AI Trained Object Finding Using Google Teachable Machine

[1]**Mallikarjun L.S.,** [1]**Raghavendra Urankar,** [1]**Sujal S. Kharbhari,** [1]**Ajaykumar,**
[2]**Dr. Pavithra G.,** [3]**Dr. Sindhu Sree M.,** [4]**Dr. T.C.Manjunath*,**
[5]**Rajashekher Koyyeda,** [6]**Aditya T.G.**
[1]*First Semester BE (ECE) Students, Dept. of Electronics & Communication Engg.,*
Dayananda Sagar College of Engineering, Bangalore, Karnataka
[2]*Associate Prof., Electronics & Communication Engg. Dept.,*
Dayananda Sagar College of Engineering, Bangalore, Karnataka
[3]*Assistant Prof., Electronics & Communication Engg. Dept.,*
Dayananda Sagar College of Engineering, Bangalore, Karnataka
[4] *Professor & HOD, Electronics & Communication Engg. Dept.,*
Dayananda Sagar College of Engineering, Bangalore, Karnataka
[5]*Asst. Prof., EEE Dept., Tatyasaheb Kore Inst. of Engg. & Tech., Warananagar, Kolhapur*
[6] *Fifth Sem Student, CSE Dept., PES University, Bangalore*

Abstract
In this paper, the AI Trained Object Finding Using Google Teachable Machine is presented. Artificial intelligence (AI) and machine learning (ML) teaching technology is crucial for improving the quality of basic education. Using AI and ML technology, teachers of young children can enhance the learning environment in the classroom and make learning more enjoyable. By integrating GTM student-trained models into lightweight and cellphone web apps, machine learning can be made accessible to a broader audience. Although students must understand fundamental concepts such as training set, prediction accuracy, and class labels, practical experience is necessary to solve complex real-world issues. AI Trained Object Finding, which uses Google Teachable Machine, is a project that explores the use of machine learning to detect and classify objects in images. The project trains a custom machine learning model to recognize specific objects using a set of labeled images. The trained model can then be tested on new images to determine its accuracy in object detection and classification. This project demonstrates the potential of machine learning in various fields such as e-commerce, security systems, and surveillance and provides an accessible way for individuals and small businesses to utilize this technology. The work done & presented in this paper is the result of the mini-project work that has been done by the first sem engineering students of the college and as such there is little novelty in it and the references are being taken from various sources from the internet, the paper is being written by the students to test their writing skills in the starting of their engineering career and also to test the presentation skills during their mini-project presentation. The work done & presented in this paper is the report of the assignment / alternate assessment tool as a part and parcel of the academic assignment of the first year subject on nanotechnology & IoT.
Keywords: AI, Training, Object Finder, Google, Teacher, Machine

1. Introduction

Artificial Intelligence (AI) has emerged as a transformative technology that has revolutionized various fields, including computer vision and object recognition. AI-powered systems have the capability to learn and identify objects, enabling them to perform tasks that were once exclusive to humans. One such advancement in this domain is AI trained object finding using Google Teachable Machine. This innovative platform allows users to train their own AI models to recognize and classify objects in real-time, opening up a plethora of applications in areas such as image recognition, augmented reality, robotics, and more as shown in Fig. 2.
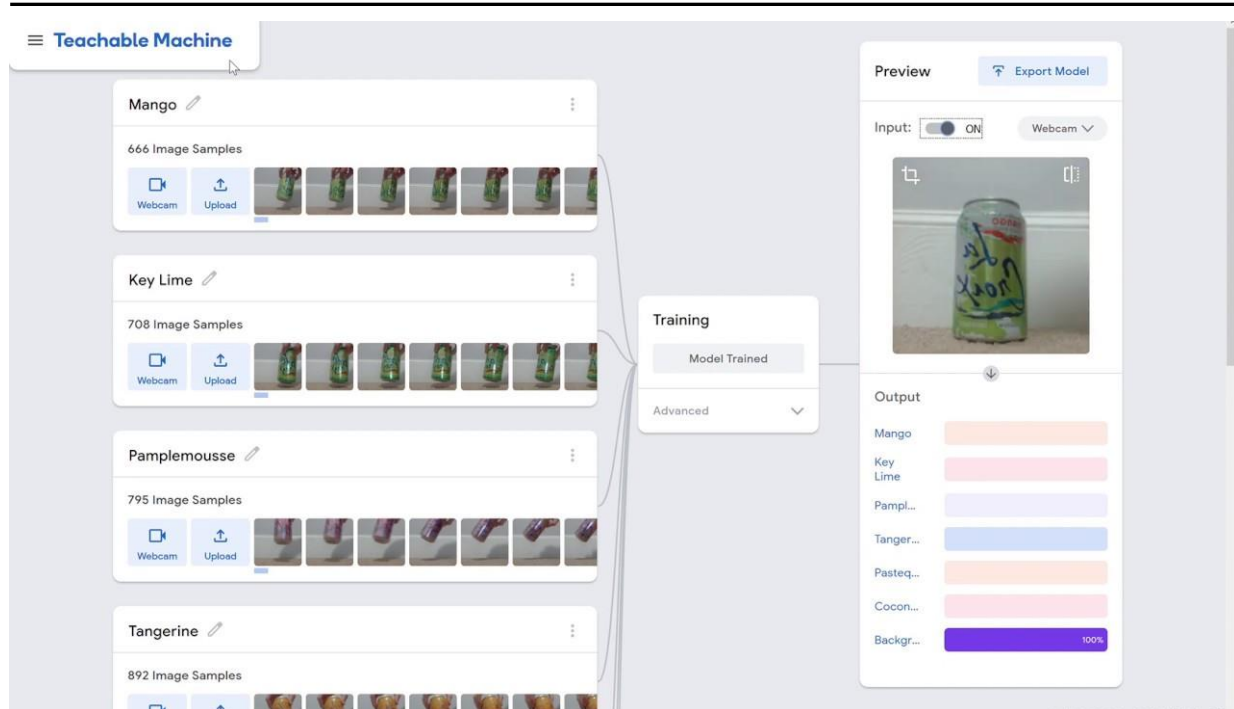
Fig. 2 : Software GUI model

