Traffic System for Smart Cities

Empowering Mobility
Consulting | Solutions | Managed Services
About US

Leading provider of Toll Collection and Intelligent Transport Management Systems (ITS)
More than a decade of experience in ITS
More than 700 Lanes equipments
More than 1 Billion transactions per year
100 + people
30 + Projects
IBM partner for Smart City Solutions
Collaboration with Leading ITS sub systems providers
Traffic Operation Challenges

Political and public pressure to reduce congestion and generally improve commuter experience

Inability to Monitor, react and coordinate incident response in real time

Variety of systems generating a lot of data

Lack of meaningful information to support decision making
Objectives

- Provide Real Time Information to stakeholders and commuters
- Ensure Safe & Secure journey
- Provide Visuals & Data Information for Actionable Intelligence
- Bring Public participation
- Public sharing of information through apps and website
Case study: Inter Urban Highway Solution

Intelligent Traffic System

Emergency Call Box (ECB)
Variable Message Sign
ATCC System
Meteorological System (MET)

Surveillance System
MRCS
Control Room with Central Software
Video Incident Detection
Smart City Traffic Solutions Ecosystem

- Intelligent Operation Centre for Traffic Management (TMC)
- Adaptive Traffic Control (ATC)
- Red Light Violation Detection
- Parking Management Systems (PMS)
- Adaptive Navigation
- Speed Enforcement
- Surveillance System
- Transit Signal Priority (TSP)
TMC : Operation Capabilities

Citywide traffic operations and transit operations capabilities

Real-time and system-wide visibility of traffic and transit networks
Historical performance insights of traffic & transit operations
Proactive management of traffic congestions and transit schedule deviation issues through predictive insights
On-premise and cloud delivery
Intelligent Operations Centre
Collecting and Analysing Data, while automating a Collaborative Response

Data
From Road Side Equipment and User data

Insight
Anticipate problems through analytics

Events/Incidents
Coordinate resources and response using actionable intelligence

Retrieve
Correlate
Filter

Analytics

Collaborate
Workflow
Adaptive Traffic Control

Only Adaptive Software that works in Heterogeneous Traffic Conditions, Ideally designed for Indian Conditions

- Remote Administration
- Eco-friendly (Solar Power used)
- Wireless communication
- Self diagnostic
- Used real time data to optimize signal
- Successful implementation in various cities in India
Adaptive Traffic Control Solution on Cloud: The SX Controller from Siemens

**Future proof usability**
- USP #1

**Maximal comfort**
- New Traffic Adaption Tool “SL-C”
- New Configuration Tool „SITRAFFIC Core“
- Accessibility via Web & Browser
- Unique concept to increase availability

**Comfort in Maintenance**
- USP #3

**Intelligent installation**
- Real “Plug & Play”
- Full Remote Service
- New Version Concept

**Innovation leadership**
- USP #2

**Innovative Concepts**
- New HW Design
- New Low Power LED lamp switch
- More than 64 signal groups
- Newest HTML 5 technology

**Flexibility**
- USP #4

**Adaption to local requirements**
- We enable realize local innovations according to traffic adoptions and central interfaces
Red Light Violation Detection

Vehicle Detection
Capture Images and Video
Gets LPN using ANPR System
Collect relevant parameters
Information Transfer to the central control room
Ticket generation against the owner
- Completely Wireless Technology
- Certified for enforcement
- Customizable to local conditions
Parking Management System

Guide the commuters towards parking slot
Display the available slot in multi level parking
Mobile app shows available parking slot of desired location
Public Services: Live Videos to show real position

Real Time CCTV Camera View

SLOW MOVING TRAFFIC

DRIVE SAFE LOW VISIBILITY DUE TO HEAVY RAIN

NH1 Section 14

Average Speed

90 KMPH | 10 KMPH

NH1 Section 14 LIVE FEED

Average Speed in The city
Adaptive Navigation System on V2X

- Guided Speed Control System
- Minimize Stoppage at traffic signals
- Voice Controlled Speed Control
- Current Status of traffic signals
- Estimated Journey Time
- Congestion at traffic signals
- Reduced Fuel Consumption
Traffic Signal Prioritisation (TSP)

- Expanded availability
- Efficient handling of multiple priority requests
- Reduce transit delay
- Improve transit delay variability
Real Incident Reporting

CONTROL ROOM

1. Validates Incident.
2. Publishes on Commuters Incident-Advisor App and VMS.

Incident Advisor
Accident Ahead drive Slow!!!

