# PawPet Mobile Application Proposal:
# Managing and Improving a Pet's Health

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**Abstract**

Past research has shown there is a need of some sort of app or portal management tool to manage pet health and improve the overall quality of life of such. As the number of pet owners increased during the pandemic the necessity for a such tool became more apparent.  Although there are applications that have previously been developed with the aim to improve dogs and cats' health, most are not tailored for first-time pet owners. Furthermore, the lack of awareness regarding what is considered a suitable environment to care and raise a pet is placing many of these animals at risk of contracting serious health conditions that can have long term consequences. The central aim of the PawPet application is to focus on proactive awareness by aiding users in the improvement of their pets' health and quality of life. To accomplish this goal the PawPet app looks to provide users with suggestions, articles, and items that can be of service to the user and its pet and ensure that users all over the nation can provide their pets with the love, care, and attention the pet's need.

## 1.0 Introduction

Technology has helped many businesses keep track of their inventory, patient health records, and general information, organized and accessible. Nevertheless, there is an inefficiency when it comes pet vet care (Pradheep Kumar, M., et al. 2017) and awareness about the proper care a pet requires. A pet owner is responsible for overseeing their pet's health and overall well-being by making trips to the vet and ensuring that the pet has all essentials covered to provide an optimal environment where it can be raised.

### 1.1 Background

Owning a pet can bring people incredible joy, happiness, and even provide them with support they may need, but we need to remember that owning a pet is a privilege that comes with many responsibilities. Since pets are unable to speak for themselves and advocate for their needs, it is essential that the owner of such pet advocates and cares for the needs of their pet. Regarding newborns or older pets, the cost and care that they need increases due to the preventative health care or medical attention they may need for any illnesses or injuries. Some pet owners struggle to keep track of their pets' vaccinations, medical or clinical history, and the different types of medications or supplements the pet may be taking or have taken in the past. Being able to provide optimal health care for a pet is vital to improving their overall life quality. As such being able to manage and gain an awareness of your pet's health as they grow up can help prolong and enhance the life of your pet.

### 1.2 Motivation

The PawPet app aims to support pet owners with their organization, planning, and preventative care of their pets. Some dog owners either lose the printout of their pet's medical

visits, lack organization, or they may simply forget due to their busy lifestyles. Additionally, even if pet owners have a regular vet, it may have a hard time managing their pet's medical history or may lack the knowledge to provide the necessary care/support the pet might need. As such this app will help keep track of the pet's vaccination and medication records, any surgical procedure the pet might have undergone or will undergo in the foreseeable future, the pet's growth over time, and any special dietary restrictions the pet might have or had. Consolidating all information regarding the pets in one app will help pet owners when they take their canines to their vet visits, grooming or training sessions. Additionally, this app will provide pet owners with information regarding the care and health of their pet.

### 1.3 Related Work

*1.3.1 Using Mobile Apps to Improve Emergency Care for Pets*

There have been previous mobile applications that have aimed to improve the approach of health care for pets, in particular emergency care for pets (dogs/cats). One such was the mobile application proposed in the journal *Health experts for pets using mobile apps* at the International Conference on Algorithms, Methodology, Models and Applications in Emerging Technologies (ICAMMAET) in 2017. This research focused on offering quick and effective emergency care for pets by supporting pet owners with continuous health monitoring and providing them with knowledge to the closest pet hospitals in case of an emergency. The research centered around three different challenges regarding efficiency in pet medical care/response. The first challenge is regarding the difficulty that comes when finding hospitals around a particular area, especially in emergency situations. The second challenge was the lack of efficiency when it came to scheduling vet visit. The last challenge the target consumer faces,

according to the article, is knowing or getting advised on the type of medicine their pets are/will be consuming. To address these first two challenges the research mentions that through this app the user will be able to schedule appointments for their pets at nearby vet offices saving time for the user and in emergency situations it will make the difference with quicker care for their pets'.

