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SURVEY ON AI BASED DOG BREED PREDICTION MODEL AND VIRTUAL CANINE HUB

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Abstract

Abstract—This research focuses on the difficulties that dog enthusiasts face when trying to accurately and efficiently identify different canine breeds. Recognizing the challenges of obtaining breed information directly from dog owners, a new solution is proposed: an automated system that can be accessed through a user-friendly website. This system utilizes image recognition technology, allowing users to easily upload a photo of a dog and accurately determine its breed. In addition to breed identification, the platform offers comprehensive information about temperament, care requirements, and other unique characteristics of each breed, providing a holistic understanding. The objective is to empower potential dog owners to make well-informed decisions that align with their lifestyle and preferences. Specifically tailored for the United States market and available in English, this resource aims to assist dog lovers nationwide in selecting and caring for their pets by providing detailed and easily-accessible information.

Keywords:

User-friendly, Temperament, Holistic

1. INTRODUCTION

Dogs are a popular choice among pets, and for those interested in learning more about different breeds, observing owned canines can be a helpful research method. However, approaching dog owners and inquiring about their dog's breed may not always be easy, as some owners may not be aware of their dog's specific breed.

To address this market need, we have developed a solution that automates the process of identifying a dog's breed through a user-friendly website. By simply snapping a picture of a dog, our website can accurately determine its breed. This new experience combines the convenience of technology with the desire for more information about different breeds.

In addition to providing breed information, our website also offers details on temperament, care requirements, and more.By providing this level of detail, we aim to assist potential dog owners in making in- formed decisions about which breed would be the best fit for their lifestyle and preferences.

We believe that by offering a user-friendly and detailed resource, we can help dog lovers across the country make more informed choices when it comes to selecting and caring for their furry companions. [1]

2. LITERATURE REVIEW

Dr. D. Durga Bhavani, Mir Habeebullah Shah Quadri, Y.

Ram Reddy- Used pre-trained CNN models for feature extraction. - Added fully connected layers on extracted features for classification.- Trained model on Stanford dog breed • Bickey Kumar Shah, Aman Kumar, Amrit KumarUsed (CNN) architecture with 3 convolution layers and 2 fully connected layers.- Applied transfer learning using pre-trained face detection model • Vishal Dineshkumar Soni (on emerging roles of AI in ecommerce) - Literature review on applications of AI in ecommerce - Qualitative analysis of AI use cases in ecommerce • Suyash S. B., Rishikesh P. P., Rohit P.W., Kaustubh P. J - Deep Learning Approach: Utilized CNNs like VGG16, Xception, InceptionV3, and custom CNNs.
- Feature Extraction: Used CNNs, SIFT descriptors, and color histograms. - Transfer Learning: Leveraged pretrained.Ensemble Techniques: Employed ADA Boosting. • Ding-Nan Zou, SongHai Zhang, Tai-Jiang Mu, and Min Zhang , SongHai Zhang, Tai-Jiang Mu, and Min

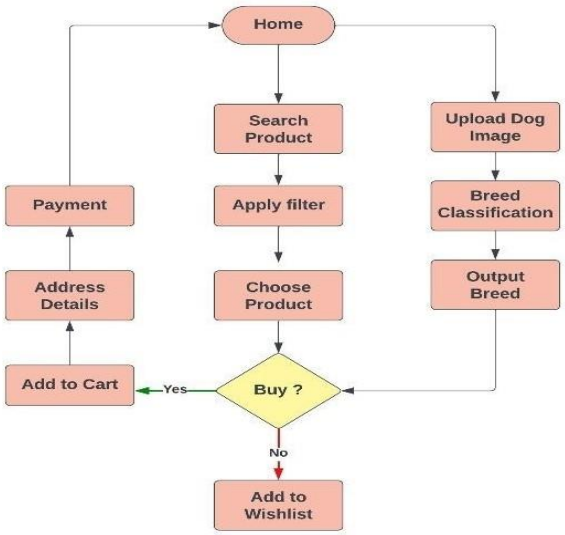
Zhang - Collected over 100,000 dog images from 3 Chinese cities and other sources.- Filtered and labeled to construct dataset with 130 breeds and 200+ images per breed.

3. DESIGN AND IMPLEMENTATION

Identification of Market Need: The concept begins by acknowledging the challenge of accurately identifying dog breeds and the demand for easily accessible information regarding them.

Development of a Solution:

Automated Identification System: The primary feature of the solution is an automated system that utilizes uploaded images to identify the breed of a dog. User-Friendly Website: A platform accessible through a website interface ensuring simplicity and ease of used for Users.



Functionalities:

Image Recognition: The system employs uploaded images to precisely determine the breed of a dog. Comprehensive Information: Provides not only breed identification but also detailed information on other crucial aspects such as temperament, care requirements, and more.

Benefits for Users: Informed Decision-Making: Aims to empower potential dog owners by offering comprehensive information that assists them in selecting a breed that aligns with their lifestyle and preferences.

Target Market and Language: Build a convolutional neural network (CNN) architecture to learn the features of the images. A typical CNN architecture consists of convolutional layers, pooling layers, and fully connected layers. You can experiment with different architectures and hyper parameters to find the best model.

Empowering Users: Aims to assist dog enthusiasts in making well-informed decisions regarding the selection and care of their pets.

Value Proposition:

Convenience: Combines the use of technology (image recognition) with the desire for more extensive information about various dog breeds. [1]

Educational Resource: Provides a detailed and comprehensive resource that goes beyond breed identification, offering insights into temperament, care

requirements, and more. [2]

Convolution: The input image is passed through a set of convolutional filters, which slide over the image and perform element-wise multiplication and summation operations. The result is a set of feature maps that capture different aspects of the input image. [3]

4. CONCLUSION

To summarize, our project seamlessly integrates two crucial elements of the canine world: dog breed prediction and a virtual canine hub for dog sales and community engagement. Through the utilization of advanced machine learning models, we empower users with the ability to accurately predict dog breeds from uploaded images. This cutting-edge technology ensures accurate and reliable results.

Moreover, our user-friendly website goes beyond breed prediction by fostering a vibrant community of dog lovers. It serves as a hub for connecting like-minded individuals, facilitating various dog-related services, and promoting responsible pet ownership. Users can engage in discussions, share their experiences, and seek advice from fellow dog enthusiasts.

Furthermore, our platform provides a comprehensive marketplace for dog sales, ensuring that responsible breeders and sellers can connect with potential buyers. This feature promotes ethical practices and helps individuals find their perfect canine companion.

As we continue to evolve, we are dedicated to enhancing this platform further.By continuously improving our platform, we aim to create a valuable resource for dog lovers and enthusiasts across the United States.

In conclusion, our project not only revolutionizes dog breed prediction through advanced machine learning but also creates a thriving community and marketplace for dog lovers. We are committed to the ongoing development of this platform, ensuring its relevance and usefulness in the ever-evolving world of canines.

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(“on dog breed classification using convolutional neural networks”)

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