



# Cyber-Physical Transportation System

Holistic. Multidisciplinary.  
Intelligent.



# The Problem

## Ineffective Solutions

- The usual hit-and-miss approach resulted to slow improvements, which is even intensified by the increasing number of vehicle demand from travelers

## Adaptive Systems

- There is a need for a novel approach that does not only make traffic management in the Philippines more efficient, but also adapts to the increasing number of contributors in urban traffic flow

## Multidisciplinary Efforts

- The Philippines is currently in the process of developing new technologies to strengthen the foundations of advanced transportation systems in the country

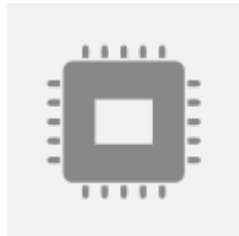


# Cyber-Physical Transportation System

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Developing a system that monitors, communicates, senses, and actuates traffic information data through different components for an intelligent management of traffic flow in the road network.

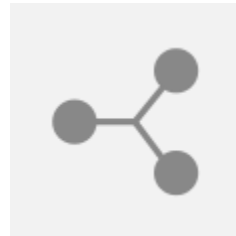
# Cyber-Physical Transportation System



## Computing

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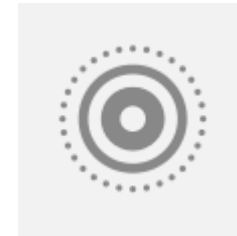
Central unit for monitoring, analyzing, and storing data



## Communication

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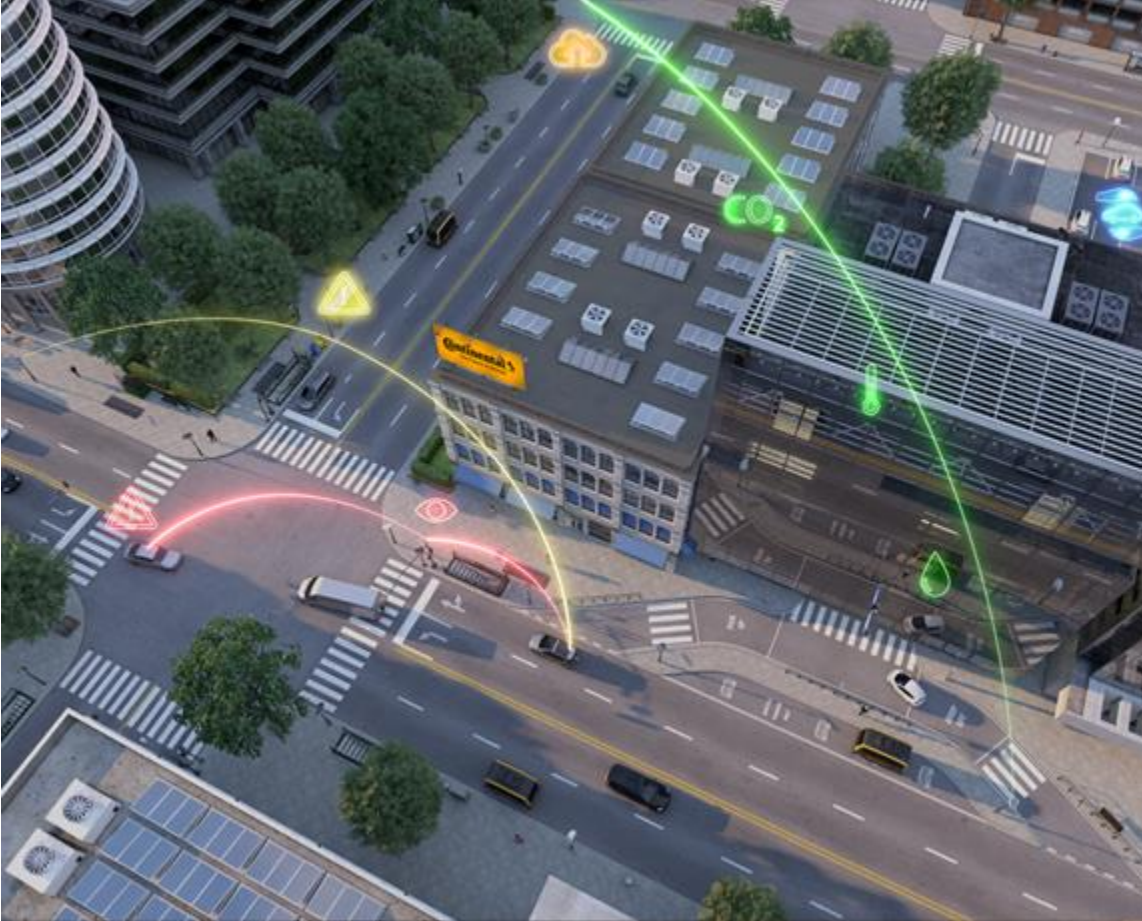
Network for transmitting captured data and control commands



## Sensing and Actuation

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On-field units for data gathering and traffic management



