

# “Smart Animal Rescue and Care Model “Be the voice for voiceless”

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## Abstract

The increasing number of injured and abandoned street animals in urban areas has become a serious social and humanitarian concern. Due to road accidents, lack of food, and absence of proper medical care, many animals suffer in critical conditions. Although many people are willing to help these animals, the absence of an effective and organized communication system often prevents timely assistance. This research paper presents a mobile-based solution that enables users to identify injured animals, capture their images, and share their exact location. The system is developed using Flutter and Firebase technologies, which allow real-time communication between users and animal rescue organizations (NGOs). The primary objective of the proposed application is to connect injured or distressed street animals with nearby NGOs as quickly as possible, ensuring that they receive timely treatment and care. The application is capable of detecting the user's live location and automatically linking them to the nearest available rescue organizations. In cases where an NGO is unable to respond or attend calls, the application also provides an emergency contact feature, allowing users to seek alternative help without delay.

**Keywords** — Animal Rescue, Mobile Application, Flutter, Firebase, GPS, Animal Welfare, Location Tracking, NGOs

## I. Introduction

Street animals often suffer from injuries due to road accidents, harsh environmental conditions, and lack of proper medical care. In many cases, these animals are left unattended on roads without receiving timely help. Although awareness regarding animal welfare is gradually increasing, there is still no efficient system that allows people to quickly report such cases and connect with rescue services. Traditional methods, such as contacting NGOs through phone calls or posting on social media platforms, are generally slow and unorganized. These approaches do not guarantee immediate response, which can result in delays in providing treatment. As discussed in previous studies, digital platforms have the potential to significantly improve social services by enabling faster communication and better coordination. Therefore, a mobile-based system can serve as an effective solution for connecting users with animal rescue teams. The main objective of this application is to ensure that injured animals receive

timely and proper medical treatment. It is commonly observed that stray animals roaming on roads become victims of accidents or other injuries. However, due to the lack of immediate response and proper care, many of these animals lose their lives. This highlights the urgent need for a system that can reduce the delay in reporting & treatment.



## II. Existing System

In recent years, various studies on animal welfare and rescue systems have highlighted some major issues. Research shows that even in today's digital world, most animal rescue work still depends on manual processes. The biggest drawback of this is that when an animal is in trouble, the report doesn't reach the right people on time. Studies also reveal that because there is no real-time tracking or accurate location sharing, rescue teams often take too long to reach the spot.

This delay sometimes makes it impossible to save the animal's life. Although some apps have been developed, their interface is often too complicated for a common person to use easily during an emergency. Furthermore, there is a serious lack of coordination and slow response times among different NGOs. All these past studies clearly show that there is a great need for an advanced and user-friendly system. Such a system should fix these old problems and create a fast, reliable network to help animals effectively.

Emergency response systems that rely on conventional approaches often face serious limitations that reduce their overall effectiveness. A key issue is the dependence on manual communication channels, including phone calls and social media platforms, which results in slow transmission of information. Such delays can significantly impact the timeliness of rescue efforts, especially in critical situations where every second matters. In addition, the lack of real-time location tracking creates further challenges, as rescue teams struggle to accurately identify the exact position of affected individuals, leading to inefficiencies and potential loss of valuable time.

Another important concern is the lack of user-friendly design in existing applications. During emergencies, individuals may not be in a position to navigate complex interfaces, making it difficult for them to report incidents quickly and efficiently. This usability gap reduces the practical effectiveness of such systems. Furthermore, coordination among various non-governmental organizations (NGOs) is often fragmented, resulting in unclear communication and delayed collaborative action. These gaps hinder the ability to deliver a rapid and well-organized response during emergencies.

To overcome these challenges, the proposed application introduces a more advanced and streamlined approach. Instead of relying on traditional reporting mechanisms, the system enables users to send alerts instantly through a simplified one-tap feature. It replaces approximate, landmark-based location identification with accurate GPS-based positioning, ensuring precise

information is available to responders. Additionally, the integration of real-time tracking allows continuous monitoring of incidents, which is absent in existing systems.

By addressing these critical shortcomings, the proposed solution significantly enhances operational efficiency, transforming emergency response into a faster, more coordinated, and reliable process.

**Phone Calls :** People usually try to contact local helplines or known rescuers via calls.

**Social Media Posts :** Information is often shared on platforms like Facebook or WhatsApp groups to seek help.

**Manual Reporting :** Eyewitnesses have to manually find and inform NGOs or nearby animal shelters.

### III. Work Proposed System

**Overview:** This project introduces a mobile application designed to simplify and accelerate the process of reporting injured street animals. By automating data collection and connecting users directly with rescuers, it aims to reduce response times significantly.

