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Implementing an Efficient and Modern Android based System for Monitoring Pet Health

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ABSTRACT: Nowadays technologies based on Android Operating System making a high impact on people. As it provides instant services or responses to users. The proposed system is an android based application that has a straightforward and user's friendly interface, easy to access, and well-organized content that provides services for pet animals and stray animals. The reason behind this system is lots of people find it difficult for taking care of their pets or few people want to help any stray animal so they can do it from this platform. The android-based application has mainly four sections: Add Post, Veterinary Doctor's Contacts, Food Item's and Rescue Team Contacts which are easy to use and it provides geolocation to search nearest veterinary hospital to reach faster. Also, pet owners get other services like a guide for how to take care of pets, which food can give them, which medicines are helpful for them in different circumstances, a platform to share their views or thoughts about animals, they can set reminders for upcoming events. This application not only helps pet owners but also encourages people to help and save the lives of stray animals too.

KEYWORDS: Veterinary Doctor's, Petfood catalogue, Rescue Team, Location Tracking, Mobile application.

I. INTRODUCTION

Between September 28 and October 9, 2020, a survey of 3,258 pet owners was commissioned by the global animal health association, HealthforAnimals, and global healthcare communications consultancy Pegasus, an Ashfield company, part of the UDG Healthcare PLC. The results showed that the Covid-19 pandemic is leading to delayed or missed care for pets in many countries, which is causing some veterinarians to worry that pet health may suffer as a result. And pet owners are also worried because they feel helpless for their pets. Due to such an increasing number of issues, it needs to be solved adequately. So, to provide proper health care without any confusion we proposed this paper. This paper shows the design of the mobile application based on Android to carry out activities related to the pet like if you see any stray animal or any pet which needs help then from this application you can find the contact number and help that pet. The proposed system consists of four main sections are Add Post, Veterinary Doctor's Contacts, Food Item's, and Rescue Team Contacts. The system also allows users to help injured stray animals. With the platform provided, it will be a lot easier for people to look after and provide help to their beloved pet animals. Also, pet owners get other services like a guide for how to take care of pets, which food can give them, which medicines are helpful for them in different circumstances. The proposed applications frequently serve to provide users with related essential facilities in health management not only for home pets but also for stray animals. Therefore, this project aims to implement Pet Health Monitoring and Food Habit Management system with an efficient and modern application which will help people for taking care of their pet easily. It will advise the user to upkeep, feed, and take proper care of their pets.

II. RELATED WORK

1. "Developing an Android-based Mobile Application for Temporary Animal Shelter Activities" is an Android-based mobile application that has been developed to carry out activities related to the animals in the temporary animal shelter more effectively and easily. This application only builds for finding shelter for animals and giving information about animals. They only aimed to prevent animal purchase. Local administrations should adopt policy the adoption instead of purchasing animals. No other features are available.
2. "Pet Care System Based on Android Application" The objective of this system is to provide a non-exhausting way to take care of your pet based on the mobile application. The results were divided into 2 parts: developing the mobile application for advice users and analyzing the functionality of the application, for research purposes. The design of the mobile application is based on an android system to give people a user-friendly way of petting and earning. In the future, they are looking to add features like breed identification which will make its interface complicate to use.
3. "Peta Research Paper" PETA has made an impact on stopping the abuse of thousands of animals across the world through their effort. PETA focuses its attention on the four areas in which the largest number of animals suffer the most intensely for the longest period on factory farms in the clothing trade in testing laboratories a finally in the entertainment industry. It stops abusing animals in most cases and which shows their strong dedication and passion for animals. These experiments are extremely slow and give no insight into the availability of the animal that is responsible for growth limitation.
4. "Frequency of Lost Dogs and Cats in the United States and the Methods Used to Locate Them" The primary objectives of the current project were to calculate a population-based estimate of the percentage of owning dogs and cats that were lost from the home in five years. This application is only built for searching the number of lost pets.

