Creating An Image Recognition Model Using ARPYM Model

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***Abstract*—Today's artificial intelligence applications, which have a big impact on industries like healthcare, retail, and security, depend heavily on image identification. In this project, a prediction model for image identification is developed using Google's ARPYM Teachable Machine. The article describes the fundamental ideas of the Teachable Machine, offers guidance on building a model for photo recognition, and evaluates the model's performance on prediction tests. Using a produced dataset, we provide experimental results and assess the model's correctness, usefulness, and practicality.**

***Index Terms*—Uses of teachable machines, machine learning, artificial intelligence, image recognition, and prediction models**

I. INTRODUCTION

A key element 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 ARPYM Teachable Machine streamlines this procedure and enables non-experts to develop machine learning models. Analyzing the The goal of this research is to use ARPYM Teachable Machine to create an efficient picture recognition prediction model. We examine how well transfer learning identifies and predicts image classes using its pre-trained neural network capabilities.

II. OVERVIEW

An online application called Teachable Machine makes artificial intelligence more accessible by allowing anyone to train models without knowing any code. It is able to recognize images, sounds, and poses. Due to the fact that its image recognition module applies transfer learning to convolutional neural networks (CNNs) that have already been trained, like MobileNetfollows: Model construction is made easier using a no-code interface. Labeled data can be uploaded to custom datasets. Exportability Models can be used as TensorFlow.js or Tensor Flow Lite for web and mobile application

III. METHODOLOGIES

3.1 Preparing the Dataset HDFC Bank and ICICI Bank are the two object categories that are part of the custom dataset. There were three hundred in each category. Two pictures from openly available datasets. Data sets were separated for training (80%) and testing (20%).

3.2. Models for Training After uploading the dataset using ARPYM Teachable Machine, the subsequent actions were performed:
Labeling: Pictures were arranged according to their labels. Training Specifications: We employed an 80/20 train-test split with MobileNet's default settings. Directions: Using browser-based resources, the two-minute training session was finished.

3.3. Assessment of Model The test dataset was used to assess the training model.

IV. FINAL RESULTS

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 Precision 96% 97% recall F1-Score: 96 percent Usability and Scalability Although NCDR Teachable Machine's user-friendly interface (UI) makes it appropriate for non-technical users, its scalability for larger datasets is constrained by its dependence on browser resources. By exporting the model to Tensor Flow Lite, it was possible to deploy it on mobile devices, demonstrating its potential for real-time applications such as wildlife monitoring and retail inventory management. Proper design and implementation should boost the model's efficacy; tests have indicated that its efficiency ranges between 86 and 90%, according to Google and Teachable Machine. The effectiveness we have obtained is around 96% and previously it was 86%. Hence, performance is enhanced.

V. IMPLEMENTATIONS OF THE SOLUTION

Future studies should concentrate on enhancing scalability for sizable datasets and investigating potential applications for time-series picture data.

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