



International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Pet Adoption System

Harshwardhan Bhale¹, Swajeet Chavan², Chetan Kamble³

¹Department of Information Technology, Vidyavardhini's College of Engineering & Technology, Mumbai, India
harshwardhan.191764102@vcet.edu.in

²Department Of Information Technology, Vidyavardhini's College of Engineering & Technology, Mumbai, India
swajeet.191794110@vcet.edu.in

³Department of Information Technology, Vidyavardhini's College of Engineering & Technology, Mumbai, India
Chetan.191924102@vcet.edu.in

ABSTRACT-

Each year, a staggering number of 3.3 million dogs end up in animal shelters, despite the total canine population being 200 million. Shockingly, only a small percentage, ranging from 2% to 17%, are reunited with their original owners. This results in many animals being put down due to overcrowding in shelters. The current methods of finding and adopting pets are ineffective and disorganized, with people resorting to printing leaflets and relying on word-of-mouth to spread the message of a missing pet. Such methods are costly and often result in no success. Social media platforms like Facebook and Instagram are also used, but there are cases of fraudulent individuals trying to claim rewards for finding pets. Our aim is to create a comprehensive platform that caters to all animal lovers, providing all necessary information to help them find their ideal pet, which is often lacking in other shelters or platforms. This way, you can find and care for your new furry friend.

Key words : Animal detection, classification, deep learning algorithms, Adoption, Sentiment Analysis

I. INTRODUCTION

Animal adoption refers to the process in which an individual takes responsibility for an animal, commonly a cat or a dog, that has been lost or abandoned. These animals are often picked up by animal control and placed in animal shelters. Unfortunately, animals that remain in shelters for extended periods of time are often euthanized to manage the overpopulation of unwanted animals. To address this issue, a web-based adoption portal has been developed to raise awareness of the animals waiting to be adopted. The website enables users and administrators to register and browse through the list of available animals, along with their details such as estimated age, gender, and description. The administrators hold the highest authority in the system and are responsible for adding, modifying, updating, and removing information as required.

II. PROBLEM DEFINITION

There are currently millions of cats and dogs residing in shelter and rescue care centers, eagerly waiting to be adopted. To simplify the tedious and time-consuming pet adoption process, a mobile application can be developed, allowing potential adopters to easily browse and search for pets based on specific criteria such as distance, gender, breed, age, weight, and behavioral traits. The app also provides a simple and direct means of contacting the respective shelter or rescue care center. The current process of pet adoption is often lengthy and slow, but with this mobile app, adopting a pet can become more convenient and efficient.

III. LITERATURE REVIEW

Numerous animal identification techniques have been explored in the literature, utilizing image processing and involving multiple procedures to execute the entire algorithm. These procedures typically include data capture, segmentation, feature extraction, representation, and matching. Animal classification researchers have extensively studied various existing methods, some of which are further elaborated below.

“JSP-based Pet Adoption System” 2019 International Conference on Virtual Reality and Intelligent Systems (ICVRIS)

The system is composed of four modules, namely user management, pet management, pet adoption, and pet statistics. Various tools such as Vs-Code, MongoDB, and the SSM framework, along with JSP technologies and multiple plugins, were utilized in its development. The bootstrap framework was also employed, specifically its modal box feature, to minimize the number of JSP pages required.

“Scrutiny of Methods for Image Detection and Recognition of Different Species of Animals” International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8 Issue3S3, November 2019

Animal detection research has numerous practical applications in real-world situations. Such methods can be utilized for monitoring the movement of animals, thereby preventing any harmful interference with animals residing in residential areas.

IV. Existing system

In the existing system, adopting a pet requires the user to contact and physically visit animal shelters. Upon arriving at the shelter, the user can select a pet based on their preferences. If the user decides to adopt the pet, they must then fill out an application form and wait for a period of 24 to 48 hours for approval from the pet business owner. Once clearance is granted, the user can sign a contract and make the payment. After adoption, the user must undergo a trial period with the pet.

