**Vehicle Brand Detection**

**About Project.:**

With the advent of self-driving vehicles, the auto industry is experiencing an unprecedented demand for vehicle detection technologies. Vehicle detection tools are used to prevent collisions with pedestrians and other vehicles for safety purposes. The competitive landscape for developing these technologies has intensified as companies like Intel and General Motors enter the market.

Vehicle Brand Detection is a deep learning project that has been developed by using transfer learning. I have used transfer learning here because it is very useful since most real-world problems typically do not have millions of labelled data points to train such complex models. Keras library is used because it enables fast experimentation with deep neural networks. The model was built using Resnet 50 as it can train deep neural networks with many layers.

This data set includes Car images used for Brand Classification. Here, we have two folders namely train and test, each of them has three folders named Lamborghini, Audi, and Mercedes.

**Novelty of project.:**

We might think that the novelty of this project is the AI. For us humans, the novelty is actually our very own knack for recognizing a car brand and, while it recognizes brands just like any human would, it does so at a speed which was never possible before. This can make life a lot easier for car buyers and sellers as they can get an accurate valuation in seconds.

**Limitations of Project.:**

Whether due to the size of the data in question, or the complexity of tasks it has to perform, sometimes a deep learning algorithm will not be able to recognize objects and patterns. Limitations are mainly caused by size, computational power, and diversity of data. A better recognition technology is needed for this project. Sometimes it becomes difficult for the algorithm to detect the car brand if it was around many objects which can get improve further. The number of brands of car can be increased further and make model more accurate by using more powerful algorithms.

**How would you enhance the project, assume no computational restriction?**

In order to solve this problem, we need to be able to find a cure for the limitations of computational power and data size. One way would be by collecting more diverse data sets. This will also help us come up with better algorithms. Another way would be to use more powerful algorithms that can process data more efficiently. In order to ensure a greater accuracy, I suggest that the range of vehicle brands be increased. By using algorithms with more powerful computational power and data size, we will be able to increase the range of vehicle brands that can be detected in different scenarios.