Indo/US Collaborative Research Grants

National Science Foundation of US and Technology Innovation Hubs of India

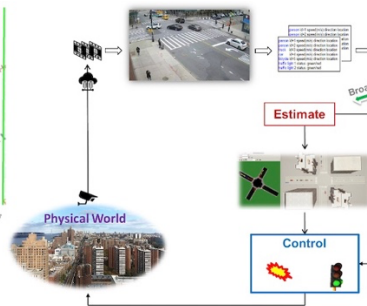**Title:** Networked Adaptive Traffic Signal Control in IoT-Enabled Smart Cities
Indian PIs: Dr. Dhish Kumar Saxena and Dr Amit Aggarwal, Indian Institute of Technology, Roorkee, India; and Prof Ashish Ghosh, Indian Statistical Institute Kolkata.
US PIs: Prof. Sharon Di, Zoran Kostic, Gil Zussman,Qiang Du, Columbia University, New York, US
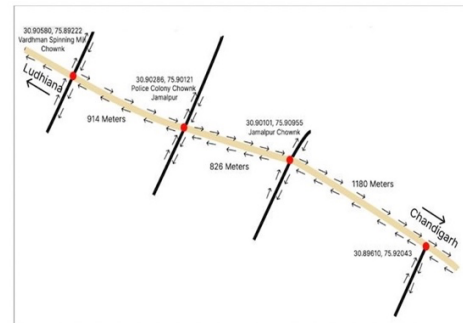
Building on an ongoing NSF CPS project, this Indo-US team aims to develop a networked traffic signal control system enabled by Internet-of-things (IoT) in smart cities, leveraging two existing testbeds, the COSMOS testbed in NYC, and T-CPS testbed in Ludhiana, Punjab. The synergy between the US team and the India team lies at the intersection of data science and smart cities, including Computer Vision, Machine Learning, Data-Driven Optimization, and Digital Twin. In particular, this project will leverage the COSMOS testbed to develop a digital twin for urban traffic systems and use transfer learning to generalize the developed digital twin to simulate and optimize Indian traffic systems, calibrated with traffic data provided from the Indian testbed.
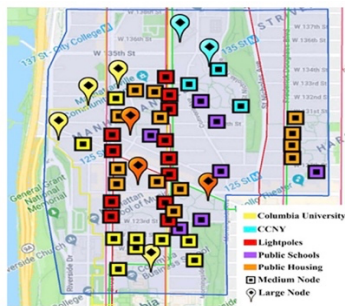
COSMOS tested in the US   Traffic digital twin architecture   T-CPS tested in India