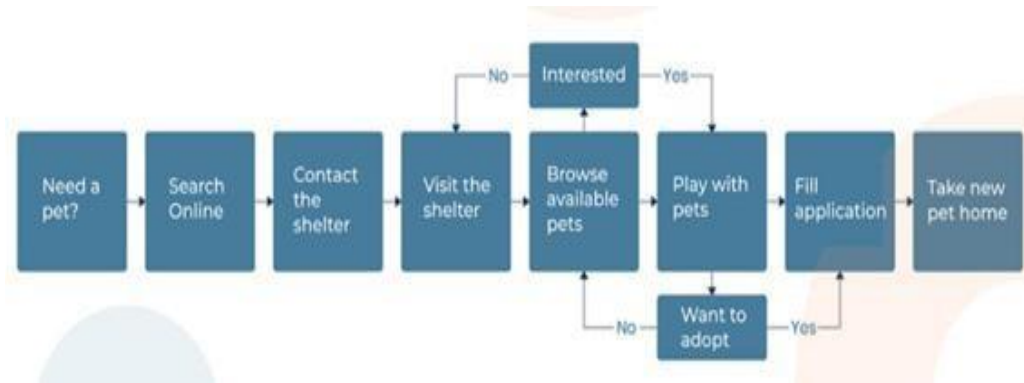


Fig 3.1

V. Proposed system

The proposed technology aims to streamline the adoption process for dogs by enabling users to identify potential adopters more efficiently. It provides all necessary information to the user, facilitating an informed decision-making process. Additionally, users can donate funds to rescue shelters in support of their mission. Furthermore, users can schedule appointments with clients to initiate the adoption process. Overall, the technology offers a seamless experience for adopters, enabling them to focus solely on finding their ideal pet.

VI. Block Diagram of the System

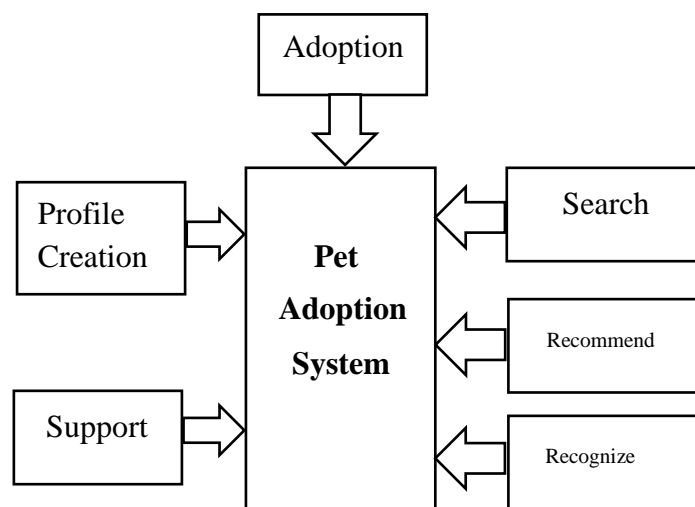


Fig 5.1

VII. Algorithms

Convolutional Neural Network :

A convolutional neural network (CNN) is an artificial neural network that utilizes perceptrons, a machine learning unit technique, to analyze data. CNNs are particularly effective for tasks involving image processing, natural language processing, and other cognitive functions. These networks consist of an input layer, an output layer, and several hidden layers. Certain layers within a CNN are convolutional, meaning they employ a mathematical model to transmit information to subsequent layers.

- Step 1: The i/p layer will contain the initial pixel values of the image, which consist of three color channels: R, G, and B.
- Step 2: The convolutional (CONV) layer will produce the output of neurons that are linked to specific regions of the i/p. Each neuron will compute a dot product between its weights and a small portion of the input volume that it is linked to.
- Step 3 : The Rectified Linear Unit (RELU) layer will apply an activation function to each element of the output volume produced by the CONV layer. This function leaves the size of the volume unchanged.
- Step 4 : POOL layer is responsible for reducing the volume size along the spatial dimensions, such as width and height, resulting in a smaller volume, such as [16x16x12]
- Step 5 : The class scores will be computed by the FC (completely connected) layer, resulting in a volume of size. As with regular Neural Networks, and as the name suggests, each neuron in this layer will be linked to all of the numbers in the preceding volume.