#### Working Process (Flow)

*User → Mobile App → Capture Data → Firebase → Notification → Rescue Team → Action*



- **Incident Reporting:** The user observes an injured animal and captures a real-time image directly through the application's interface.

- **Auto-Location Tracking:** Using the **Geolocation API**, the application automatically identifies and logs

the precise GPS coordinates (latitude and longitude) of the incident.

- **Cloud Synchronization:** The captured image, location data, and timestamp are instantly uploaded and synchronized with **Firestore** services
- **Rescue Mobilization:** The central rescue network receives an alert, allowing the nearest available team to access the report details and dispatch help immediately.

### Technology Stack

- **Frontend Development (Flutter):** Provides a single-codebase, cross- platform solution for a smooth and responsive user interface on both Android and iOS devices.
- **Backend Services (Firestore):** Utilizes Firestore and Storage for secure, scalable, real-time data management and image hosting.
- **Location Intelligence (Geolocation API):** Powers the accurate positioning essential for directing rescue teams to the correct location.

### IV. Methodology

In this project, we developed a mobile application using Flutter because it helps in creating a simple and smooth user interface. For storing and managing data, Firestore is used as it provides real-time database support and is easy to integrate with mobile apps. Whenever a user finds an injured animal, they can open the app and click a picture directly. At the same time, the app automatically collects the user’s location using GPS. This is important because it helps rescue teams reach the exact place without confusion. All the collected information, such as the image and location, is then uploaded to the cloud. This data is instantly available to rescue teams, so they don’t have to depend on phone calls or unclear messages. The main focus while designing this system was to keep it easy to use. Even a person with very basic mobile knowledge can report an injured animal without any difficulty. The process is quick, clear, and saves time.



## V. Results and Discussion

After developing this system, it was observed that the process of reporting injured animals becomes much easier and faster. Users can send reports within seconds, which was not possible with traditional methods. Earlier, people had to call NGOs or post on social media, which often caused delays and confusion. But with this app, all the important details are sent in one go — including the image and exact location. Because of this, rescue teams can quickly understand the situation and reach the spot without wasting time. It also helps them decide which cases are more urgent by looking at the images. Overall, the system improves communication between users and rescue teams. It reduces delays, avoids confusion, and makes the whole rescue process more organized and effective.



## VI. Conclusion

In conclusion, this project provides a simple and useful solution for helping injured animals. The mobile application makes it easy for anyone to report a case quickly and accurately.

It also improves the connection between the public and rescue teams, which is very important for saving animals on time. The use of technology in this system makes the process faster and more reliable.

There are many ways this system can be improved in the future:

- Rescue teams can be tracked live so users know when help is arriving
- A chat option can be added for direct communication
- AI can be used to detect the type and seriousness of injuries from images
- The app can be connected with government animal services for better support
- Notifications can be added to update users about their report status

## References

- **H. Hale et al.** “Increased Intake and Use of Euthanasia in Dog Shelters” *Animals* (MDPI),2026
- **Ms. Nayan V. Ahire<sup>1</sup>, Tejal Binnar<sup>2</sup>, Samruddhi Bodke<sup>3</sup>, Shubham Sagar<sup>4</sup>, Jayesh Patil<sup>5</sup>** “A Smart and Integrated Animal Rescue” *IJARST*, 2025

- **S. K. Raut & P. More** “Enhancing Animal Rescue Efficiency Using AI for Real-Time Reporting, International Journal of Advanced Research” (IJSART), 2024.
- **J. Smith & L. Brown** “The Impact of Mobile Applications on Stray Animal Rescue Operations” International Journal of Computer Applications, 2023.
- **N. K. Verma** “A Smart and Integrated Animal Rescue Application for Incident Reporting, International Research Journal of Modernization” (IRJMETS), 2023.
- **Deyvika Srinivasa et al.** “Challenges and Solutions in Animal Rescue: A Case Study of Indian Shelters” Journal of Animal Welfare Science” 2022.
- **R. Sharma & V. Gupta** “Animal-Centered Service Design for Stray Animals in Urban India” Design Research Society (DRS) Digital Library, 2022.
- **G. Miller & K. Reid** “Increasing Adoption Rates at Animal Shelters: A Two-Phase Approach” Journal of Applied Animal Welfare Science” 2021.
- **M. B. Arluke** “ Managing Emotions in an Animal Shelter: A Sociological Analysis” Journal of Contemporary Ethnography” 2021.
- **A.Kumar** “ Mobile Applications for Social Good” The Academic Press” 2021.
- **T. Henderson et al.** “ Public Perception and Participation in Animal Rescue and Rehabilitation” Society & Animals Journal 2020.

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