**Vehicle Counting**

**ICRL-1001-22**

# **Introduction**

The aim of this project is to analyze the vehicle analytics in the parking area of an office or institute. We were analyzing the quantity of vehicles enter or exit from the parking area. Secondly, we are classifying the type of vehicle either it is car, bus truck van or motor bike.

# **Dataset**

Custom dataset was used for the vehicle counting project. Vehicle counting dataset was collected from the parking of university of engineering and technology Lahore, that was basically based on the recorded video dataset of parking area. The details of the used dataset are following:

* Parking area recorded videos
* Video Length: 2-3 minutes
* Video Quantity: 10-12 clips

# **Preprocessing**

The preprocessing steps of the proposed project are following:

* Extract Image Frames from Videos
* Annotate the Extracted Image Frame
* Annotation Criteria
  + Car
  + Bus
  + Truck
  + Van
  + Motor bike

# **Model Training**

For the vehicle counting in the parking of an institute, Faster RCNN model was trained with the annotated images. The details of the model training are following:

* Use 2500 Annotated Images

# **Results**

* Use 300 Annotated Samples for Evaluation
* Calculate Mean Absolute precision (MAp)
* Got 0.8 value of MAP for validation samples

# **AUTHOR CONTRIBUTIONS**

Hafiz Umar Daraz conceived the original idea. Zeeshan khan developed the theory and performed the computations. Abdullah Tariq verified the analytical methods. Muhammad Umar optimize the model for deployment. All authors discussed the results and contributed to the final report.