*1.3.2 Utilizing Mobile Applications to Prevent Future Health Problems*

Various research has been done that focused on preventative technology to prevent and improve the health of a pet. The research paper *Dogodo: IoT Based Mobile Application to Provide Essential Health Services to Dogs* presented at the 3rd International Conference on Advancements in Computing (ICAC) in 2021. This research focuses on detecting health issues in dogs in the early stages and provided the necessary remedies and eradicate symptoms that can cause major health issues in the long run. The journal mentions the limited systems for pets that have been built to monitor or manage their health. It also highlighted the difference between experienced and unexperienced dog/cat owners and how it impacts the care and health of the pet. Through an all-in-one IoT based software solution the user will be able to identify emotional, internal, and external issues for their pets. The sensor values will then predict and analyze the data to suggest necessary actions needed to take by the user for their pets' time series analysis of body temperature use of history data values to identify health patterns (L.V.I.S. Thilakarathne, M.S. Salay, et al. 2021). Such project would help pet owners manage and track their pet's health ensuring an increase of awareness.

*1.3.3 Using Dog Activity Monitoring Technology in Everyday Life*

Certain research that has been previously done gives insight to what dog owners are looking for in the applications and devices they utilize for their pet. An example of such is the research done by Heli V., Päivi M., et al. through the journal Happy Dogs and Happy Owners-Using Dog Activity Monitoring Technology in Everyday Life at the 5th International Conference on Animal-Computer Interaction in 2018. This research aimed to gain a more detailed insight into how dog owners use dog activity tracking and monitoring devices in everyday life. The recent growth in pet wearable market was one of the key factors to this study as dog owners' interest and awareness towards their dogs has increased with the development of these new technologies. For this research two studies were done to capture the motivations for using these technologies, user experience, and the impact of their use. The results from this research showed that the utilization of these technologies was motivated by monitoring dogs' health, behavior, learning related problems, and to balance the amount of activity and rest to appropriate level for their dogs' particular needs. The research also demonstrated that the utilization of these type of technologies inspire and motivate owners to spend more time with their dog and be more mindful or observant about their pets' behavior. The paper mentions that the interviewees wished for "more comprehensive statistics and context information". Context information in this case would help the user remember what happened on what day, where, when, with whom, what was the activity, and other possible goals. Additionally, this paper mentioned the user's desire for technology that can offer open access to their own dog's data and the ability for the that technology to save and compare the data over time as their dog's grow. Some of the desires and wants in new apps and technology, touch on some of the goals and objectives for the PawPet app.

**2.0 Problem Statement**

   According to an American Society for the Prevention of Cruelty to Animals (ASPCA) survey it has been shown that 23 million or one in five American households have acquired a pet during the COVID-19 pandemic. According to the survey 87% of respondents shared that they would not rehome their pets and suggest that the pet owners will continue to care and commit to providing for their pets'. As more people begin their journey into pet parenthood there is a list of duties that need to be taken care of to provide the pet with an adequate environment and health. Just like children who need to go for their yearly check-ups, pets need to go to regular vet visits for preventative care and avert any type of serious illnesses or diseases. But one problem many faces is the difficulty and complexity of vet care for the pet. Managing the health of a pet can be problematic and difficult to handle, especially due to the high cost that is attributed to maintaining the health of your pet and the different options and treatment plans for when you are getting your pet to build their immunity.

**3.0 Proposed Project & Significance**

The proposed project is a mobile application that will allow users to manage health records and track their pet's health. Additionally, this mobile app will serve as a guide for new pet owners who have little to no experience with the management of their pet's health. Anything from the necessary vaccinations for their new pet to what to look for in pet insurance will be included. Having this type of tool will help new and experienced owners have a visual of how their pets' health condition is and if they are being properly cared for. To hope for this mobile app is that by having some type of guide of how to take care of the new addition to the family, will not only decrease the number of pets' that get rehomed but also increase the awareness and bond that the owner has with the pet.

