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(57) Abstract :
 FEDERATED AND DIFFERENTIAL PRIVACY-ENHANCED AUTOMATED DATA AGGREGATION FRAMEWORK FOR HETEROGENEOUS SMART CITY NETWORKS ABSTRACT The invention relates to a system (100) for automated data aggregation in heterogeneous smart city networks, ensuring both scalability and privacy preservation. The system comprises a plurality of data sources (110) configured to collect and transmit data from various smart city devices and sensors. A federated learning module (112) trains machine learning models across these data sources without transferring raw data, thus maintaining data privacy. Integrated with this module is a differential privacy engine (114) that adds noise to aggregated data, balancing privacy with data utility. The system also includes a data fusion module (116) that normalizes and integrates data from heterogeneous sources, producing a unified dataset for analysis. An automated data aggregation unit (118) continuously processes and stores this data, enabling real-time analytics. Finally, a secure data transmission mechanism (120) ensures that the aggregated data is transferred to storage with integrity and privacy protection. FIG. 1

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