C2SMART Center
Led by New York University

A solution-oriented research center taking on some of today's most pressing urban mobility challenges

April 15, 2021

c2smart.engineering.nyu.edu
## Connected Cities with Smart Transportation

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<td><strong>Big Data &amp; Smart Cities</strong></td>
<td>- Develop Secure and Interoperable Data Sharing Platforms and System-oriented Solutions</td>
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<td><strong>Safety of Pedestrians and Mobility Systems</strong></td>
<td>- Analyze behaviors of vulnerable road users and find ways to improve the safety</td>
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<td><strong>Equity &amp; Accessibility</strong></td>
<td>- Mobility Solutions for Under-represented Populations</td>
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Response to the COVID-19 Pandemic’s Impact on Transportation

An all-in-one data dashboard was built with interactive analytics and visualization of various mobility and sociability data sources to monitor transportation trends in the wake of COVID-19.

**Mobility Board** All-in-one Dashboard for Mobility Trends

- Transit Ridership
- Speed & Travel Time
- Camera Violations
- Vehicular Volume
- Crashes
- Micromobility
- Social Distancing
- Weight in Motion
- NYC/Seattle/Multiple cities in China
- Corridor Travel Time
- Speeding/parking tickets
- Traffic volume
- Changes in crashes
- Bike/BikeShare
- Density & Social distance
- Freight Movement

**Sociability Board** Measuring Social Distancing Based on Computer Vision

- Analysis: 1 social distance violations detected.
- Car: 5
- Motorcycle: 1
- Bus: 2
- Person: 7

**COVID-19 Travel Survey**
For Different Demographics

**White Papers & Publications**
Detailing COVID-19 Research

**MATSIM-NYC** Multi-agent Simulation To predict COVID-19 Impacts

In collaboration with PacTrans & CTECH UTCs
UTC-Industry-Agency Testbeds

**Open-Source Multi-Agent Virtual Simulation Testbeds in New York City & Seattle**

- Multi-agent simulation-based decision support tool
- Evaluating and implementing emerging technologies and policies
  - Evaluate policies such as congestion pricing
  - Quantifying truck route network efficiency
  - Evaluate impacts of COVID-19
  - Brooklyn bus network redesign

**Smart Roadway Testbed on the Brooklyn Queens Expressway in New York City**

- Weigh-in-Motion (WIM) system deployed on a live-section of expressway to measure the impact of overweight trucks
- Monitoring recommended by faculty on NYC’s Expert Panel to address deteriorating cantilevered structure
- WIM Technologies from various vendors were deployed and calibrated
- WIM Installation conducted with NYCDOT

- C2SMART research, monitoring, & analysis
- NYCDOT installation and maintenance
- Industry partners’ equipment and expertise
Recent projects focusing on:
- Aging populations
- People with disabilities
- Low income households
- Gender disparities in travel

Mobility Solutions for Under-represented Populations

COVID-19 Travel Survey
Focus on People with Disabilities, Aging Population and Low-income Households

Urban Connector
An app designed to meet the specific mobility needs of seniors in cities

The Pink Tax on Transportation
Women’s Challenges in Mobility

Accessibility Lab in the Subway
Evaluation of new features and mobile apps at MTA New York City Transit’s Accessible Station Lab

NYC CV Pilot App
For pedestrians with visual disabilities

Equitable Access To Residential EV Charging

Wearables for Visually Impaired Smart Navigation
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<th><strong>Recent Research Highlights</strong></th>
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<td><strong>Energy Harvesting Self-powered Sensors for Smart Infrastructures</strong></td>
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<td><strong>Street-Level Flooding Platform: Sensing and Data Sharing For Urban Accessibility and Resilience</strong></td>
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<td><strong>Cooperative Perception with Edge AI for Driving Assistant</strong></td>
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<td><strong>NYSDOT Statewide Open Source ATMS Software Research</strong></td>
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<td><strong>Development of LOS Analysis Procedures and Performance Measurement System for Parking</strong></td>
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Capacity Building & Technology Transfer

C2SMART Student Learning Hub **Launched in Fall 2020**
Free online skills courses open to all consortium member students - planned expansion to other schools and public colleges.

Common Innovation Platform (CIP)
A collaborative project workspace and task tracking tool for the Center and researchers in the consortium:
- Two-way interaction between researchers & tools using API capabilities
- Interconnected databases and repositories
- Automated project tracking and task management

Newly Renovated Space at NYU Tandon for Research, Trainings, Workshops, and Events

Check out our **2019-2020 Annual Report**
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