SOFTWARE REQUIREMENTS SPECIFICATION

for

FINDMYPET

Version 1.0

Prepared by : ERMS Group C2G4

Submitted to : Bruno Lima
Lecturer

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Contents

1 Introduction

1.1 Purpose

FindMyPet is a mobile application designed to provide a reliable and accessible digital platform for locating lost pets and supporting pet owners in recovery efforts. By leveraging crowd-sourced GPS tracking, instant alerts, and a community-driven network, FindMyPet aims to reduce the number of lost pets and streamline the recovery process. The app also offers complementary features, such as pet registration, medical record storage, and pet care guidance, enhancing pet safety and well-being while fostering collaboration between pet owners, veterinary clinics, and animal welfare organizations. FindMyPet combines cutting-edge technology with community engagement to deliver an effective solution for reuniting lost pets with their owners, promoting secure pet ownership, and ensuring faster reunions.

1.2 Intended Audience and Reading Suggestions

This SRS is for developers, project managers and users. Further the discussion will provide all the internal, external, functional and also non-functional information about "FindMyPet APP".

1.3 Project Scope

The FindMyPet project aims to provide a comprehensive digital solution for pet recovery. The primary goal is to facilitate a fast, reliable method for locating lost pets by integrating crowd-sourced GPS tracking and real-time alerts into a mobile application. Additional features such as pet registration, medical records storage, and community-driven pet care advice further enhance the platform, making it valuable for pet owners, veterinary clinics, and animal welfare organizations. The app's capabilities extend beyond tracking to promote responsible pet ownership and foster community engagement around pet welfare.

In particular, **FindMyPet** will:

- Enable real-time GPS tracking through a crowd-sourced network, allowing users to locate lost pets quickly.
- Offer instant alerts to inform users of nearby lost pets, assisting with fast recovery efforts.

- Allow pet registration with detailed information, making it easier to track and recover pets.
- Provide medical record storage, accessible to registered veterinary clinics, aiding in pet health management.
- Share pet care guidance and relevant information, promoting responsible pet care practices.
- Encourage community engagement, building a network of users who can support each other in case of lost pets and share pet-related advice.

This project scope includes high-level functional and non-functional requirements necessary for creating an efficient, secure, and user-friendly experience for all stakeholders.

1.4 Definitions, Acronyms and Abbreviations

- **SRS**: Software Requirements Specification
- **GPS**: Global Positioning System
- **RF**: Radio Frequency
- **GDPR**: General Data Protection Regulation
- **2FA**: Two-Factor Authentication
- **FindMyPet Network**: The crowd-sourced network of users that enables tracking lost pets through shared location data

2 Overall Description

2.1 Product Perspective

The FindMyPet system is designed as a mobile application leveraging crowd-sourced GPS tracking to locate lost pets quickly and efficiently. It operates in a complex environment, integrating several technologies and interfaces. The system depends on a network of smartphones and GPS-enabled devices to collect and share location data, along with backend servers that handle real-time notifications, user data, and pet profiles. The system architecture assumes a modular, scalable design, allowing seamless integration with existing pet microchip databases and the flexibility to support future feature expansions. At this time, feasibility assessments regarding technology compatibility, particularly for cross-platform GPS functionality and user privacy controls, will be essential. This document outlines abstracted interfaces and key functional areas, although exact protocols and device dependencies may require further definition during implementation.

2.2 Product Functions

The FindMyPet app functions are divided into five core categories:

1. **GPS Tracking and Alerts**: Real-time GPS tracking and crowd-sourced alerts are the primary features. This functionality aims to quickly pinpoint a lost pet's location and alert nearby users. Notifications must reach pet owners within seconds of a pet being spotted in the area.

2. **Pet Registration and Profile Management**: Pet owners can register their pets with details such as vaccinations, allergies, and breed information. This functionality also includes visibility controls for pet data, allowing owners to manage what information is publicly accessible versus what is private or shared with veterinarians only.

3. **Medical Record Management**: Veterinary clinics can access and update pet medical records. The system stores health alerts, treatments, and vaccination history to help owners maintain comprehensive pet health records.