**4.0 Objectives (Step-by-step requirements and UX)**

*Overall Project Objective*

The general objective for this project is to provide a functional, user-friendly, and secure mobile application. This application aims to provide a platform where users can learn and explore new methods to improve their pet's health and overall quality of life. This will be done by having the user fill-out a questioner about their pet and the health of such pet. The question will regard the pet health information such as the vaccinations the pet has received, if the pet has any health problems, if the pet is taking or has taken any medication, if the pet has undergone or will undergo any surgical procedure, and if the pet has or had any dietary restrictions. The app will organize the information provided and then provide the user with suggested articles, videos, products, guides, etc., that will be targeted to their pet's needs.
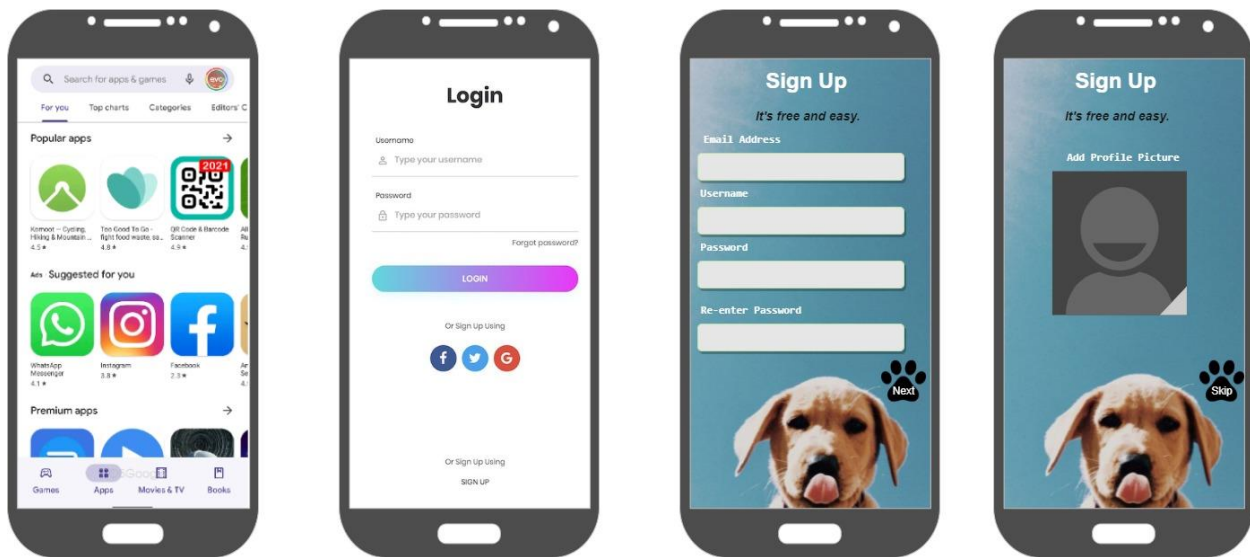
*4.1 UX Design and functions*

*4.1.1 Getting Started with PawPet*

The user will search for the PawPet app through there app store. It is key that the app looks intriguing and engages the interest of the user so that they can proceed with the download. To do this the app will be designed with its target market's demographic characteristics in mind (N. Mohammadian and F. Noorbehbahani) as to make a design that they are more likely to download.

Once the user downloads the app from the app store they will create a user account, if the user does not have an existing account, by providing some basic information such as the user's email, username, password, etc (*see Figure 1 PawPet Sign Up Page*).

As soon as the user logs in to the app the main page will be displayed with some of the most popular and recent articles. To provide the user with personalized recommendations they will need to create PawPet profiles for their pets.



*Figure 1 PawPet App Sign Up*

### 4.1.2 User Creating PawPet Profile for Pet

The user will need to create a PawPet profile for each of their pets so to obtain personalized recommendations for their pets. To accomplish this the user will need to answer some general information regarding the pet such as the pet's name, date of birth, breed, most recent height and weight, and date of last vet visit (see Figure 3 PawPet Profile for Pet Part 1 and Figure 4 PawPet Profile for Pet Part 2). Additionally, the user will also be required to answer a questioner about the pet's general health and overall environment. The questioner will contain questions regarding the pet's previous vaccinations, health issues, medication, surgical procedures, dietary restrictions, exercise, food intake, napping hours, etc. After creating the