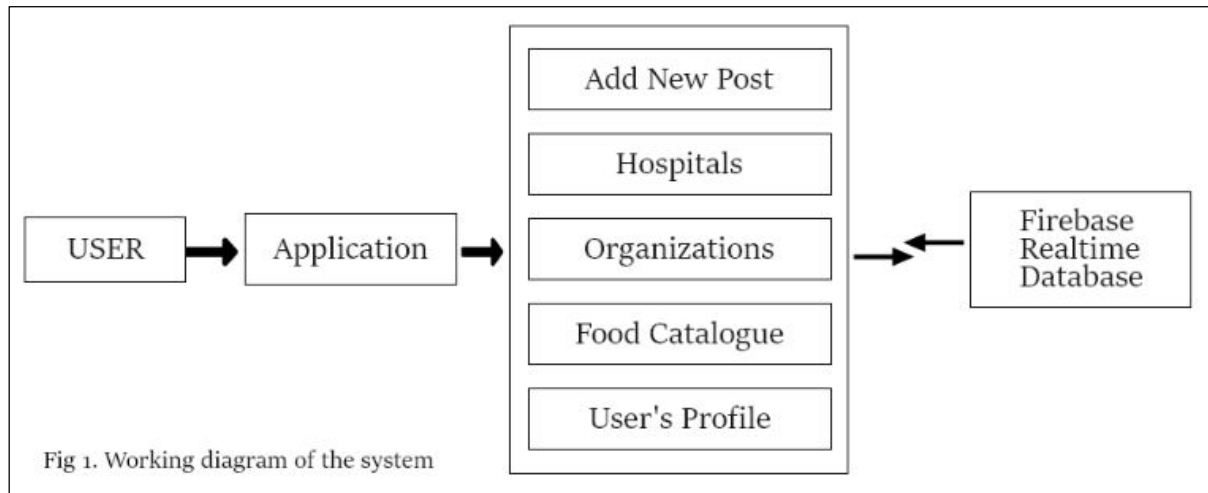
Lack of such Platform to help stray animals as a result injured animal stay as it is in their condition or sometimes, they die. Insufficient information about veterinary hospitals is available therefore many animals lost their precious life. Only information about the reputed pet shop is available therefore small vendors are unable to grow their business.

III. METHODOLOGY

The proposed system is an Android-based application architecture includes the following headings:

- Add Post page
- Veterinary doctor's
- Rescue Teams
- Food catalogue
- User's Profile

It stores the details about various of Veterinary doctors, Rescue Teams, Pet foods, and Posts added by the users and all other details using the Firebase Realtime Database safely.

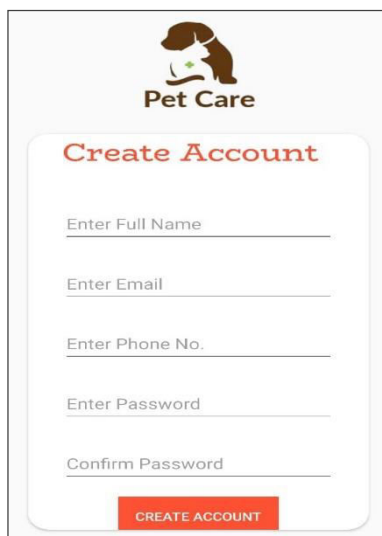
**WORKING:**

The system starts with SignIn Page but if the user has not registered himself/herself earlier so he/she needs to do registration. For registration, the system will ask for few details to fill like Full name, mobile number, email, password, and other things. This complete data is termed authentication credentials. These credentials get stored within the Firebase authentication safely. Then Add Post page will appear, on this page user can add posts about their happy pet, share any information associated with their pet animal or stray animal, their views on pet health, suggestions, and lots of more things with one another. It will create a community for animal lovers. Users can post a photo from their gallery or by clicking it on camera. The user can add titles and caption to that. The post can be get edited after uploading it. On the Veterinary Doctors page, it displays details of doctors like name, mobile number, address in sections. Users can make a direct call for a consultation. In an emergency, users can visit manually to the hospital by using the location tracking feature. This provides a route from the user to the closest hospital. The rescue Team page shows information about several organizations. If any injured or helpless stray animal is spotted. Then the user has to make a call to the organization directly and provide the address of that location. Then a team will be reached that location and take care of that animal. On the Food page, categories are provided like dogs, cats, cows, and others which makes it easier to select according to the user's pet. After that, a list of food related to a selected animal will appear with a description. The user can discuss the pet food with the doctor. On the Profile page the user's information like name, email, and mobile number will appear. It also contains options like add pet, all posts, all pets, my events, and logout. Through Add Pet, the user can add a number of pets. For adding pets, the user has to create a pet profile and provide few details of their pet. In All Posts, the posts uploaded by the users will display and they can edit them. In All Pets, the number of pet profile created by the user will appear and it can be edited or deleted. In My Event, the user can set a reminder about all upcoming events like the doctor's appointment, daily monthly check-ups, and many more. The user has to click on add a new event, after that a create event page will appear. On that page, the user can add an event with time and date. The user can also add an event by using the provided microphone. It sends notification of the event according to the set time on the screen. It gives an option to snooze it.

