Rescue Pets: Gamification Based Animal Rescue System of Aklan Animal Rehabilitation and Rescue Center

A Special Problem
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Chapter 1

Introduction

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. [1]

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 user and the system itself.

1.3.2 Specific Objectives

The specific objectives of the study are the following:

1. Implement a gamification feature in the system by having a virtual pet that monitors the transactions made by the user.
2. Records virtual points for every activity done by the user.
3. Apply for account creation before registering for the system.
4. Apply automatic log-in when using the system.

1.4 Scope and Limitations of the Research

The study adapts 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

AKLAN ANIMAL REHABILITATION AND RESCUE CENTER. This study would help the AARRC provide better services to the public in terms of rescuing, adopting, and caring for stray animals. This will also assist 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 will help in adding a way to improve pet health in the community of Aklan. This study will assist the Aklanon community in locating an animal rescue system that will care for their rescued pets. It can also help them locate rescue organizations when they want to adopt a pet or make a donation.

PET LOVERS. This study will provide 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

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 (Svard, 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[2].

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 can donate cash or in-kind to the organization, they can 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[3].

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.

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[4].

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 aims to adapt AARRC's current system while adding new features such as account creation and having a virtual pet. The current study aims to add account creation and gamification features to the system to increase user engagement. By including account creation, users will be 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 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 aims to help 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[5].

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 [6].

The present study will use a gamified feature as well, but instead of virtual trees, a virtual pet will be 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 that will be built.

2.5 Gamification

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.[7] A study titled "Does Gamification Work?" was conducted. — A Literature Review of Empirical Studies on Gamification" (Hamari et al., 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.[7]

Gamification is the method of using gameplay mechanics and game thinking to user engagement and resolve issues (Cunningham et al., 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 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 (Cunningham et al., 2011). 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.[8]

The current study will employ gamification features to improve user engagement. This will be accomplished 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.

2.6 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. [9]

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 will make 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

3.1 Research Activities

3.1.1 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.[10] 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 .[11]

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. [12]

3.1.2 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.

3.1.3 Technical and Software Specifications

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

- Microsoft Windows 10 for operating system
- TexStudio and Microsoft Word for Documentation
- Zoom application for consultations and meeting with the adviser
- Github
- Adobe XD

3.1.4 User Specifications

The possible users of the study are the following:

AARRC. The Aklan Animal Rehabilitation and Rescue Center is the study's primary beneficiary and will also serve as the admin of the system. If implemented, the study, specifically the animal rescue system built, will be of greater assistance to the rescue center in its search for people who want to adopt, volunteer, or donate to the rescue center by posting updates in the system.

AKLANON COMMUNITY. The study, specifically the system, can be used by the Aklanon community to search for pets to adopt. Using the system, the community can also volunteer and donate to the rescue center.

ADVISER. The adviser must be a person of authority having full knowledge on the research problem being conducted. The Adviser guides, supervises and provides meaningful advice to the researchers on the duration of the research activities.

RESEARCHERS. The researchers are the firsthand users and beneficiaries of the study under research. If implemented, the study is attributed to the researcher as the prime mover of engaging to the animal rescue system developed and built.

3.1.5 Testing and operation

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) developers and e) random users.

3.1.6 System Implementation

The system's possible 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. Because the study's focus is on the application of gamification and log-in features to the animal rescue system, the study will be implemented after careful and successful testing and operation of the system by domain experts.

3.1.7 Methods

Federated login

The internet is a vast world, and its population of users just grows day-by-day. This is more prevalent as the pandemic caused lockdowns that brought everything online. People create different user accounts, social media, educational sites, lifestyle applications, and many other more. This results in many accounts signing in credentials to remember, and we all know how passwords can be a pain, we just can't help but forget it. Some users may opt to have the same password on multiple different accounts just so that they will not forget it, which is a big security risk. One solution to avoid this problem without sacrificing the safety of the user is by using federated login. Federated login means that the user authenticates by using a third-party service such as Google or Facebook, besides others, and not reentering any credentials or profile information.

Account Creation

3.1.8 Procedure

Integration of Federated login

We will use Google sign-in as a federated login tool for the website. According to Google, Google sign-in manages the OAuth 2.0 flow and token lifecycle, simplifying the integration with Google APIs. OAuth 2.0 is the industry-standard protocol for authorization. The steps and guide below will be taken from Google's own developer website, https://developers.google.com. First step is to create authorization credentials, any application that uses OAuth 2.0 to access Google APIs must have authorization credentials that identify that application to Google's OAuth Server (Google. (n.d.).