profile for the pet, the user will then be provided with articles, videos, and any other relevant
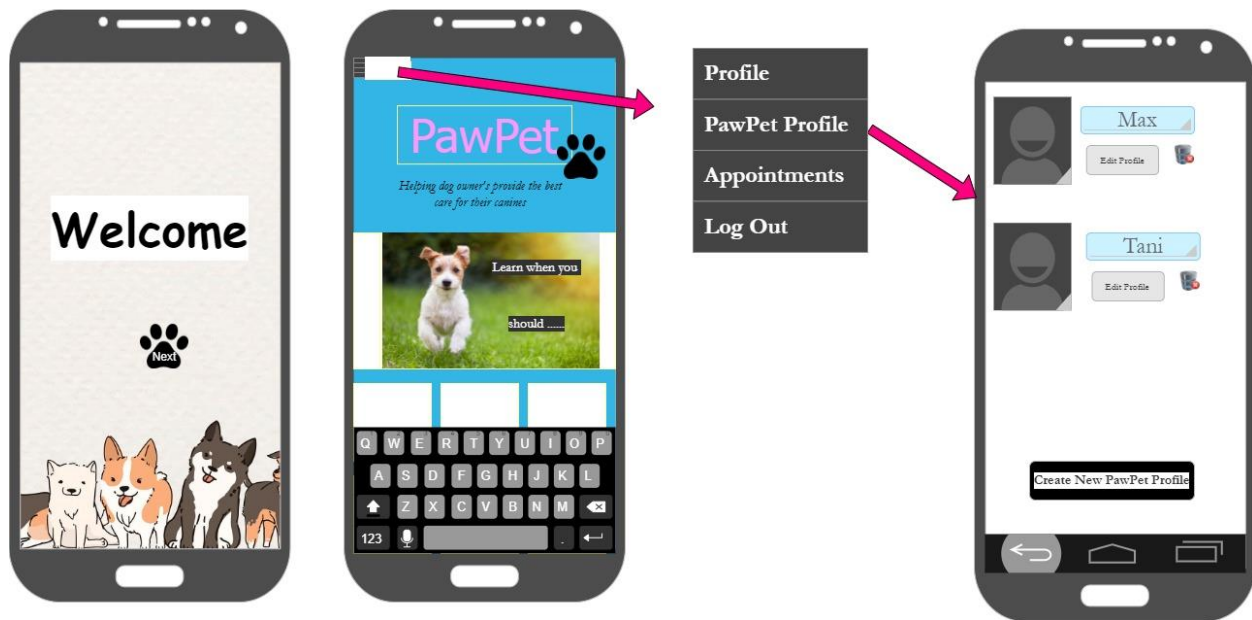information that will pertain to their pet's health and care.
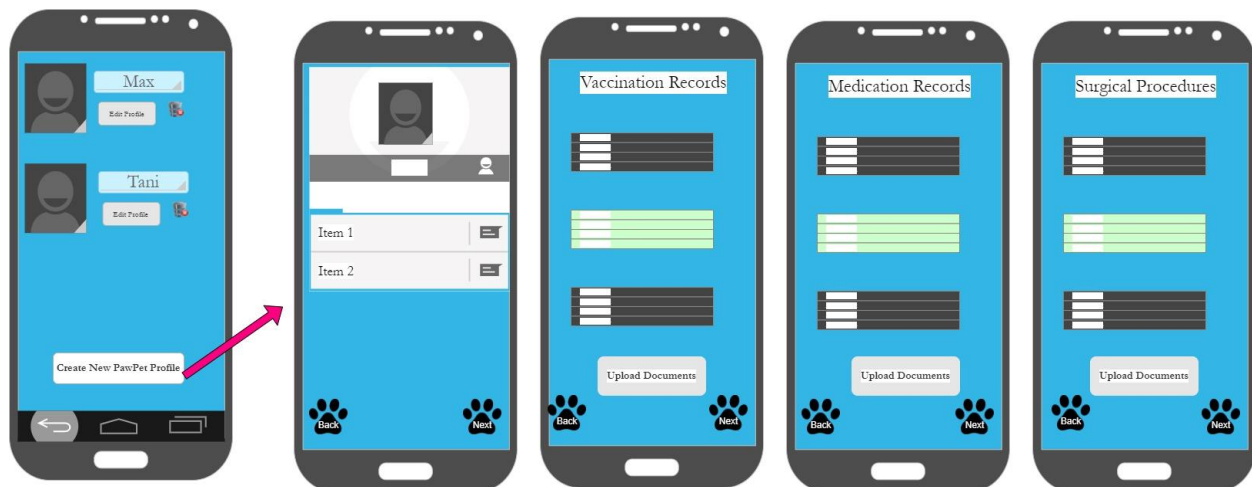


