Deepening penetration of battery vehicles (BVs) reduces funding of the transportation infrastructure because of the absence of gasoline tax collection from BVs.

- There are 3 key goals:
  - Design a secure and privacy-preserving tax collection model for BVs that uses mileage and location of the vehicle for tax computation.
  - Compute tax amount for each authority—county, state, federal—based on the miles driven in each region.
  - Ensure the audibility of the tax computation in case of challenge by any affected entity.

Design of a system in conformance with the requirement.

Implementation of the tamper-resistant mechanisms to protect the integrity of the system.

Design of a system that preserves location privacy of the user but provides audibility of the tax amount.

Development and incorporation of fail-safe mechanisms for situations such as car crashes, instrument malfunction/destuction, data unavailability, and hacking.

Assurance of scalability, robustness, and cost-effectiveness for practically oriented system.

Implementation of tamper-resistant mechanisms to protect the integrity of the system.

Preparation of documentation that discusses the key requirements of the system.

Design of the system in conformance with the requirement specification.

Implementation of the system on an open-source platform, and testing of the system.

The design can be ported to any automotive platform or smartphone platforms such as iOS, and can be deployed to Pay-As-You-Drive (PAYD) insurance schemes with minor modifications.

The odometer simulator and GPS simulator can be used to develop other car applications.

Development of all the applications on Android platform.

Implementation of the tamper-resistant feature that explicitly corroborates the data collected from the GPS, odometer, and accelerometer.

Implementation of distinct levels of privacy and security for the viewer, and, if possible, testing of it with actual users.

Comprehensive documentation to allow the portability of the application on a future automobile platform.