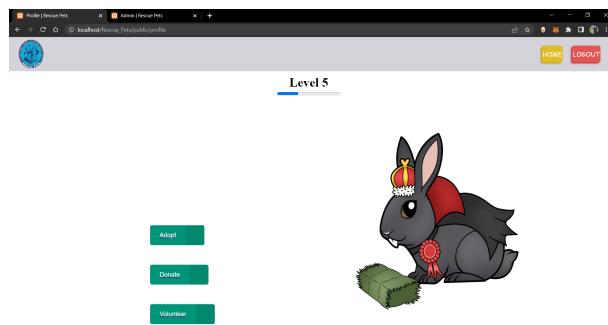


Figure 4.21: Level 5 of the Virtual pet's Appearance

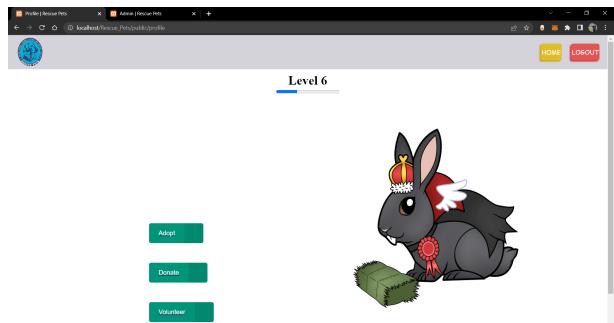


Figure 4.22: Level 6 of the Virtual pet's Appearance

# **Chapter 5**

## **Conclusion**

This chapter presents the conclusion and recommendations of the study. This includes the conclusion of the important results based on the development of the animal rescue system and recommendations that can be made for future development of the study.

### **5.1 Conclusion**

Gamification is a creative way that motivates more users to engage in a system. It's an effective instrument that motivates players to do tasks that they would not normally do in the existing systems. Giving users a fulfilling and rewarding experience will not only entertain them, but it will also give them something to anticipate and drive them to return to the system repeatedly. Towards this goal, this study has taken the initiative to apply gamification in an animal rescue system partnered with an existing rescue center in Aklan, which is the Aklan

Animal Rehabilitation and Rescue Center.

To conclude, the system developed includes a gamification feature in a functioning web-based rescue system that allows a user to create an account, own a virtual pet that earns virtual points everytime the user engages in the system by donating, adopting, and volunteering at the partnered organization, the Aklan Animal Rehabilitation and Rescue Center, and allowing the user's virtual pet to level up through the virtual points earned.

Because of the gamification feature, the web-based system not only allows users to help and support the Aklan Animal Rehabilitation and Rescue Center, but it also allows the users to enjoy a more engaging system by looking forward to attaining the next level.

## 5.2 Recommendation

For the study's future development, the following are some of the recommendations:

1. Some features that were not included in the final version of the system could be implemented by the developers in the future.
2. The researchers recommend that the system's user interface be improved by making it more gamified-looking in order to make it more appealing and engaging to users.
3. The researchers recommend developing a mobile version of the system since a web-based system always requires an internet connection to be accessed.

4. The researchers want to recommend the study's concept to the AARRC so that the rescue center's existing web-based rescue system, similar to Rescue Pets, can be gamified. Furthermore, AARRC is advised to follow the study's objectives and functions if the organization wishes to apply gamification in its existing web-based system.



# Chapter 6

## References

- Aklan Animal Rehabilitation and Rescue Center. (2020, April). *Animal welfare in the philippines - aarrc philippines*. ROI Media. Retrieved from <https://aklananimalrescue.com/animal-welfare/>
- Developers, G. (n.d.). *Integrating google sign-in into your web app*. Retrieved from <https://developers.google.com/identity/sign-in/web/sign-in>
- Gabriel. (2020, July). *Gcash makes it easier for green heroes to digitally plant trees*. Manila Republic. Retrieved from <https://www.manilarepublic.com/gcash-makes-it-easier-for-green-heroes-to-digital-plant-trees/14671/>
- Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does gamification work?—a literature review of empirical studies on gamification. In *2014 47th hawaii international conference on system sciences* (pp. 3025–3034).
- Hamilton, T. (2021, November). *Agile methodology: What is agile model in software testing?* Retrieved from <https://www.guru99.com/agile-scrum-extreme-testing.html>

- Index, A. P. (n.d.). *Recognition of animal sentience and prohibition of animal suffering.* (World Animal Protection.
- Magazine, A. (2019, June). *Digital: Gcash launches ‘gcash forest’ in partnership with denr, wwf, and biofin to increase tree plantation in the philippines.* Retrieved from <https://www.adobomagazine.com/philippine-news/digital-gcash-launches-gcash-forest-in-partnership-with-denr-wwf-and-biofin-to-increase-tree-plantation-in-the-philippines/>
- Merriam-Webster. (n.d.). *Gamification.* Retrieved from <https://www.merriam-webster.com/dictionary/gamification>
- Philippine Animal Welfare Society. (2013). *Programs.* ROI Media. Retrieved from <https://paws.org.ph/programs/>
- Svärd, P.-A. (2015). *Problem animals: A critical genealogy of animal cruelty and animal welfare in swedish politics 1844–1944* (Unpublished doctoral dissertation). Department of Political Science, Stockholm University.
- Zichermann, G., & Cunningham, C. (2011). *Gamification by design: Implementing game mechanics in web and mobile apps.* ” O'Reilly Media, Inc.”.

## **Appendix A**

### **Acceptance Letter**



University of the Philippines Visayas  
 College of Arts and Sciences  
 Division of Physical Sciences and Mathematics



May 6, 2022

**Ms. Jenie Mae Gumban**  
 Shelter Coordinator  
 Aklan Animal Rehabilitation and Rescue Center

Dear Sir/Ma'm:

Good Day!

We are 4th year students of Bachelor of Science in Computer Science from University of the Philippines Visayas. We are having our study about animal protection and we are planning to make an animal rescue system where people can adopt, donate in-kind or cash, or volunteer to help in the animal shelter. The system focuses on the application of gamification features to the existing system of the chosen animal rescue center and allows account creation and automatic log-in when using the system.

In line with this, we are asking if we could partner up with your rescue center, **Animal Rescue System of Aklan Animal Rehabilitation and Rescue Center**. This will include asking some information about your animal shelter and adapting some features from your current animal rescue system.

This request is submitted for your kind consideration and approval. Thank you and God speed!

Very truly yours,

---

**FELY MAUREEN N. CONANAN**

Researcher

---

**JAYVEN C. LUPERA**

Researcher

APPROVED BY:

**Ms. Jenie Mae Gumban**  
 Shelter Coordinator  
 Aklan Animal Rehabilitation and Rescue Center

## **Appendix B**

### **Resource Person**

**Ms. Jenie Mae Gumban**

Shelter Coordinator

Aklan Animal Rehabilitation and Rescue Center

+639123349770