*Figure 2 PawPet App: Welcoming Page*



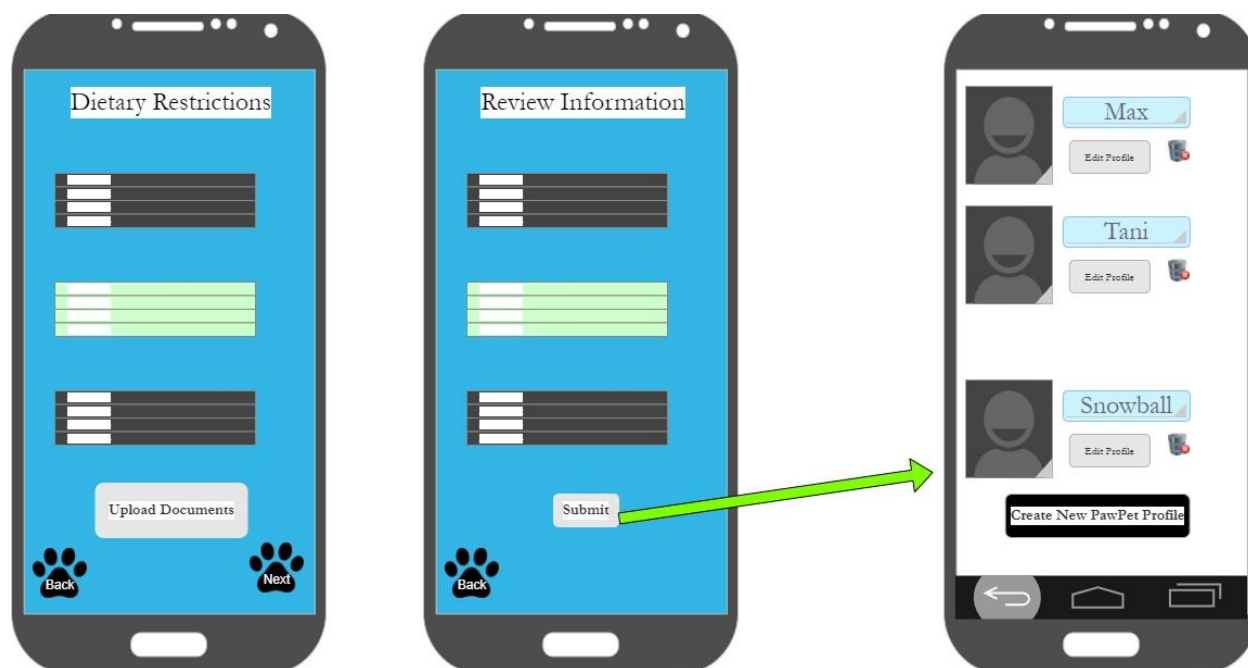*Figure 3 PawPet App Creating PawPet Profile for Pet Part 1*

*Figure 4 PawPet App Creating PawPet Profile for Pet Part 2*

**5.0 Activities**

*5.1. Functionality*

Functionality is one of the main objectives for this application. It is vital for the application to function as intended by convening the constraints and prospects that were proposed for the app. The application's primary focus is the management and organization of pet's health by providing the user access suggestions and ideas to improve their pet's health and overall quality of life. Thus, the function of this app would be obtained by having the user enter the necessary information and the application utilizing that information to organize the profile of the pet and provide the user with helpful articles, videos, and products to help improve their pet's health and well-being.