4. **Community Engagement**: The community feature encourages user participation through pet care tips, event promotions, and social connectivity. This function aims to build a network of users who are informed, engaged, and ready to assist with lost pet alerts and pet care.

5. **Data Privacy and Security**: The app implements high standards of data security, protecting pet location data and personal information. End-to-end encryption, GDPR compliance, and user-controlled privacy settings are critical to ensuring trust among users.

Each of these functions works together to provide an effective pet recovery service while enhancing the user experience and encouraging responsible pet ownership.

2.3 User Characteristics

The primary users of the **FindMyPet** system are as follows:

1. **Pet Owners**: Individuals using the app to register their pets, track them in real time, receive alerts, and manage medical records. These users vary in technical familiarity but are typically motivated to learn about the app's functions due to the importance of their pets' safety.

2. **Veterinary Clinics**: Authorized users who can access pet medical records, manage appointments, and provide pet care advice. They are professionals with specific needs around medical data security and efficient access to pet records.

3. **Animal Welfare Organizations**: Organizations that assist in pet recovery, promote pet care events, and support animal welfare. These users interact with the app to access the lost pet database and share resources, requiring easy-to-use interfaces for prompt response.

Before using the main function of the software result process, users have to be registered.

2.3.1 User/Stakeholder Profiles

Stakeholder	*Interests*
Pet Owners	Making sure that their pet is safe and can be easily found if lost.
Veterinarians	Pets' well being and health history and ensuring that information is available and stored.
Developers	Ensuring the app is accessible, efficient, secure and scalable.
Animal Welfare Organizations	To help users maintain animal welfare.

Table 2.1: Stakeholder and Interests Relation

2.3.2 User/Stakeholder Relation

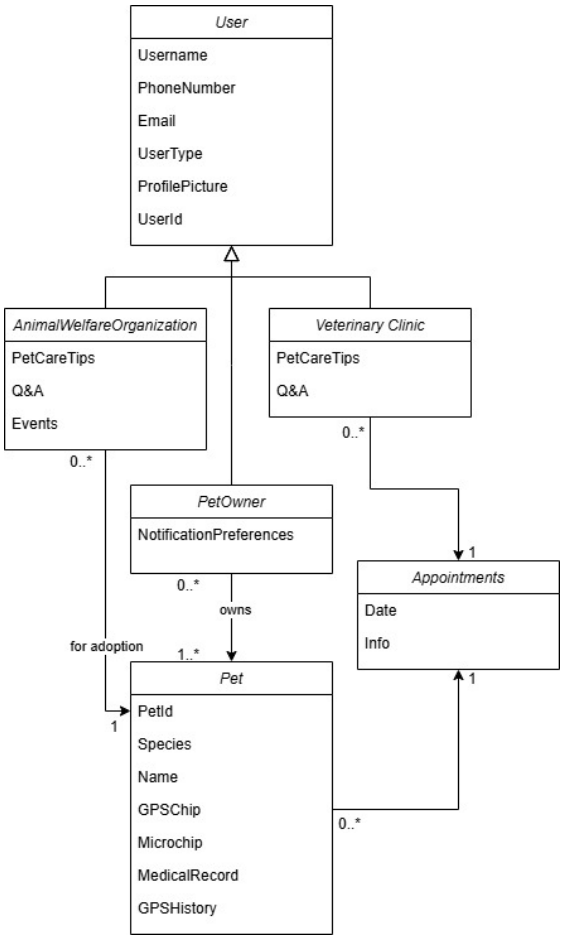

Figure 2.1: System Relation Diagram

2.4 Constraints

The **FindMyPet** app must comply with the following constraints:

- **GDPR Compliance**: Ensuring all personal and location data follows data protection regulations.
- **Real-Time Requirements**: Notifications and GPS tracking must operate with minimal delays.
- **Battery Efficiency**: GPS functions should optimize battery use on mobile devices.

- **Cross-Platform Compatibility**: Seamless operation on both iOS and Android, supporting devices with various GPS capabilities.
- **Scalability**: The system should accommodate a growing user base without performance degradation.