2. Overview of AI Trained Object Finding

AI trained object finding using Google Teachable Machine leverages machine learning techniques to enable users to create their custom models for object detection. This process involves training the model with a dataset consisting of images or video clips of the desired objects. By utilizing the Google Teachable Machine platform, users can label and classify different objects, allowing the AI model to learn and recognize them accurately. The trained model can then be deployed to perform real-time object detection tasks on various devices, such as smartphones, computers, or embedded systems as shown in Fig. 1.

3. Benefits and Applications

The use of AI trained object finding has numerous benefits and applications across various industries. Firstly, it empowers individuals and organizations to create customized object recognition systems tailored to their specific needs. This flexibility opens up opportunities for diverse applications, including:

a) Industrial Automation: AI trained object finding can enhance automation processes by enabling machines to identify and locate specific objects in industrial settings. This can streamline production lines, optimize logistics, and improve quality control.

b) Retail and E-commerce: Object detection can be utilized in retail environments to automate inventory management, track product availability, and provide personalized shopping experiences. It can also be applied in e-commerce platforms to enhance product search capabilities.

c) Healthcare: AI trained object finding can aid in medical imaging analysis, assisting in the detection and classification of anomalies or diseases. It can also facilitate surgical procedures by providing real-time guidance to medical professionals.

d) Security and Surveillance: Object detection algorithms can be integrated into surveillance systems to identify and track objects of interest, enhancing security and public safety.

) Robotics and Autonomous Systems: AI trained object finding is crucial for enabling robots and autonomous systems to perceive and interact with their environment, leading to advancements in fields such as autonomous vehicles, drones, and robotics.

4. Limitations and Future Directions

While AI trained object finding using Google Teachable Machine offers immense potential, it also faces certain limitations. The accuracy of the model heavily depends on the quality and diversity of the training dataset. Additionally, performance may vary under challenging conditions, such as changes in lighting, perspective, or occlusion. Ongoing research and development efforts are aimed at addressing these limitations, with a focus on improving accuracy, robustness, and generalization capabilities of AI models.
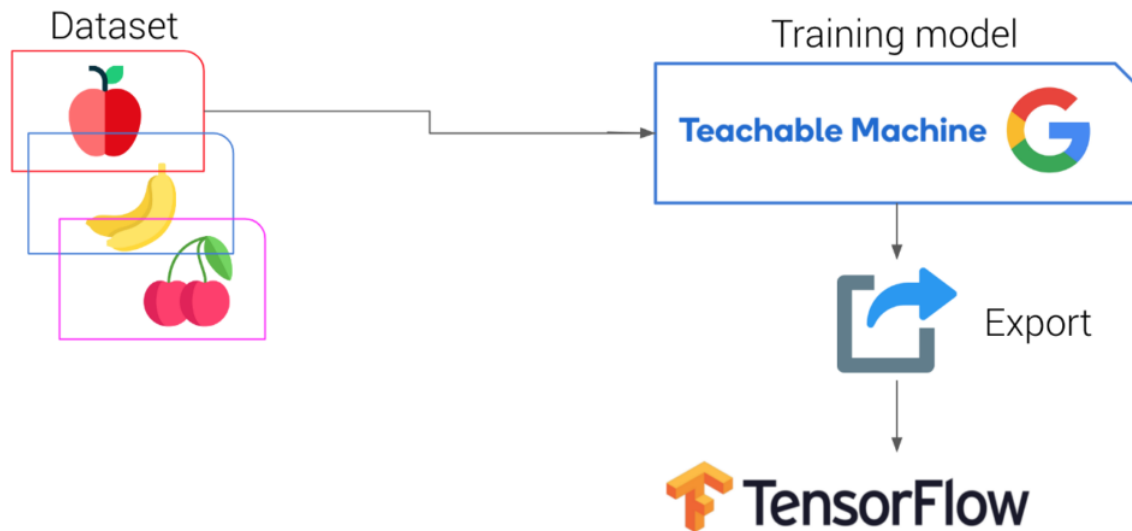

Fig. 1 : Block diagram of the project work

Looking ahead, the future of AI trained object finding holds great promise. Advancements in deep learning algorithms, computer vision techniques, and hardware capabilities will continue to drive progress in this field. As more organizations and individuals embrace this technology, we can expect further innovations and applications that will reshape industries and empower users with intelligent object recognition systems.

5. Conclusion

AI trained object finding using Google Teachable Machine offers a user-friendly and accessible platform for creating customized object detection models. This technology unlocks a wide range of applications across industries, enabling automation, improving efficiency, and enhancing decision-making processes. While limitations exist, ongoing research and development efforts are propelling the field forward. With the continued advancements in AI and computer vision, we can anticipate significant breakthroughs in object recognition capabilities, leading to a future where AI-powered systems seamlessly perceive and interact with the world around us.

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