ARCHITECTURE OF CNN FOR ANIMAL DETECTION

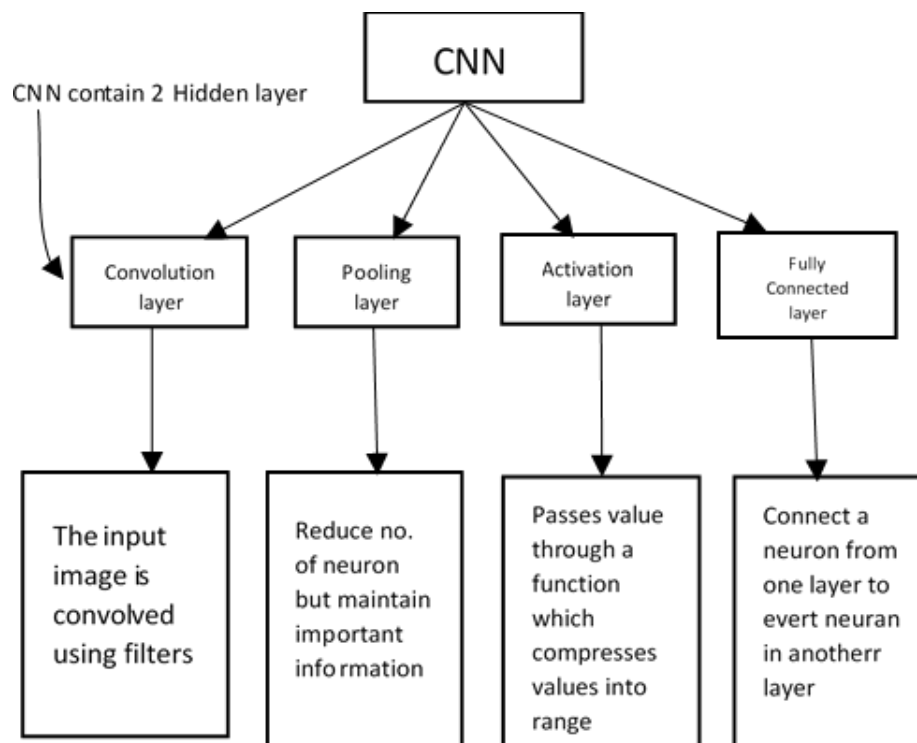


Fig 5.2

K- Nearest Neighbours :

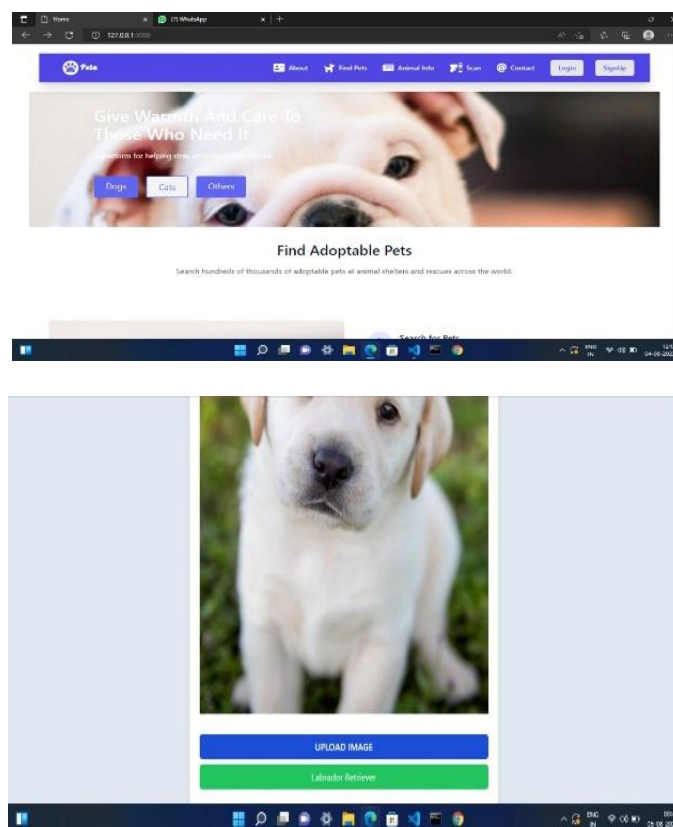
- The K-Nearest Neighbour method is a simple machine learning algorithm that belongs to the field of supervised learning approaches.
- K-Nearest Neighbour (K-NN) algorithm works by comparing the similarity between new data or cases and the existing cases or data, based on a supervised learning approach. Then, the new data is categorized into the group that has the closest similarity to the existing categories.
- The K-NN technique is classified as a non-parametric method since it doesn't depend on any previous beliefs about data distribution. It is also known as a "lazy learners" algorithm since it fails to actively acquire knowledge on the data it is given during training. Instead, it saves the dataset and uses a classification technique to categorise additional data points.
- While the training phase, the KNN algo simply stores the dataset and does not perform any computation. When presented with new data, the algorithm utilizes similarity measures to classify it into a category that closely matches the features of the new data point.