# Objectives

The core components and their respective end products



Hardware

i-ATOMs



Software

T4Cast



Command Center

CORTEX and AORTA



R&D Center

ITS Lab



# i-ATOMS

Intelligent Advanced Traffic Control Modular Units

## Features:

- Sensor System
- Vehicle-Actuated Traffic Signals
- Variable Message Sign
- Wireless Communication with Command Center



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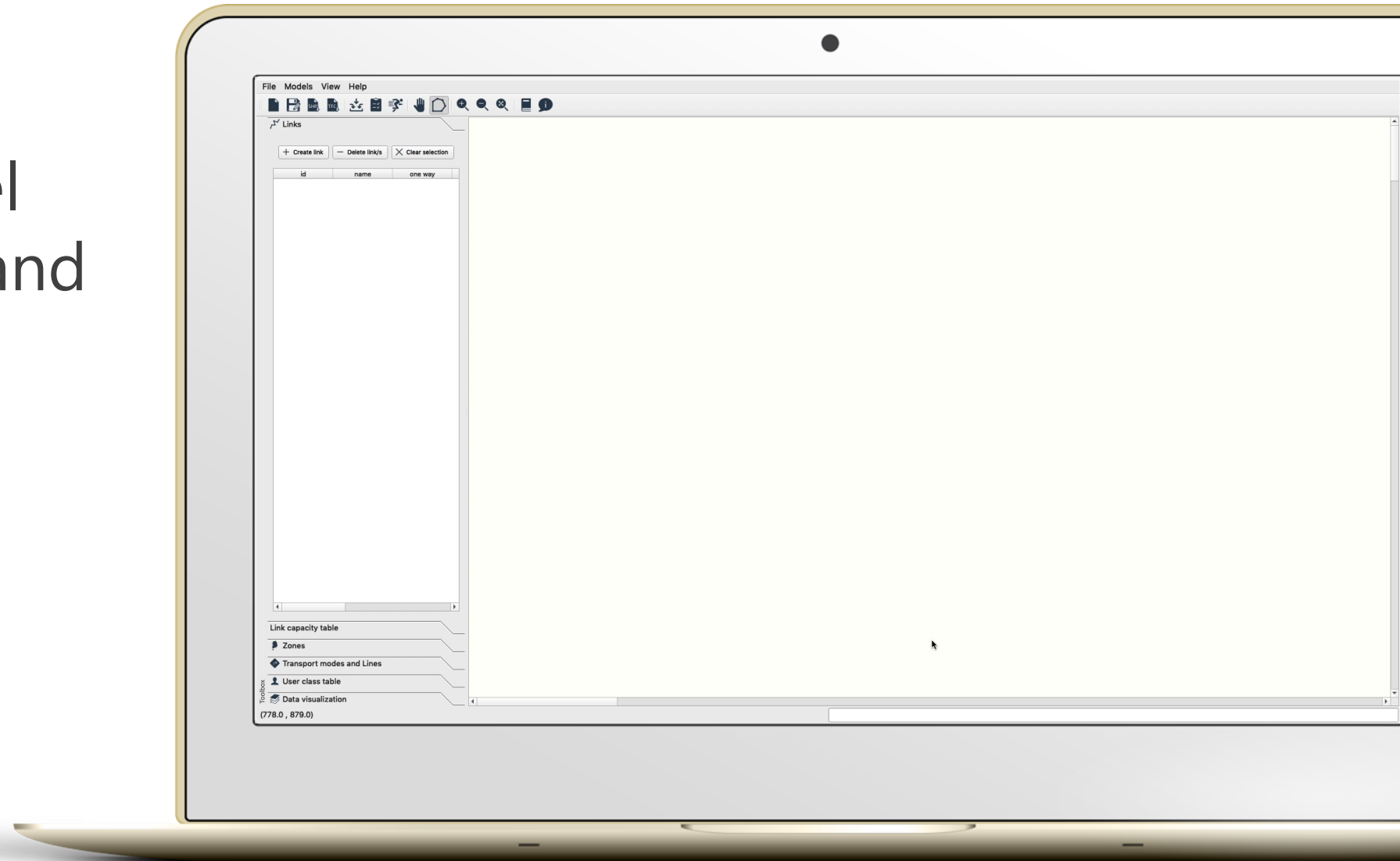
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# T4Cast

## Macroscopic travel demand analysis and forecasting

### Features:

- Automated Forecasting Models
- Georeferenced Network and Zones
- Multimodal Transportation Network
- Dynamic Traffic Assignment





# Command Center

## CORTEX

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- Computational Software Resources for Traffic Data Exploration
  - Transit Operations Monitoring
  - Transit Information Provision
  - Traffic Information Provision
  - Parking Guidance System
  - Route Guidance
  - Traffic and Travel Demand Analysis/Forecasting
    - LocalSIM
    - T4Cast


## AORTA

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- Automated Operations for Real-Time Actuation
  - Adaptive Traffic Signal Control
  - Corridor Signal Coordination
  - Vehicle Accident Prevention
  - PUV Prioritization
  - Emergency Vehicle Prioritization

# Thank You

 Adrian Roy L. Valdez, PhD

 (+63 2) 8981-8500 loc. 3558

 [itslab.upd@up.edu.ph](mailto:itslab.upd@up.edu.ph)

 [fb.com/itslabph](https://fb.com/itslabph)