Alert

Incident Occurred!!
Smart Cities : Connected Cars Solution

The Next Gen mobility Smarter Solution

Encourages Safe Driving Every Step Of Your Journey
A peep into the near Future - V2X

Concept of cooperative mobility:

V2V + V2I = V2X

- V2X is based on DSRC a two-way wireless radio communication
- Applications related to environmental driving, safety and mobility
- New services for V2X leading to smarter and safer transportation
Stake Holder Outcomes
Results for all Stake Holders

For Authority

- Improve decision making: Gain real-time situational awareness about current traffic performance and issues
- Improve service to citizens: Minimize negative human and commercial impact of congestions and incidents through proactive decisions
- Improve coordination & control: Dashboards that integrates operational tools and optimizes workforce
- Implement auditable best practices: Implement auditable collaborative processes for flow optimization and incident management

For Citizens

- Traffic congestion & incidents identified, addressed rapidly
- Incidents Managed proactively and efficiently
- Routes and Journey planned better with realist information
Case I: Real time Incident Management & Monitoring (Including Legacy Systems)

Customer Pain Points Addressed:

Lack of traffic situational awareness leading to little or no ability to manage traffic flows and incidents
Lack of system-wide visibility for traffic condition & incident information due to very localized scope of existing traffic management systems
Wide diversity of traffic data capture systems in terms of type of data produced, vendors, data format supported and legacy of technology

Business Value Delivered:

Real-Time & System-Wide Visibility of a Traffic Network

Business Functions:

Real-time display of traffic conditions graphically as service levels on a road network as well as in tabular and report views
Ability to be alerted to events/incidents on the network in real-time, graphically, in tabular view and through e-mail or instant messages
Ability to interrogate traffic related devices such as signals, signage, cameras etc. to obtain current status and feeds
Case II: Real time & Predictable traffic Information (With supporting videos)

Customer Pain Points Addressed:

- Lack of insight into traffic flow patterns across the network, and as a function of time, leading to inability to formulate optimization strategies
- Lack of insight into incident and accident patterns making it harder to implement strategies for improving safety
- Lack of correlation data that connects incidents with traffic conditions making it harder to formulate incident response strategies

Business Value Delivered:

- Insights into Patterns of Traffic Network Historical Performance enabling the creation of performance improvement and performance fine-tuning plans

Business Functions:

- Analysis of historical patterns of traffic conditions and incidents Example, peak-hour volumes & congestion on the most critical links in the network as a function of location, time and speed limit on the links
- Ability to study historic correlation between traffic incidents of different types and traffic service levels to understand impact and plan for the future. Example service level impact as a result of lane closures during different times of the day, to better manage maintenance activity
Case III: Better Planned Travelling around traffic patterns

**Customer Pain Points Addressed:**

- Reactive management of congestion is no longer an acceptable solution and is producing very small returns
- Influencing driving route choice of citizens must be an essential part of the solution for a road system with no scope for capacity expansion
- Better citizen advisory about anticipated delays has become a (political) necessity

**Business Value Delivered:**

Pro-Active Management of Traffic leading to reduction of citizen aggravation & negative commercial impact

**Business Functions:**

- Predictions of traffic conditions, up to an hour out using current and historical data of traffic as input
- Speed or volume predictions can be delivered
- Ability to perform scheduled auto-calculation as well as deliver calculations on demand
- Graphical display of predictions as traffic service levels on a road network, or providing actual data values in tabular or report views
- Historical accuracy reports of predictions
Metro Services

- Consulting Services supported with field trials of the technology proposed for best suited solutions
- Turnkey Solutions based on KPI pertaining to Traffic and city solutions
- Managed Services with guaranteed service levels
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