The entire code is written by using Android JAVA on Android Studio. Android has its own SDK (Software Development Kit) which is specific Java classes and methods for Android, i.e., dealing with click events and user interface. It is an advanced technology or advance version of Java specially designed to develop web-based, network-centric or enterprise applications. Android Studio makes mobile application development easy because of its open-source platform. The studio is specifically designed to accelerate the process of Android mobile app development. The entire collected credentials of the user get stored in the Firebase Realtime database. It manages all data Realtime in database. It means exchanging of data is easy and quick and the dependencies also sinks easily. The Realtime Database API is designed to only allow operations that can be executed quickly so it allows to edit or delete posts and pet profiles easily. As the users keep on adding or removing data it gets changed on the database quickly.

IV. EXPERIMENTAL RESULTS

REGISTRATION MODULE



The screenshot shows a web page titled 'Pet Care' with a logo of a dog and a cat. Below the logo is a 'Create Account' form. The form has five input fields: 'Enter Full Name', 'Enter Email', 'Enter Phone No.', 'Enter Password', and 'Confirm Password'. At the bottom of the form is a red button labeled 'CREATE ACCOUNT'.

Fig:2. User Registration Page

The registration module is created for doing registration of users. On this page, a user has to fill few details like Full Name, Email, and other things. This entire data is called authentication credentials. These credentials get stored in the realtime database. For the creation of the registration page, XML (eXtensible Markup Language) file and Java class file are used.

PET PROFILE MODULE



The screenshot shows a web page titled 'Create a Pet Profile'. It has a 'SELECT PET IMAGE' button. Below it are several input fields: 'Pet Name', 'Pet Category', 'Gender', 'Age', 'Height (In CMS)', and 'Weight (In KGS)'. At the bottom is a red button labeled 'SAVE PET'.

Fig:3. Pet Profile Page

The Creating Pet Profile Module is for pets. The user has to create their beloved pet's profile by filling a form that includes Pet Name, Category, Height, Weight, and many more. After clicking save, a pet profile will be getting created. This page is created using XML files and Java class files.

Sign In Module

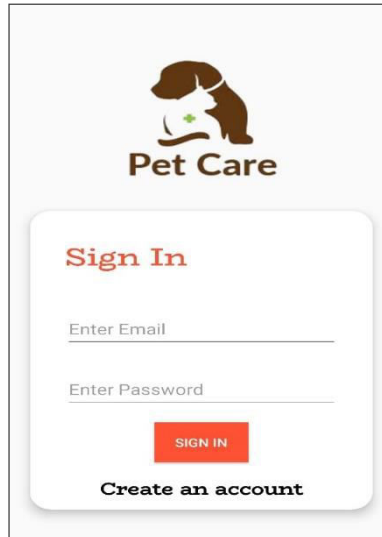


Fig:4. Sign In Page

Through Sign In page, users can get into the application easily just by entering registered email and password. It Authenticates users with their email addresses and passwords. The Firebase Authentication SDK provides methods to create and manage users that use their email addresses and passwords to sign in. Firebase Authentication also handles. This is created by using an XML file and Java class file.