1. Go to the Credentials page, *https://console.developers.google.com/apis/credentials*.
2. Click **Create credentials** → **OAuth client ID**.
3. Select the **Web application** type.
4. Name your OAuth 2.0 client and click **Create**.

After configuration is complete, take note of the client ID that was created. You will need the client ID to complete the next steps. (A client secret is also created, but you need it only for server-side operations.)

5. Load the Google Platform Library.

6. Specify the app's **client ID** created for the app in the Google Developers Console with the google signin-client-id meta element.

7. Add a Google sign-in button, the default Google sign-in button that uses the default setting needs to add a div element with the class g-signin2 in the sign-in page.

8. Get profile information by using the getBasicProfile() method.

   Enabling user to sign out of the web app without signing out of Google by adding a sign-out button or link to the web site. To create a sign-out link, attach a function that calls the GoogleAuth.signOut() method to the link's onclick event.

3.2 Calendar of Activities

The researchers scheduled the activities on the duration of the conduct of the study, as shown in Table 3.1. Each bullet represents approximately one week worth of activity.

Table 3.1: Timetable of Activities

Activities (2021-2022)	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Identify possible SP topics	•							
Proposal of chosen SP topic to the adviser		•						
Approval from the adviser of the chosen SP topic		•						
Presentation of use cases and workflow of the system		•						
Research for related literatures		•	••••					
Making of research proposal (First draft)	•	••••	•					
Development of the System		•	••••	••	••	••••		
Testing and operation				••			••••	
Analysis and Interpretation of results						••••	••••	
Discussion of results				••••			••••	••••
Documentation	•	••••	••••	••••	••••	••••	••••	••••

Chapter 4

Preliminary Results/System Prototype

4.1 Preliminary Results

The state of the current web-based systems of animal rescue centers are straightforward and simple. It is important to make it as user-friendly as possible so that it would be easier for the users to engage in the system. But simplicity does not always mean the more users would engage on it. Gamification integrates the "human" to the system and is considered in designing that will motivate more users to take part in using the system.

There are general ways in finding out what motivates the user of an animal rescue center, we then use that motivation to drive the users to do certain actions that they would not normally do. The specific motivation for a web-based animal rescue system that we used is a virtual pet that evolves when it will reach a certain level. The way to gain experience points to level up is by doing actions in a typical animal rescue system like donating, adopting, and volunteering.

