ResQpaws-Smart Rescue System for Injured and Homeless Dogs Using Web Technology

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ABSTRACT

Street dogs often get hurt go catch diseases.. Help for them is usually slow because theres no good way to report problems and get help fast. This paper talks about an online system that lets people report dogs that are hurt or have no home. The system is easy to use. Lets people share where the dog is and upload pictures or videos. The system then figures out how bad the situation is and how close it is to people who can help. It sends the report to helpers through a special control screen. The system also lets people talk to each other in time. Like citizens, volunteers, groups that help animals and veterinarians. This way everyone knows whats going on and can work together better. Most systems now just let people report problems or find homes for dogs. This new system helps from the moment someone reports a problem to after the dog is rescued. The goal is to get help to dogs make rescuing them more efficient and get more people involved in helping animals. The system can help dogs get the care they need. It can make a difference, for street dogs.

KEYWORDS

Animal Rescue System, Web Technology, Smart Monitoring, Real-Time Reporting, Animal Welfare, Rescue Coordination, Smart City Applications.

INTRODUCTION

Urban areas are seeing more stray dogs, which is causing problems like injuries, diseases and neglect. With animal welfare groups helping out rescue efforts are often slowed down by delayed reports, poor coordination and limited communication between people and rescue teams. New web technologies and real-time communication tools can help make rescues more efficient. A central platform where people can quickly report animals along with where they are and pictures can really cut down on response time. This project proposes a web-based rescue system to make rescue operations smoother through automated report sorting, real-time communication and coordinated response management. The goal is to create a scalable and easy-to-use platform that improves animal welfare and gets the community involved. The proposed system also aims to create a digital space where rescue data can be recorded and analyzed for future planning. By keeping a database of reported cases authorities and NGOs can find areas with high risks and recurring problems. The use of geolocation services ensures identification of incident locations, which reduces confusion and delays in response. Automated prioritization mechanisms help emergency cases get attention based on how severe they are. The platform also promotes transparency by letting users track the progress of rescue operations in time. Ultimately this solution aims to bring technology and animal welfare through a sustainable and community-driven approach focusing on stray dog populations and their welfare. The system will help animal welfare organizations and rescue teams work efficiently which will improve the lives of stray dogs. This will be achieved by providing a platform for citizens to report dog sightings and injuries. Stray dog populations will be. Their welfare will be improved. The platform will make it easier for people to report stray dogs and for rescue teams to respond. It will also help authorities and NGOs to identify areas where stray dogs are a big problem. This will enable them to

take action to improve the welfare of stray dogs, in those areas.

LITERATURE REVIEW

A.Existing Animal Rescue Platforms

Existing animal rescue platforms mainly help people adopt pets and report incidents. They do not offer features for coordinating emergencies and managing cases in real-time. Most websites let users share information about hurt or lost animals through forms. Users can sometimes add photos. Thats about it. These platforms do not automatically prioritize cases route them to the teams or help teams communicate with each other. As a result rescue teams often have to check reports, which can cause delays and waste resources. Also these systems do not provide updates, on the rescue progress, which reduces trust and engagement.

These platforms do help raise awareness and get people involved. They do not support a complete rescue process. A complete process would include reporting, assigning tasks tracking progress live and documenting the rescue. The platforms do not have all these features in one system. This makes it hard for rescue teams to do their job efficiently. Animal rescue platforms need to improve to make a difference. Most of the existing platforms are not efficient. They do not have the tools needed to help rescue teams. The platforms have limitations. They do not provide real-time updates. They do not help teams communicate. They do not prioritize cases.

Existing platforms focus on adoption. They do not focus on the rescue process. They do not provide a solution. They provide some features, but not enough. Animal rescue platforms should be improved. The current platforms are limited. They do not help rescue teams. They do not provide updates. They do not prioritize cases. They do not help teams communicate. They do not provide a solution.

B.Smart Web-Based Emergency Response Systems

The internet and ways we talk to each other in time have really helped us deal with emergencies, in healthcare when there are disasters and when it comes to keeping people safe. These days we have systems that use where you are, pools of information and computers that can figure out what is going on to get help to people faster and make sure we are using our resources in the best way. We also have screens that show us what is happening in real time which helps everyone work together.. When it comes to saving animals we do not use these smart systems that work over the internet very much. This project is trying to fix this problem by making a website that lets people report what is happening with animals in time figures out which cases are most important and helps people work together to save animals. Animal rescue operations and animal welfare services will be better and more open because of this.

Methodology / System Design

1.User Interface Module

- People can use this to report dogs that are hurt or do not have homes.
- They can add pictures or videos. Say where the dog is.
- It is easy to use this part of the system.

2.Rescue Coordination Module

- This part looks at how bad the situation's puts the cases in order.
- It finds the rescue team that's closest, to the Dog.
- There is a page where people can see what is happening with all the cases.