User's Profile Module

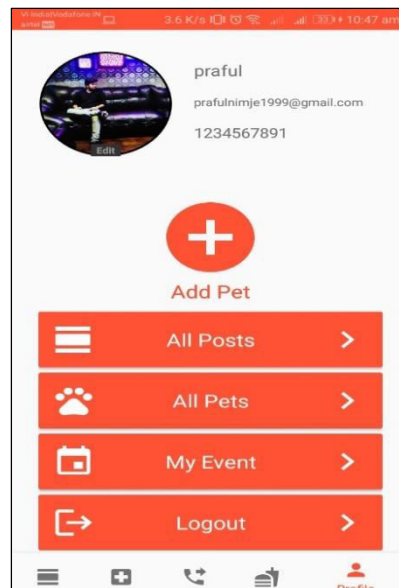


Fig:5. User's Profile Page

On the User's profile page, there are few sections like All posts, All pets, and Logout. It also contains an option to add a pet. Through which users can add details about any pet animal. All post sections will include all posts created or posted by a user. All pets section will include data about the number of pets added by a user.

Add Post Module

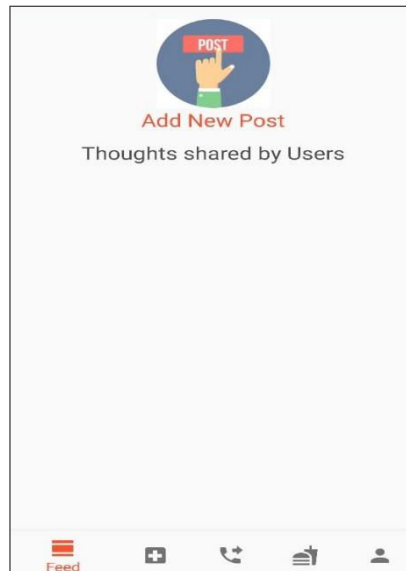


Fig:6. Add Post Page

On this page, user can post their views or thoughts about animals. For creating a post, they have to add a title, caption, and picture. The entire data on the post will get stored in a database which is the Firebase Realtime Database. The Firebase Realtime Database uses data synchronization every time data changes.

Veterinary Doctor's Module

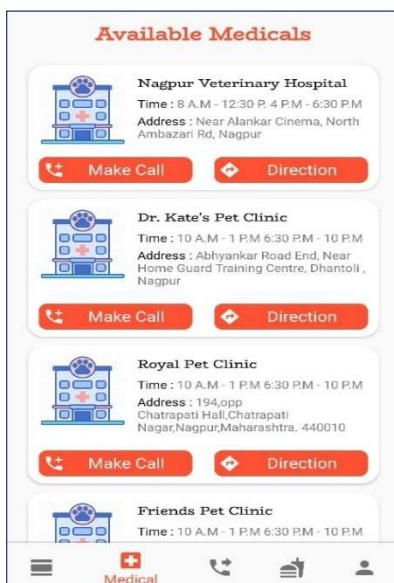


Fig:7. Veterinary Doctor's Page

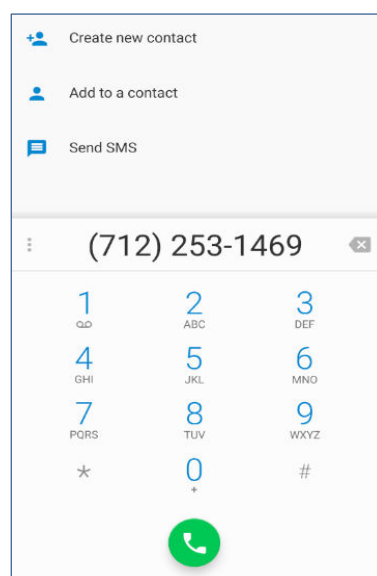


Fig:8. Dialing pad

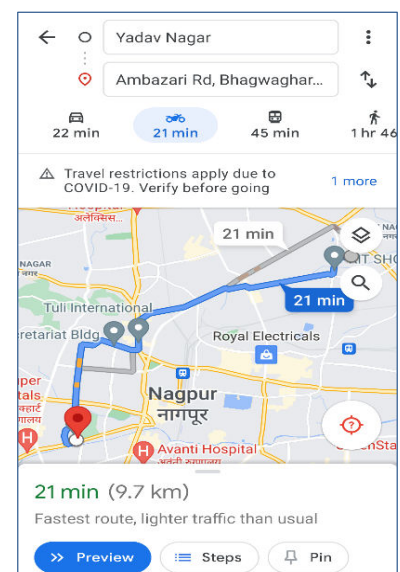


Fig:9. Showing Direction

On Veterinary Doctor's Page, details about doctors are mentioned like the Doctor's Name, Hospital Name, Contact Number, Address, and other details. The user can contact any doctor from home and ask their query. A Location

Tracking feature is also provided that will help users to reach out to the nearby hospital. So, in an emergency user can take their pet to the hospital.