- Let's say we have an image of a creature that bears resemblance to both a cat and a dog, but we are unsure about its actual identity. To identify this creature, we can leverage the KNN algorithm since it operates on the basis of similarity measures. Using the KNN model, we can find similar features in the new image when compared to existing cat and dog images. Based on these common features, the algorithm will assign the creature to either the cat or dog category, depending on which features are more similar.

The following method may be used to describe how K-NN works:

- Step 1:** In implementing the KNN algorithm is to choose the number of neighbors, denoted as K
- Step 2:** The next step in the KNN algorithm involves calculating the Euclidean distance between the K selected neighbors and the new data point.
- Step 3:** The KNN algorithm then chooses the K closest neighbours depending on the computed distances from Euclid.
- Step 4:** Once the K nearest neighbors have been identified, the algorithm proceeds to tally the no. of data points belonging to each category within this subset.
- Step 5:** Finally, the KNN algorithm The K-NN algorithm assigns the new data pts to the category that has the highest nos. of neighboring data points among the K selected neighbors.
- Step 6:** Our model is done and ready to work.

VIII. RESULTS.



IX. CONCLUSION

We have successfully developed a prototype of our Pet Adoption Application. Our application aims to achieve the following main objectives:

- Individuals will become aware of stray animals in their vicinity that require assistance.
- The euthanasia of stray animals will be decreased in number.
- Compassionate individuals will have a chance to make a positive impact on vulnerable animals.
- Individuals will have the ability to share their experiences of pet rescues, inspiring and encouraging others to take action.

X. FUTURE SCOPE

Adding More Algorithms:

- Question-Based Recommend System
- Sentimental Analysis
- Content Based Filtering
- Commercialize

VIII. REFERENCES

- [1] Elham Mohammed Thabit A. ALSADI, Nidhal K. El Abbadi, "Scrutiny of Methods for Image Detection And Recognition of Different Species of Animals," Nov. 2019, doi: 10.35940/ijrte.C1046.1183S319.
- [2] Haoran Liu, Xiue Meng, "JSP-Based Pet Adoption System," Sept. 2019, doi: 10.1109/ICVRIS.2019.00064.
- [3] Gavali, P. P., Abhijeet Mhetre, M. P., Chandrakant Patil, M. N., Suresh Bamane, M. N., & Dipak Buva, M.H. , "Bird Species Identification Using Deep Learning," Apr. 2019, doi: IJERTV8IS040112
- [4] Saundarya Junjur, Punam Avhad, Deepika Tendulkar, "Bird Species Identification Using Image Mining & Cnn Algorithm," Feb. 2020, , doi: 10.17577 /IJERTV9IS060279
- [5] Wikipedia, "Prevention Of Cruelty To Animals Act," Dec. 2020 [6] Pawsome Advice, "Stray Animal Statistics - What Are The Actual Numbers InAa 2022," Jan. 2022