2.5 Assumptions and Dependencies

- Users will maintain location services active on their devices for crowd-sourced GPS functionality to be effective.
- The app will have reliable access to cloud storage and database services for storing and managing pet information.
- Collaboration with pet microchip databases will enable streamlined pet identification.
- The success of the crowd GPS system relies on sufficient app adoption, especially in urban areas, to create a robust community network.

3 Requirements

In this requirements specification we are setting out the types of requirements like:

- **Functional Requirement**
- **Non-Functional Requirement**
- ***Domain-Specific Requirement***

3.1 System

3.1.1 **UserFriendly** The system shall provide an intuitive, user-friendly interface by allowing all users (pet owners, veterinary clinics, and welfare organizations) to access core features within 3 clicks from the home screen.

3.1.2 **RecoveryTime** In case of a system crash, the system shall recover within 2 minutes to minimize downtime during critical usage times.

3.1.3 **DataEncrypt** The system shall encrypt all user data, including GPS location and medical records, both at rest and in transit using AES-256 encryption.

3.1.4 **OSPlatforms** The application shall support iOS and Android platforms, providing consistent performance and feature availability on devices with GPS functionality.

3.1.5 **UserAmount** The system shall support up to 100,000 simultaneous users in urban regions without a decrease in performance, ensuring smooth operation as the user base grows.

3.1.6 **BackendDeploy** The backend infrastructure shall be scalable horizontally, enabling rapid deployment of additional servers to manage increased user demands, with no more than a 2% increase in response time.

3.1.7 **Privacy** The system must collect and process only the data necessary for the app's functionality.

3.1.7.1 ***GDPR*** This process must incorporate GDPR's "Privacy by Design" principles.

3.1.8 **Document** The system shall be documented to meet IEEE software documentation standards, ensuring that new developers can be onboarded within 2 weeks with adequate guidance.

3.2 User

3.2.1 Registration

3.2.1.1 **Register** The system must allow users to be registered as one of the different user types.

3.2.1.2 **Verification** The system must perform identity verification for the user types that require it.

3.2.1.3 **2FA** The system must provide a 2FA for users that opt-in.

3.2.2 Profile Management

3.2.2.1 **Email** The system must allow users to change their registered email.

3.2.2.2 **Password** The system must allow users to change their password.

3.2.2.3 **ForgotPass** The system must provide a “forgot password” mechanism.

3.2.2.4 **Picture** The system must allow users to change their profile picture.

3.2.2.5 **Delete** The system must allow users to delete their accounts at any time, permanently removing all associated data like pet profiles, medical records, and GPS tracking history.

3.2.2.5.1 ***GDPRForget*** The deletion has to be performed according to the GDPR’s ”right to be forgotten”.

3.3 Pet Owners

3.3.1 Pet

3.3.1.1 **Registration**

3.3.1.1.1 **Register** The system must allow pet owners to register pets that they own.

3.3.1.1.2 **Questionnaire** The system must provide an initial questionnaire for pet owners to fill out upon pet registration.

3.3.1.1.3 ***Microchip*** The system shall be compatible with existing pet microchip databases, allowing pet owners and welfare organizations to integrate microchip data within the app.

3.3.1.1.4 **Co-Owner** The system must allow a pet owner to register another user as a co-owner of a pet.

3.3.1.2 **Profile Management**

3.3.1.2.1 **ListRecords** The system must allow pet owners, veterinary clinics and organizations to register and view medical records of a pet.

3.3.1.2.2 **AccessFields** The system must allow pet owners to make specific fields public or private to some or all user groups.

3.3.1.2.3 **DataSharing** Pet owners must retain control over all data sharing, including sensitive data (e.g., medical records, location history), which should only be accessible to authorized users.

3.3.1.2.4 **Delete** Pet owners should be able to delete individual pet profiles while retaining their account, ensuring full data removal.

3.3.2 GPS Tracking

3.3.2.1 **TrackPosition** The system must allow pet owners to track their pet's GPS position.

3.3.2.1.1 **LocationLoad** The app shall load the pet's location on the map within 2 seconds to ensure responsiveness for lost pet alerts.

3.3.2.2 **Inhabitation** The system must allow pet owners to define one or more zones that their pet inhabits.