4.2 System Prototype

4.2.1 Home Page

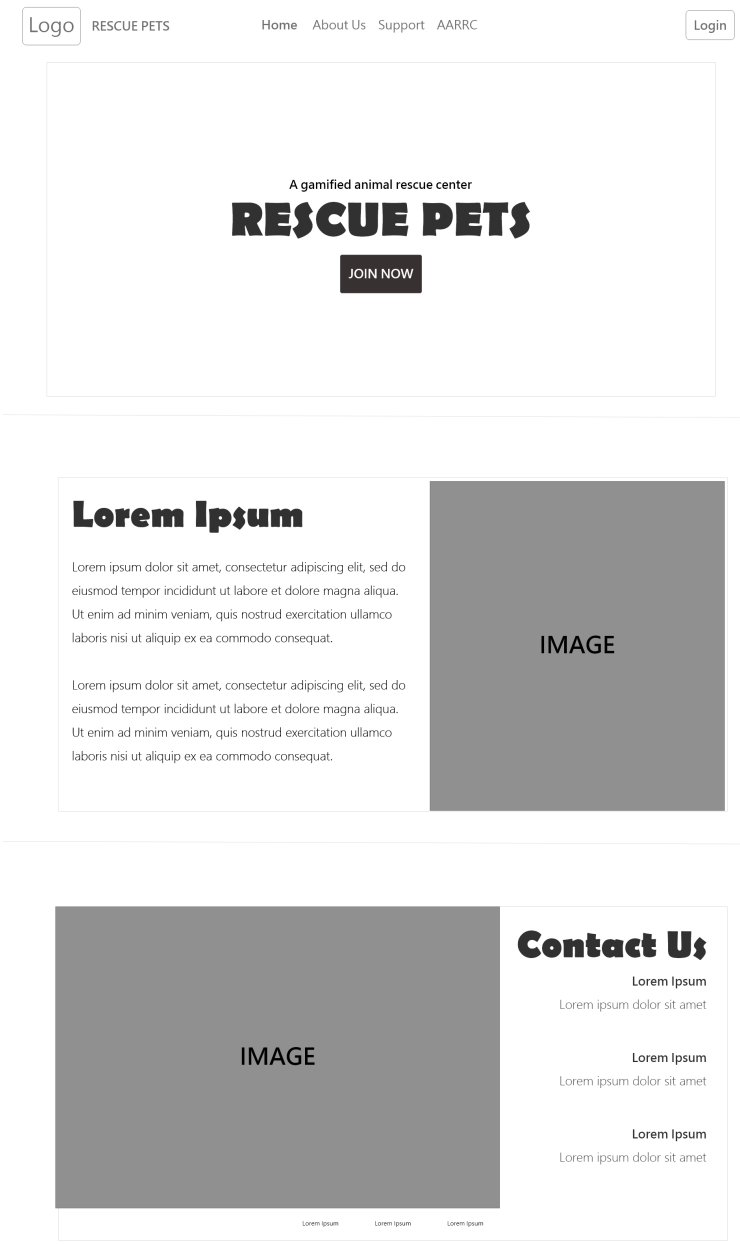

Figure 4.1: The homepage of the system consists of three sub-pages: the main page, the information page, and the contacts page. Each page can be accessed either by scrolling or aside clicking each corresponding button at the navigation bar above the home page. In the navigation bar. The main page has a "Join Now" button where users can create an account and sign up.

4.2.2 Sign Up Page

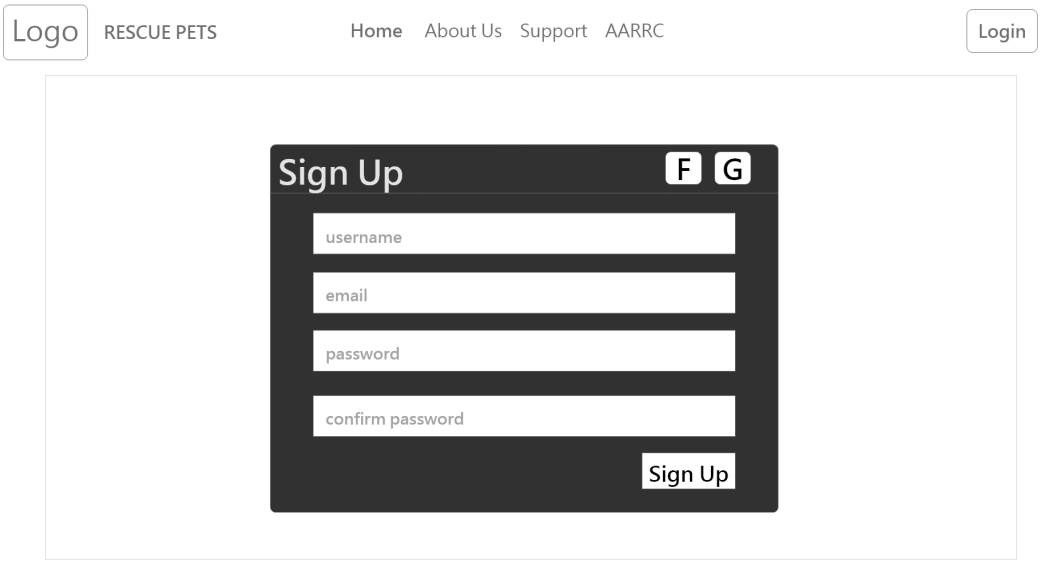

Figure 4.2: The sign up page shows a form where the user will input credentials such as username, email, and password. These credentials are used to make an account for the user to access exclusive features such as the virtual pet. The user can also use third-party services to provide necessary information for signing up such as Facebook and Google.

4.2.3 Navigation Bar

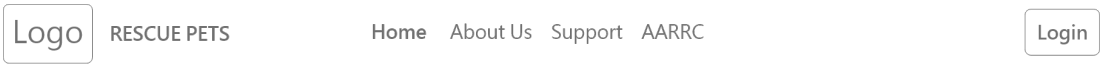

Figure 4.3: The navigation bar or the menu bar of the system consists of the brand logo and name, the home link, information link, contacts/support link, and the link to *Aklan Animal Rescue and Rehabilitation Center's* website, and the Login button where users can input their account credentials to sign in.

