RECRUITMENT ASSIGNMENT

Smart Traffic Light System Using Deep Learning

Traffic congestion is a huge problem in almost every developing country as the people using private vehicles are increasing each day and the capacity of the road networks is still not up to the mark. Vehicular traffic problems are very common in urban areas as both private vehicles and other public transportation services are huge in number due to the dense population. This problem affects the functioning of the city.

Nowadays, artificial intelligence (AI) and Computer vision are playing an important role in solving many of the real-world problems. We may use these Machine Learning techniques to address road traffic management problems.

Objective:
Integrate a vehicle detection system in a traffic light camera, you could easily track the number of useful things simultaneously:

- How many vehicles are present at the traffic junction during the day?
- What time does the traffic build-up?
- What kind of vehicles are traversing the junction (heavy vehicles, cars, etc.)?
- Is there a way to optimize the traffic and distribute it through a different street?

Since you have already done a deep learning project/Image Processing, more or less similar to the Traffic system.
We just want you to test the following requirements in your project

Implementation:

The main idea behind this is to divide the system into the following phases.

1. In the first phase, classify the traffic signal junctions into one of the three different zones.
    a. High-level
    b. Medium-level
    c. Low-level traffic zones
2. In phase second, use classification algorithms like Support Vector Machine, to classify the traffic into given zones.
3. In the third phase, optimize the signal configuration of high-level traffic zones to bring them to either medium-level or low-level traffic zones. Models like this are mostly built using TensorFlow, sklearn along with a few other utility packages like skimage.

If you have already done this just highlight them in your demo. If you have not implemented try to implement them in a couple of days. We would love to see implementation.
Dataset: You are free to use the dataset you have already with you.