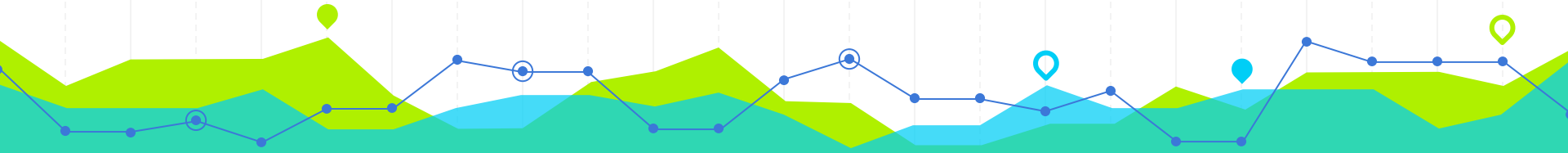
E-Vehicle Optimization using Reinforcement Learning and Machine Learning



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OUTLINE

Area of the Project

This project would make use of the following area:

- Python
- Artificial Intelligence
- Reinforcement Learning
- Routing Techniques
- Distance Algorithm
- MATLAB Simulink
- Carla

Background of the Problem

The existing network of transportation can no longer keep up with the growing demand in metropolitan cities. Short distance travel has become an unresolved issue for daily commuters. The case presents how MMVs have emerged as an alternative mode of transport for resolving issues of daily commuters regarding the first-mile connectivity, last-mile connectivity and short distance travel to reach their final destination. MMVs are basically light-weight vehicles which occupy less space on road. These vehicles include bicycles, e-bikes, skateboards, hoverboards and other battery-operated vehicles. An electric vehicle venture promotes the concept of green consumerism among the daily commuters at affordable rates. Recently, E-vehicles systems are being found to have been damaged by users due to inconsistent routes, mechanical problems and driver errors. Thus,this project intends to create a tool for damage limitation and optimize routing of such E-vehicles.

Modules/Plans

- Mapping of City with high E-Vehicle Usage
- Adding parameter of battery charge
- Weighing of inter-city routes
- Bot creation to display most optimized route via distance(not time)
- User Interface Search and Hosting.

Expected Output

- Get proper routes to account if in case user reaches destination or needs to head to a recharging station.
- At a recharging station, look for available slots or reroute to the nearest charging station with a free slot.

Problem Statement

Taking into accounts the background of the project,our problem statement would be:

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In cities having the availabilities of E-vehicles, we are going to create an AI function to map the optimal route in a provided city landscape structure to avoid damage, engine stagnation, battery leakage and discharge by providing users the route to their destination on a point-to-point basis which allows them to reach their destinations on time with the integrity of the structure of the E-Vehicle intact.”