Food Item's Module



Fig.10. Categories of Animal Page

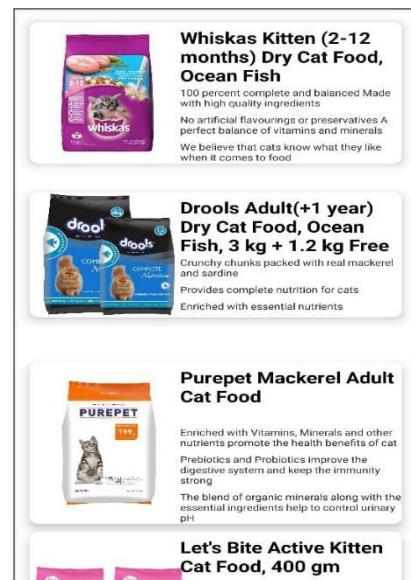


Fig.11. Food Catalogue Page

Food Item's Page is for guiding users, which food they can feed to their pets. This page contains categories like dogs, cats, fish, etc. Users can opt for food according to the given category easily. As the user clicks on the required category, they will get a food catalog.

Rescue Team's Module

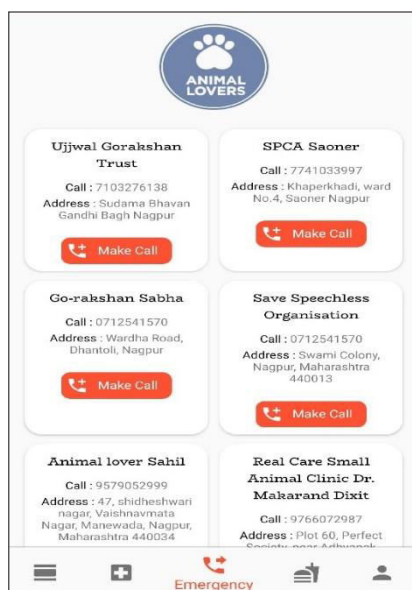


Fig.12. Rescue Team Page

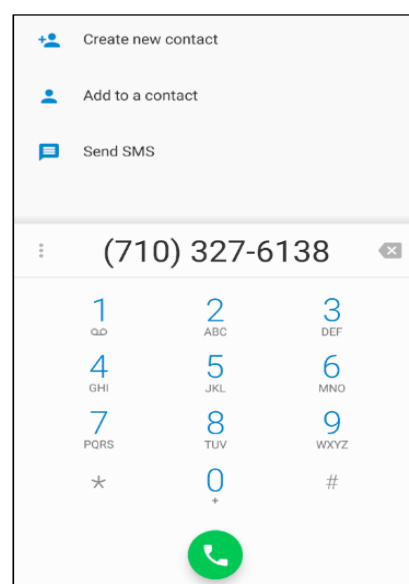


Fig.13. Dialing pad



On Rescue Team Page, details of rescue teams like Team Name, Contact Number, Address are provided. As any user help, they have to just click on calling the function, and it will get redirected to the dialing pad. As you share your location information a team will reach you as soon as possible.

V. CONCLUSION

This proposed system "Pet Health Monitoring and Food Habit Management system with an efficient and modern application" will contain the Veterinary doctor's details, Rescue team details, and Categorized food item's catalog that will help people for taking care of their pets efficiently. The proposed system will provide the entire information about any nearby veterinary doctor with their location and because of it, the user can reach the hospital/clinic easily by using this application. As mentioned, it contains a feature of location tracking that will help users to find a nearby veterinary hospital. If any person wants to help an injured stray animal so they can ask for help with this application by using the rescue team feature. It contains categorized food item's catalogue from that user will get clarity about the pet's food. It contains food items with an entire description and users can discuss them with doctors. It also allows users to share their thoughts by posting them on the application about saving an animal or how they take care of their pets and many more. It will create a community for people. They can easily share their opinions and suggestions.

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