

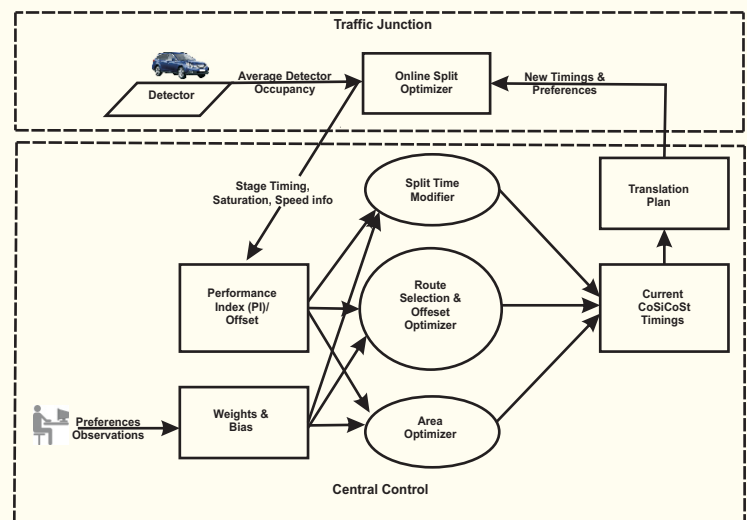
Adaptive traffic control systems (ATCS) that respond to changes in traffic patterns in real-time belong to the latest generation of signalized intersection control. They continuously detect vehicular traffic volume, compute "optimal" signal timings based on this detected volume and simultaneously implement them at the traffic junctions. Reacting to these volume variations generally results in reduced delays, shorter queues and decreased travel times. In Adaptive Traffic Control Systems, the traffic signals in a particular area are coordinated in such a way that an objective function is optimized. The Composite Signal Control Strategy (CoSiCoSt) developed by CDAC Thiruvananthapuram optimizes a weighted combination of delay and number of stops in real-time. CoSiCoSt is designed to cater to the typical Indian driving and traffic conditions such as poor lane discipline and high heterogeneity. CoSiCoSt bears an Indian Patent (No: 239258 Title: A Method for Synchronizing Heterogeneous Road Traffic and System thereof) jointly owned by the Department of Electronics and Information Technology (DeitY) and CDAC.

WiTraC is a state-of-the-art Vehicle Actuated Wireless Traffic Control System developed by CDAC under the DeitY funded ITS Program.

CoSiCoSt-W has custom interface to the WiTraC and has many improved features for real-time signal coordination in vehicle actuated mode of signal operation.

SALIENT FEATURES

- ⊙ Distributed system
 - ✧ High Scalability
 - ✧ Isolated VA – Coordinated - ATCS
- ⊙ Good Congestion Management
- ⊙ Fallback Mode
 - ✧ Vehicle Actuated
- ⊙ Model based
 - ✧ Time generated
- ⊙ Signal time computation
 - ✧ Queue Exhaustion Method
- ⊙ Subtract Mode Transition
 - ✧ Quick Offset Correction
- ⊙ Plan transition and breakpoints
 - ✧ Based on degree of saturation
- ⊙ Automatic swapping of reference junction
- ⊙ Easy Configuration
- ⊙ Self calibrating
- ⊙ Exhaustive logs and reports



BENEFITS

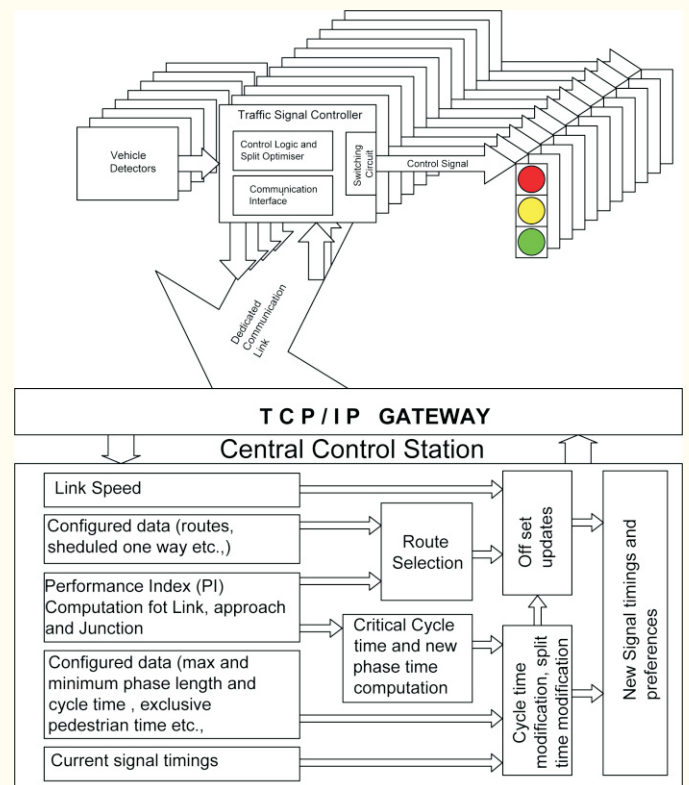
- ⊙ Increase
 - ✧ Lane carrying capacity
 - ✧ Travel speeds
- ⊙ Reduction
 - ✧ Delay, Stops, Queue
 - ✧ Fuel consumption and emissions
 - ✧ Accident rate
- ⊙ Traffic Management
 - ✧ Signal Prioritizing
 - ✧ Green Wave Routes
- ⊙ Special events
 - ✧ Diversions
 - ✧ Incident Detection

CoSiCoSt-W OPERATION

- ⊙ An area is sub-divided into zones or corridors
- ⊙ Corridors operate on common background cycle
- ⊙ Signal timings and Cycle lengths updated dynamically based on real-time demand
- ⊙ Signals synchronized for green-wave
- ⊙ Offset deviation corrected at plan transition
- ⊙ Use Stop-line detection with special filters to address poor lane discipline and high heterogeneity

FUNCTIONAL BLOCKS

- ⊙ Split Optimizer
 - ✧ Use Queue Exhaustion method
- ⊙ Split Time Modifier
 - ✧ Finds Green time limits
- ⊙ Area Optimizer
 - ✧ Computes background Cycle time for every zone
- ⊙ Route selection
 - ✧ Identifies route for synchronization in runtime
- ⊙ Offset Optimizer
 - ✧ Use Subtract method



OPERATING PLATFORM

- ⊙ Linux