4.2.4 Log-in Page

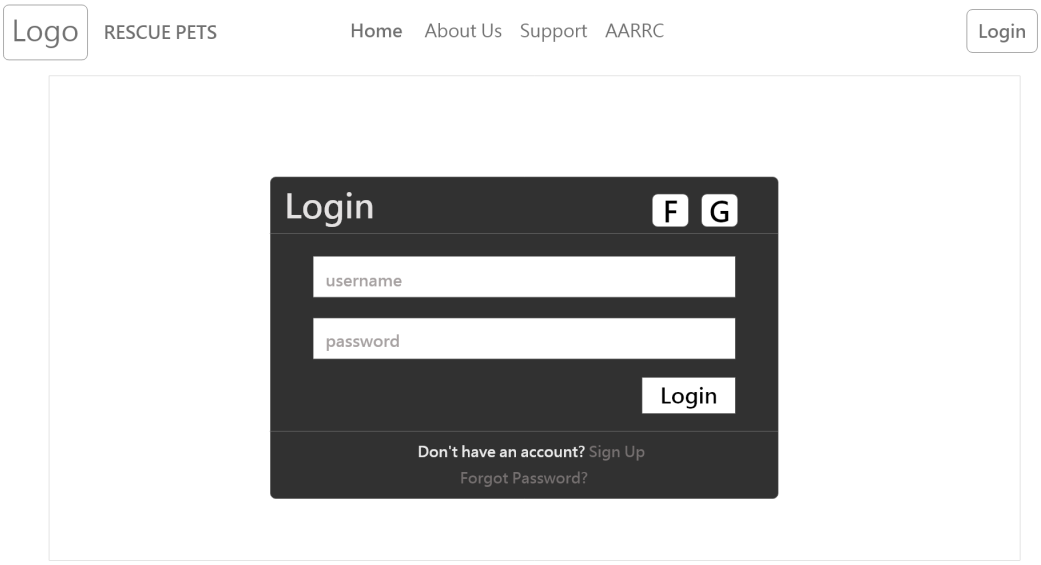

Figure 4.4: The login page allows the user that has already an existing account to sign in to the system. The user is asked to input the username and password or either use third party services such as Facebook and Google to login.

4.2.5 Profile Page

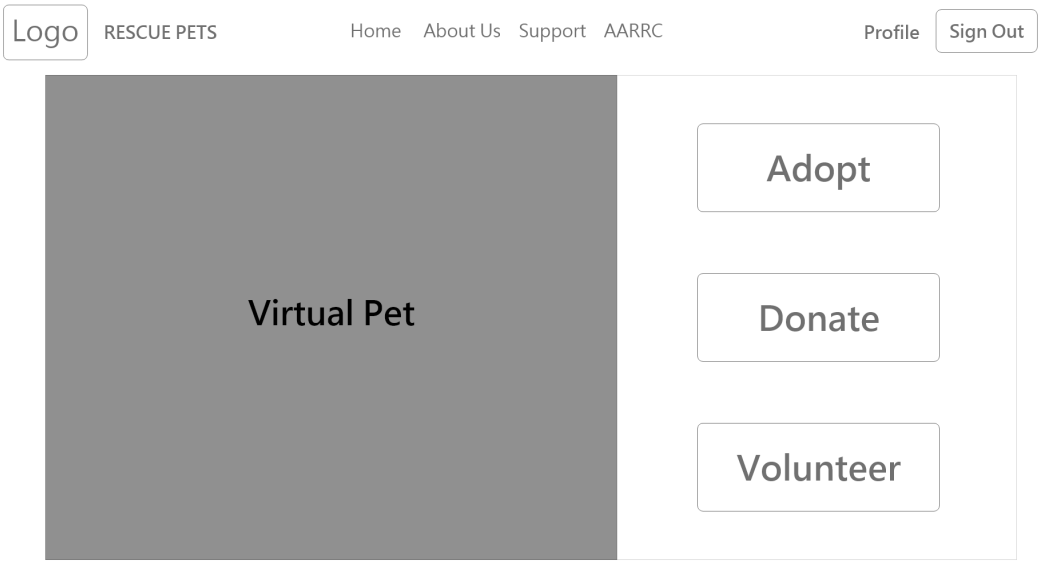

Figure 4.5: The user is then greeted by the profile page after logging in to the system. Profile page consists of the user's virtual pet where information such as level, experience points, and evolution will be shown. It also consists of the adopt, donate, and volunteer button where the user can increase their virtual pet's experience point to level up.

Appendix A

Appendix

Appendix B

Resource Persons

Dr. Firstname1 Lastname1
Adviser
Affiliation1
emailaddr@domain.com

Mr. Firstname2 Lastname2
Role2
Affiliation2
emailaddr2@domain.com

Ms. Firstname3 Lastname3
Role3
Affiliation3
emailaddr3@domain.net

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