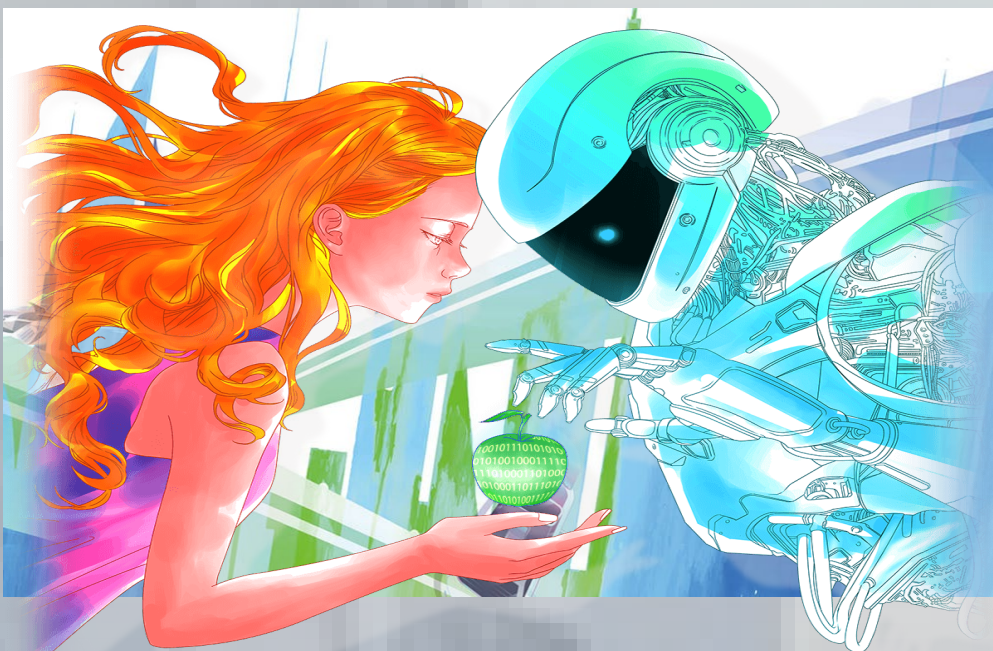




FlowSync – Real-Time Urban Traffic Simulator

FORUM8®

13th CPWC

LeMotion Dynamics

Overview

FlowSync is a dynamic urban traffic simulation platform built exclusively with UC-win/Road and its SDK. The idea is to create an interactive environment where users can model, test, and optimize traffic flow in a simulated cityscape. By altering traffic parameters in real time, the simulator can demonstrate how various traffic management strategies perform under diverse conditions—from everyday congestion to emergency scenarios.



Solutions

Risk-Free Experimentation:

FlowSync provides a high-fidelity virtual “sandbox” for urban planners and engineers to safely simulate, test, and validate traffic management theories before deployment.

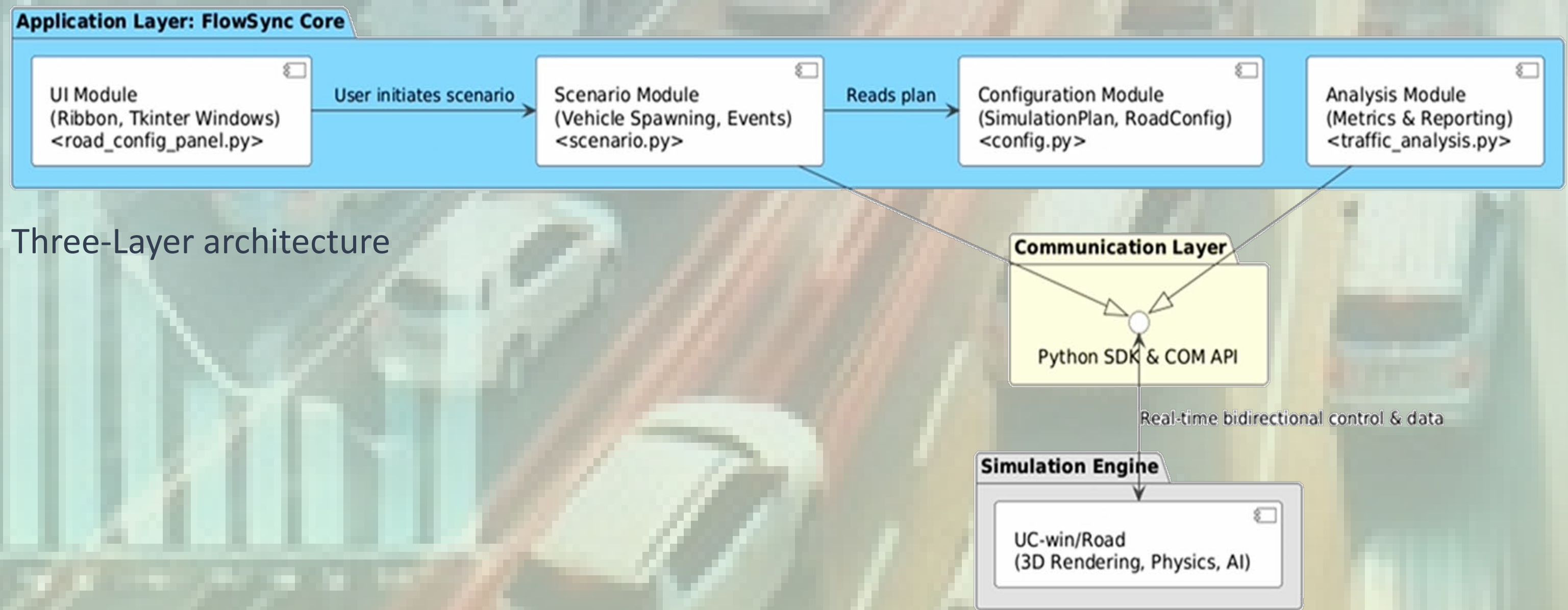
Can work with any project:

FlowSync can run on any project of user, which help urban planners test with different city road architectures

Signification:

Our project empowers the creation of safer, smarter, and more efficient urban transportation systems by bridging the gap between theory and reality.

System Architecture & Algorithm



Features

1. Integrated scenario control panel

You can set parameters for each road such as: number of vehicles, min speed, max speed, accident scene. You can also navigate camera to each road.

2. Environment simulation

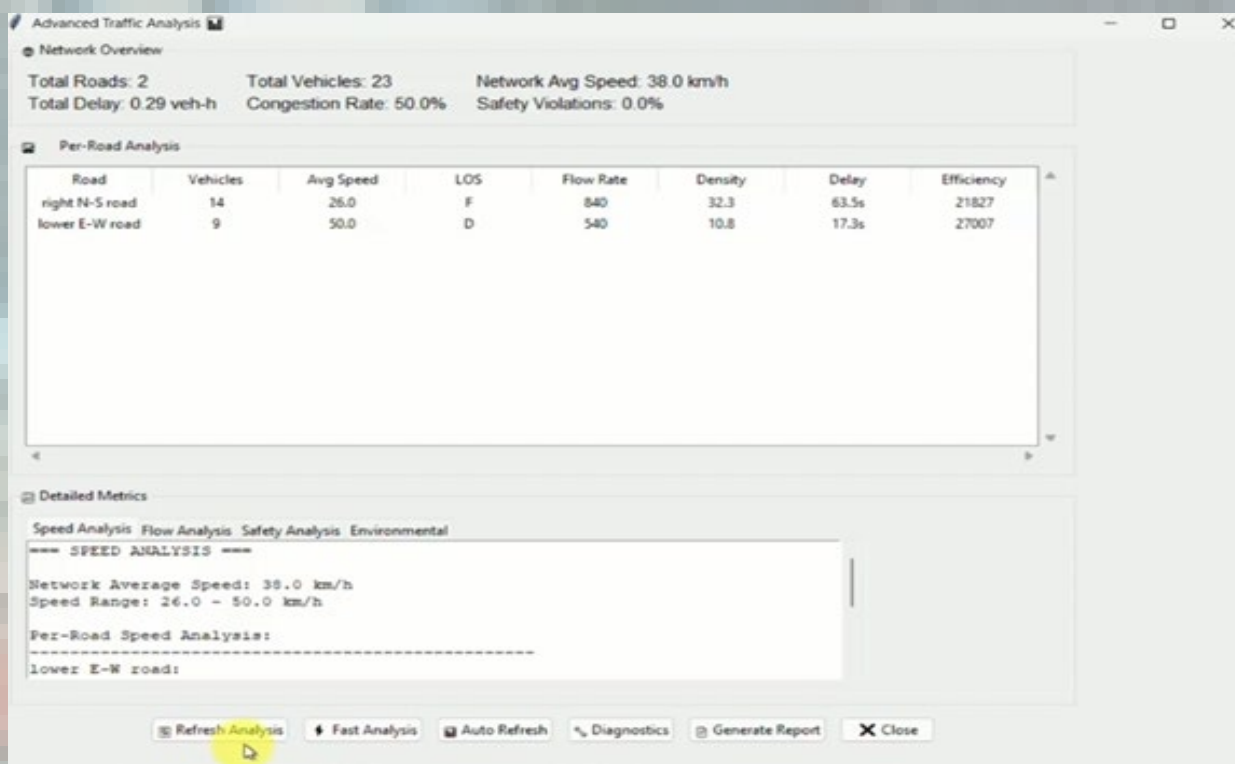
In Environment Control window, we can change the environment setting of the simulation such as Sunny, Rainy, Foggy, Icy, Stormy. The weather Also affect how the vehicles drive on the road too. For example, the road is more slippery and harder to drive if the weather is raining or snowing, compared to sunny.

3. Traffic analysis

You can get analysis of all the roads in the simulation. The generated analysis contains number of vehicles, avg speed, LOS, Flow Rate, Density, Delay, Efficiency. Detailed metrics include speed analysis, flow analysis, safety analysis and environmental impact.

4. Emergency simulation

Try to get to the accident scene as soon as possible! You should look at the 2D map to see the congestion, then judge the direction to the accident scene. When reached the destination, a popup will show the take taken, and a leaderboard of previous attempts!



Future tasks and ideas

Traffic light cycles and timings.

We will add control to traffic lights at intersections

Speed limits, lane closures, or road diversions

We will add support to implement speed limit on each road, or close road, or road diversions.