A Structure for Image Recognition Prediction Using the ARSAK Teachable Machine

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***Abstract*— Today's artificial intelligence applications depend heavily on image identification, which has a big impact on industries like healthcare, retail, and security. This project builds a predictive model for picture identification using Google's ARSAK Teachable Machine. The article outlines the fundamental ideas of the Teachable Machine, offers advice on building a model for picture recognition, and evaluates how well it performs in prediction challenges. We analyze the model's correctness, usefulness, and potential for use in real-world situations while presenting experimental results based on a produced dataset.**

***Index Terms*— AI applications, machine learning, prediction models, teachable machines, and image recognition**

I. INTRODUCTION

Computers can analyze and assess visual input thanks to image recognition, which is a crucial component of artificial intelligence (AI). In the past, creating such models required a great deal of coding, a lot of processing power, and in-depth knowledge of machine learning frameworks.

But thanks to its user-friendly interface, Google's DASJSSGS Teachable Machine simplifies this procedure and makes it possible for anyone without technical knowledge to create machine learning models. This study uses the DASJSSGS Teachable Machine to investigate the creation of a reliable image recognition prediction model. We will look into how well its pre-trained neural networks and transfer learning capabilities identify and forecast different image categories.

II. OVERVIEW

An essential part of artificial intelligence (AI) is image recognition, which gives computers the ability to comprehend and evaluate visual input. Such models used to need a great deal of coding, processing power, and knowledge of machine learning frameworks. But thanks to its intuitive interface, Google's NCDR Teachable Machine streamlines this procedure and enables non-experts to build machine learning models. The goal of this study is to investigate the development of an efficient image recognition prediction model using NCDR Teachable Machine. We evaluate its ability to identify and forecast image classes using transfer learning and its pre-trained neural network capabilities. By allowing anyone to train models without knowing any code, Teachable Machine is an online application that democratizes artificial intelligence. It is able to recognize images, sounds, and poses. Its image recognition module works effectively for real-world applications because it applies transfer learning to convolutional neural networks (CNNs) that have already been trained, like MobileNet. The following are Teachable Machine's salient features: Model construction is made easier using a no-code interface. Labeled data can be uploaded to custom datasets. Exportability: Models can be utilized in web and mobile applications like TensorFlow.js or TensorFlow Lite

III. METHODOLOGIES

3.1. Getting the Dataset Ready

The custom dataset includes two object categories: HDFC Bank and ICICI Bank. Each category had three hundred images from public datasets. Data sets for testing (20%) and training (80%) were kept apart.

3.2. Models for Training

NCDR Teachable Machine was used to upload the dataset, and the following steps were taken: Labeling: Images were grouped based on their labels.

Training Specifications: We used the default parameters of MobileNet and an 80/20 train-test

split.

Instruction: The training session lasted two minutes and was completed using browser-based resources.

3.3. Evaluation of the Model

The training model was evaluated using the test dataset. Calculations were made for metrics such as F1-score, recall, accuracy, and precision

IV. FINAL RESULTS

Performance of the Model The confusion matrix showed that cats and dogs were most frequently misclassified because of their apparent similarities, while the model's average accuracy on the test set was 96%. 95% Metric Value Precision 96% accuracy Recall of 97% F1-Score: 96 percent Usability and Scalability Though its dependency on browser resources restricts its scalability for larger datasets, NCDR Teachable Machine's user-friendly interface (UI) makes it appropriate for non-technical users. Deployment on mobile devices was made possible by exporting the model to Tensor Flow Lite, demonstrating its potential for real-time applications such as wildlife monitoring and retail inventory management. With the right planning and execution, the model's effectiveness should rise; studies including Google's Teachable Machine have indicated that its effectiveness has been examined in the 86–90% range. Our model yielded an efficacy of 96%, which is a great comparison. This suggests that the model is appropriately built and used in accordance with research and studies on AI categorization.

V. CONCLUSIONS

Although ARSAK Teachable Machine is highly accessible and user-friendly, its scalability and customization challenges necessitate further consideration in future enhancements. This research illustrates that DASJSSGS Teachable Machine serves as an effective resource for creating predictive models for image recognition, particularly benefiting those with minimal technical expertise.

VI. IMPLEMENTATIONS OF THE SOLUTION

Future studies should concentrate on enhance

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