**IMPLEMENTATION:**

**MODULES:**

* **User**
* **Admin**
* **Data collection**
* **CNN**

**MODULES DESCRIPTION:**

**User:**

The User can register the first. While registering he required a valid user email and mobile for further communications. Once the user register then admin can activate the user. Once admin activated the user then user can login into our system. User can upload the dataset based on our dataset column matched. For algorithm execution data must be in float format. Here we took heavy vechicles related fuel consumption dataset. User can also add the new data for existing dataset based on our Django application. User can click the training in the web page so that the data calculated model results like(mean\_absolute error, mean\_square error, r2\_error) based on the algorithms. User can display the prediction results. After that user can logout.

**Admin:**

Admin can login with his login details. Admin can activate the registered users. Once he activate then only the user can login into our system. Admin can view the overall data in the browser. Admin can click the model Results in the web page so calculated (mean\_absolute error, mean\_square error, r2\_error) based on the algorithms. After that admin can logout.

**Data collection:**

The model is developed by using duty cycles collected from a single truck, with an approximate mass of 8, 700 kg exposed to a variety of transients including both urban and highway traffic in the Indianapolis area. Data was collected using the SAE J1939 standard for serial control and communications in heavy duty vehicle networks [24]. Twelve drivers were asked to exhibit good or bad behavior over two different routes. Drivers exhibiting good behavior anticipated braking and allowed the vehicle to coast when possible. Some drivers participated more than others and as a result the distribution of drivers and routes is not uniform across the data set. This field test generated 3, 302, 890 data points sampled at 50 Hz from the vehicle CAN bus and a total distance of 778.89 km over 56 trips with varying distances. Most of the trips covered a distance of 10 km to 15 km. In order to increase the number of data points, synthetic duty cycles over an extended distance were obtained by assembling segments from the field duty cycles selected at random. Moreover, a set of drivers are assigned to the training segments and a different set of drivers are assigned to the testing segments, thereby ensuring that the training (Ftr) and testing (Fts) data sets derived from the respective segments are completely separate.

**CNN( Convolutional Neural Network):**

The proposed model can easily be developed and deployed for each individual vehicle in a fleet in order to optimize fuel consumption over the entire fleet. The predictors of the model are aggregated over fixed window sizes of distance traveled. Different window sizes are evaluated and the results show that a 1 km window is able to predict fuel consumption with a 0.91 coefficient of determination and mean absolute peak-to-peak percent error less than 4% for routes that include both city and highway duty cycle segments.