*5.2. User-friendly*

Making the application user-friendly is a key objective when creating this application. It is important the user can navigate through the app as smoothly as possible so that they have a good user-experience and are encouraged to utilize the app. Therefore, the design of such app must be appealing and easy to understand. To ensure that the app fulfills this requirement it is necessary to mock-up a UX design and while in the testing phase pay close attention to the response provided by the users regarding the navigation of the app to make the necessary changes.

*5.3. Security*

Security is essential in the process of this application. This app deals with sensitive and confidential information that is provided by the user, owner of the pet, regarding their pet's health. It is essential for such information to be guarded with good levels of security to ensure

that the information provided by the user is kept confidential for the user. To fulfill this

requirement the app will follow standard security practices such as: token validation, proper

implementation of safe communication standards, proper encryption of sensitive personal data,

etc. (Markiewicz, M.)

**6.0 Development Environment**

*6.1 Software Requirements*

For this project, the programming languages that will be utilized in the development of the PawPet application are JavaScript, CSS, and HTML. Additionally, I will be utilizing Android Studio as the IDE and Windows 10/11 (32 or 64 bit) as the operating system. The web technologies that this application will be using are JavaScript, HTML5, and CSS3. Lastly, for the software framework, I will be employing React Native.

| Type | Software |
|------|----------|
| Programming Languages | JavaScript, CSS, HTML |
| IDE | Android Studio |
| Operating System | Windows 10/11 (32 or 64 bit) |
| Web Technologies | JavaScript, HTML5, CSS3 |
| Software Framework | React Native |

*Table 1 Software Requirements for PawPet App*

*6.2 Hardware Requirements*

The hardware requirements for the PawPet application include a AMD64 processor or a processor that has a speed of up to 3.5 GHz and RAM of 8 GB. Additionally, it is vital that there is access to an internet connection that runs at least 25 Mbps if not more.

| Type | Hardware |
|------|----------|
| Processor | AMD64 |
| Processor Speed | Up to 3.5 GHz |
| RAM | 8 GB |
| Internet | 25 Mbps or more |

*Table 2 Hardware Requirements for PawPet App*

**7.0 Reports and Products**

The final product for the project will be a mobile application to manage and explore methods to improve a pet's health. This product will be presented and delivered for demonstration to the Computer Science Department and advisor at the conclusion of the project. Additional materials that will be delivered include the source and a step-by-step guide of the application.

**8.0 Schedule**

Below is the planned schedule for completion of this project within the timeframe of the Fall 2022 semester at California State University, Fullerton.

| 2022 | Aug | | Sept. | | | | Oct. | | | | Nov. | | | | | Dec. | | | Summary | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Tasks:** | 1 | 2 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | Hours | Percent |
| Research | 8 | 10 | 12 | 10 | | | | | | | | | | | | | | | 40 | 18% |
| Design | | 8 | 5 | 4 | 8 | 10 | 4 | | | | | | | | | | | | 39 | 17% |
| Development | | | | | 4 | 4 | 10 | 12 | 10 | 10 | 10 | 10 | 8 | | | | | | 78 | 35% |
| Testing | | | | | | | | | 2 | 3 | 4 | 4 | 3 | | | | | | 16 | 7% |
| Modification | | | | | | | | | | | | | 2 | 10 | 4 | | | | 16 | 7% |
| Final Report | | | | | | | | | | | | | | 5 | 10 | 10 | | | 25 | 11% |
| Demostration | | | | | | | | | | | | | | | | | 8 | 4 | 12 | 5% |
| Hours: | 8 | 18 | 17 | 14 | 12 | 14 | 14 | 12 | 12 | 13 | 14 | 14 | 13 | 15 | 14 | 10 | 8 | 4 | 226 | 100% |

*Figure 5 Schedule for PawPet App*

## 9.0 References

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