Green

DENSO
Crafting the Core

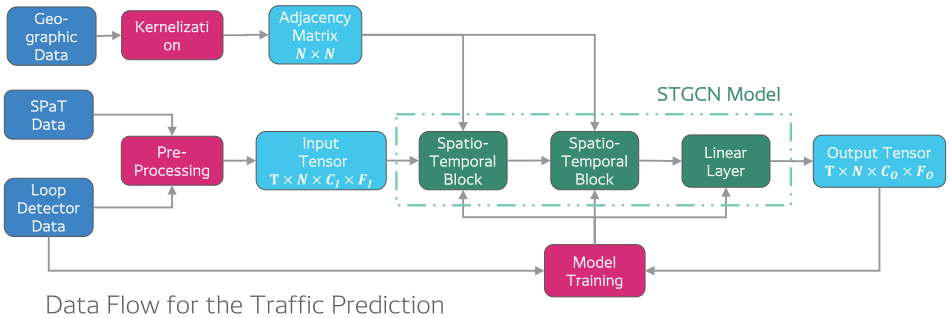
Improvement in Corridor Level Traffic Volume Predictions by Using Signal & Phase Timing Data

Integrating Intersection Signal Data for Traffic Prediction

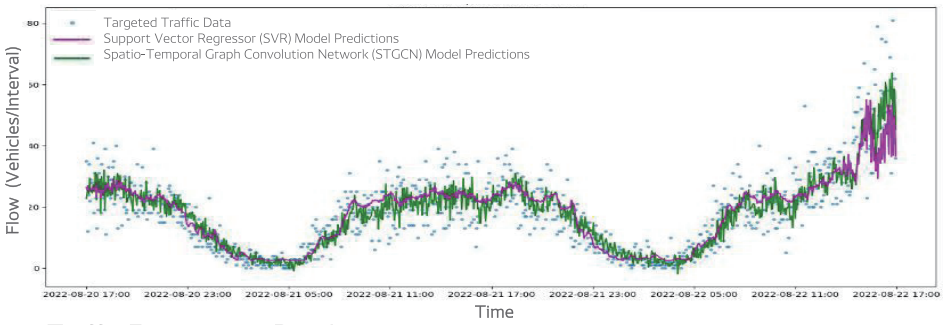
Highlights

- Investigating the impact of signal phase & timing data to traffic volume forecast
- Using a Graph Neural Network (GNN) for spatial connections and increase scalability

Configuration



Data Flow for the Traffic Prediction

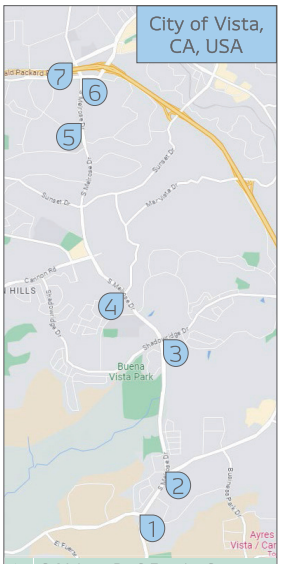


Traffic Forecasting Results

Model Type	Training Network	Performance on RSU set	1-Channel Model	2-Channel Model
STGCN	3-RSU	RSU 1-3	99.91	94.63
STGCN	7-RSU	RSU 1-3	94.92	91.27
		RSU 1-7	82.61	76.57
SVR	Individual RSUs	RSU 1-7	81.79	79.13

Table: Traffic Forecasting Performance

Applied real-world data from Road-Side Units (RSUs) at 7 intersections in City of Vista, California



1.	S. Melrose Dr. & Faraday St.
2.	S. Melrose Dr. & Sycamore Ave.
3.	S. Melrose Dr. & Shadowridge Dr.
4.	S. Melrose Dr. & Longhorn Dr.
5.	S. Melrose Dr. & County Complex
6.	S. Melrose Dr. & Hacienda Dr.
7.	N. Melrose Dr. & W. Vista Way

Result

- Integrated real world traffic signal data in conjunction with loop detector data to forecast traffic volume on the corridor level for the first time.
- SPaT improved performance and method was shown to be scalable.

#Collaboration with City of Vista (California)