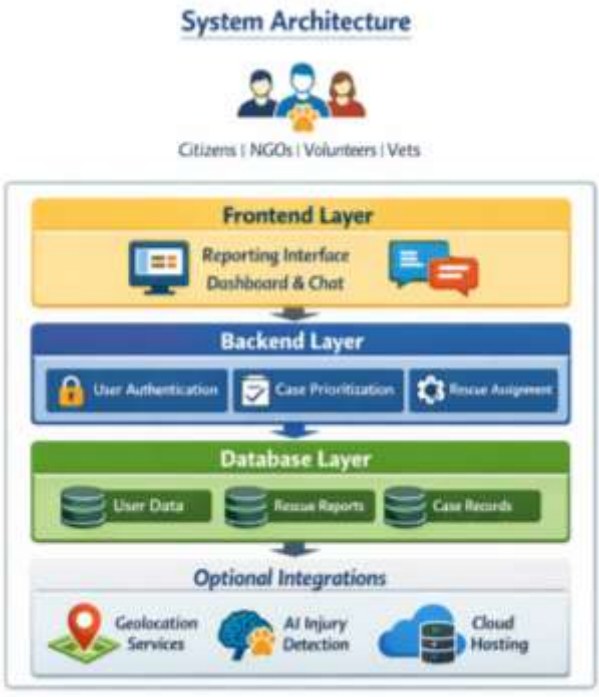
3.Communication & Monitoring Module

- People working on the case can send messages to each other away.
- They can track what is happening during the rescue.
- After the rescue they write down what happened and make a report.

The Dog Rescue System makes sure that information gets to the people who need it like the people who reported the dog the volunteers, the groups that help animals and the veterinarians who take care of the dogs. This makes it easier for everyone to work together to rescue dogs.

4. Workflow Diagram

5. Architecture Diagram



IMPLEMENTATION

The proposed Smart Rescue System is implemented as a web-based application using a three-tier architecture comprising the frontend, backend, and database layers. The frontend is developed using HTML, CSS, and JavaScript to provide a responsive interface accessible on both desktop and mobile devices. Users can register, submit rescue reports, upload images or videos, and share location details through integrated geolocation services.

The backend manages data processing, user authentication, automated case categorization, and rescue assignment. Incoming reports are classified based on severity levels, and proximity calculations are used to assign cases to the nearest available rescue team. A centralized dashboard enables NGOs and volunteers to monitor cases, update rescue status, and communicate with reporting users in real time.

The database securely stores user information, rescue records, and case updates using a structured relational model. Basic security mechanisms such as authentication, input validation, and role-based access control are implemented to ensure system reliability and data protection. The system is designed to be scalable for future enhancements and broader deployment.

RESULT & DISCUSSION

The database layer stores structured records of users rescue reports, assigned teams, status of cases and post-rescue documentation. A relational database management system is used to ensure consistency, efficient retrieval and secure storage of data. All rescue operations are recorded to ensure transparency and provide data.

An admin dashboard is designed for NGOs and rescue organizations to track reported cases in time. The dashboard gives information on case priority, location mapping, status and communication history. Rescue teams can provide updates on case status. They can upload -rescue documentation. They can communicate with reporting citizens directly using an integrated messaging system.

Security measures like user authentication, role-based access control, encrypted data communication and input validation are integrated to ensure the safety of user data. These measures prevent misuse. The system is scalable to enable integration with AI-based injury

detection. It can integrate with applications and cloud hosting for wide accessibility.

The implementation of the proposed system shows improvements in rescue reporting. It also shows improvements in coordination. This is when compared to manual reporting methods. The integration of real-time reporting and automated case management reduces the delay between incident reporting and rescue initiation. Test deployments and simulated case evaluations indicate that location-based routing enables assignment of nearby rescue teams. This minimizes response time.

Key observations include:

- Reporting and response initiation. Citizens can instantly submit reports with location and multimedia evidence. This eliminates communication delays.
- Improved coordination among rescue teams. The centralized dashboard ensures task allocation. It prevents duplication of efforts.
- Enhanced community participation. The accessible web interface encourages involvement. It encourages reporting.
- Transparent tracking of rescue progress. Status updates and communication logs allow users to monitor rescue activities in time. This increases accountability.

User feedback suggests that real-time communication and automated prioritization mechanisms enhance efficiency. They enhance decision-making accuracy. The severity-based categorization helps ensure that critical cases receive attention. However system performance may be influenced by network connectivity. It may be influenced by server load during peak usage. Scalability and integration with municipal or NGO networks remain areas for future improvement. Further optimization, through cloud deployment and performance tuning could enhance reliability. It could expand the system's capacity.

CONCLUSION

This paper is about a web-based rescue system for injured and homeless dogs. The system is meant to make reporting, coordination and management of rescue operations better. It has real-time reporting, automated case prioritization and geolocation-based routing. This helps to make rescue workflows and reduces delays.

The system also has centralized communication. This makes it easier for citizens, NGOs, volunteers and veterinarians to work together. They can track everything clearly. Coordinate in a structured way. This makes the rescue operations more efficient and accountable.

The system shows that using technology in animal welfare services can really improve how we respond to emergencies. It also helps to get the community more involved. The system is scalable and structured. There are still some challenges. For example it depends on the network. We need to work on scalability and data management.

In the future we want to add some features to the system. We want to use intelligence to detect injuries from images. We also want to make an application for the system. This will make it easier for people to use. We will use cloud-based infrastructure to make the system more scalable. We will also connect with health databases to provide better care for rescued dogs. All these changes will make the system stronger. Promote sustainable smart rescue ecosystems, for dogs.

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