3.3.2.2.1 **TrackZones** Pet owners should define specific areas where GPS tracking is enabled or disabled (e.g., home or park).

3.3.2.3 **LeaveZone** The system must notify pet owners if a pet leaves their assigned zone.

3.3.2.3.1 ***CustomAlert*** Pet owners should customize the alerts they receive based on the pet's location and activity.

3.3.2.4 **PastLocation** The system must allow pet owners to check their pet's past locations.

3.3.2.5 **TrackModes** The system must offer multiple GPS tracking modes to balance accuracy and battery life.

3.3.2.5.1 **HighAcc** In this mode, the system must update the pet's location every 5 minutes, ensuring the battery lasts at least 24 hours.

3.3.2.5.2 **BatterySaver** In this mode, the system must update the pet's location every 15 minutes, ensuring the battery lasts at least 72 hours.

3.4 Veterinary Clinics

3.4.1 Medical Records

3.4.1.1 **Manage** The system must allow clinics to manage pet's medical records, including treatments, vaccinations, allergies, and behavioral information, with proper security and access controls.

3.4.1.2 ***Format*** The system must provide standardized formats for storing pet medical records to ensure compatibility across veterinary clinics and ease of access for pet owners.

3.4.2 **FlagPet** The system must allow veterinary clinics to flag a pet as dangerous or sick.

3.4.3 **HealthAlert** The system must notify clinics and pet owners of health concerns.

3.4.3.1 ***Pattern*** This notifications must be based on the the pet's medical history or geographic disease patterns (e.g., localized disease outbreaks).

3.4.3.2 **ResponseTime** The system shall deliver notifications within 1 second to allow a timely response when a pet is at risk.

3.4.4 **Appointment** The system must allow clinics to schedule and manage veterinary appointments, integrating reminders for both clinics and pet owners to ensure continuity of care and minimize missed appointments.

3.5 Animal Welfare Organizations

3.5.1 **LostPetsAccess** The system must allow welfare organizations to access a centralized lost pet database.

3.5.2 **AdoptionCamp** The system must allow welfare organizations to promote pet adoption campaigns.

3.5.3 **Vaccination** The system must allow welfare organizations to inform vaccination events.

3.5.4 **Education** The system must allow welfare organizations to provide educational resources for a responsible pet ownership.

3.6 Lost Pets

3.6.1 **FlagLost** The system must allow pet owners to flag their pet as lost.

3.6.2 ***Regulation*** The system must comply with regional regulations on handling and reporting lost animals to ensure transparency and ethical recovery practices.

3.6.3 **LocationAcc** The system must verify location accuracy for crowd-sourced sightings of lost pets to reduce false reports and improve recovery chances.

3.6.4 **ReportPets** Users must be able to report sightings or flag animals that resemble lost pets without compromising the privacy of pet owners' information.

3.6.5 **LostNotify** Lost pet notifications must be sent to registered users in the area, promoting community involvement in recovery while maintaining privacy.

3.6.5.1 **ResponseTime** The system shall deliver notifications within 1 second to allow a timely response when a pet is lost.

3.6.6 **OwnerProve** The system must provide a way for pet owners to prove they are the rightful owner of a lost pet.

3.6.7 **NotifyFound** The system must notify pet owners when their pet may have been found.

3.6.8 **ClinicReport** Clinics should report lost pets, input the necessary data, and assist in the recovery process.

3.6.8.1 ***Coordination*** This process must be coordinated with pet owners and welfare organizations.

3.7 Pet Care

3.7.1 **TipCategory** The system must allow pet owners to select categories of tips they want to receive notifications of.

3.7.2 **InsertTips** The system must allow veterinary clinics and organizations to insert new pet care tips.

3.7.3 **HostQ&A** The system must enable veterinary clinics and organizations to host Q&A's.

3.7.4 **CreateFAQ** The system must allow veterinary clinics and organizations to create FAQ.

3.7.5 **CreateEvent** The system must permit veterinary clinics and organizations to create pet-care related events.

3.8 Accessibility Features

3.8.1 **TTS** The system must include text-to-speech functionality for notifications or pet information.

3.8.2 **VoiceInteract** The system must include voice recognition to interact with the app.