

# *ROLE OF ITS IN URBAN MOBILITY*

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An illustration of Intelligent Transport System (ITS) in Mysore City by KSRTC



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# Bus Related ITS - Components

- **Vehicle Tracking System**
- **Real Time Passenger Information System**
- **Control Room enabled Bus Operations**
- **Bus Station Management**
- **Advanced Software Applications**
- **MIS Reports**

# Bus Related ITS - Objectives

- To improve quality & convenience of public transport
- To promote use of sustainable transport modes
- To enable commuters to make informed choices on travel modes
- To reduce passenger wait times
- To optimize operations, improve fleet utilization, schedules, and vehicle availability with accurate information

# Benefits of ITS

Commuters	Management	Society
<ul style="list-style-type: none"><li>✓ Real Time Information on bus arrival and departure</li><li>✓ Real time tracking</li><li>✓ Next stop bus announcement and display within the bus</li><li>✓ Reduced waiting time at bus shelters</li><li>✓ Comfortable Trip planning</li><li>✓ Value added SMS and IVRS Services</li><li>✓ Exclusive Commuter Portal – <a href="http://mitra.ksrtc.in/">mitra.ksrtc.in/</a></li><li>✓ Mobil app</li></ul>	<ul style="list-style-type: none"><li>✓ Real time Tracking of Buses</li><li>✓ Control room monitoring</li><li>✓ Dynamic scheduling of Buses</li><li>✓ Schedule rationalization and Overtime reduction</li><li>✓ Digitalization of operations</li><li>✓ Driving behavior analysis</li><li>✓ Tool to defend Motor Vehicle Claim Cases</li><li>✓ Cost reduction benefits</li></ul>	<ul style="list-style-type: none"><li>✓ Promotes Public Transport usage</li><li>✓ Reduction in carbon foot prints</li><li>✓ Immediate access to accident/incident information</li><li>✓ Brings down traffic congestion</li><li>✓ Safety of commuters &amp; pedestrians</li><li>✓ Involvement of all stakeholders</li></ul>

# Role of ITS and Urban Mobility – Availability of data and MIS Reports

Sl.	Report Name
1	BUNCHING OF BUSES
2	SCHEDULE ADHERENCE REPORT
3	BUS BREAKDOWN REPORT
4	ROUTE DEVIATION REPORT
5	MISSED TRIPS REPORT
6	SCHEDULE DEPARTURE DAILY
7	SCHEDULE ARRIVAL DAILY

Sl.	Report Name
8	DAILY DEPARTURE PUNCTUALITY
9	DAILY ARRIVAL PUNCTUALITY
10	SCHEDULE PERFORMANCE REPORT
11	DAILY OPERATIONAL SUMMARY
12	CONTROL CHART
13	ARRIVAL DEPARTURE

**Data and Reports can effectively be used by depot managers and traffic operations team for analysis and continuous improvements.**

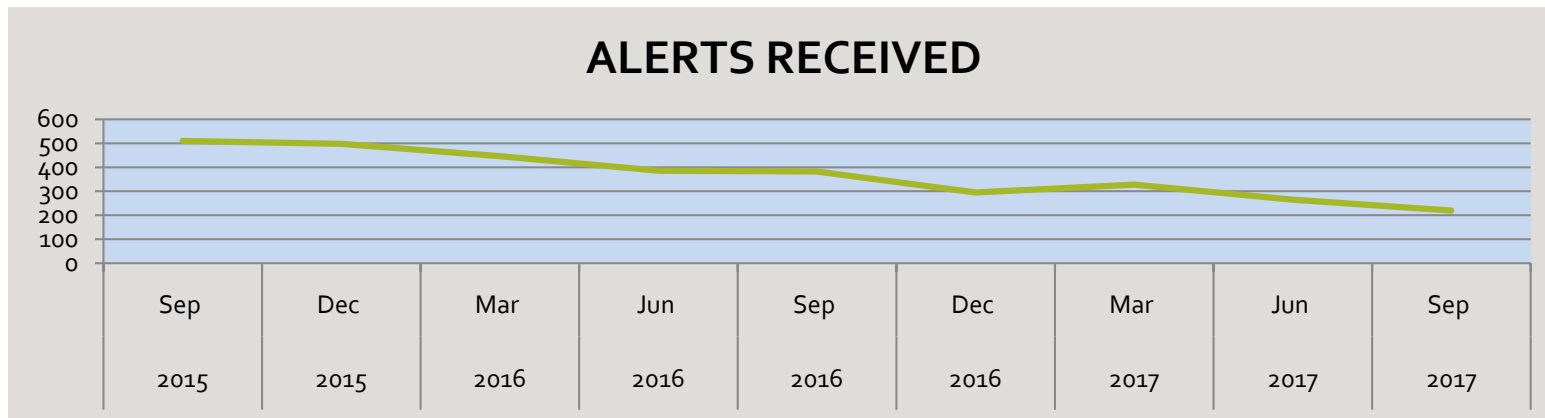
# Route Optimisation

- Based on the actual time required for trip operation, the time tables can be re-organized. (Reduction 8 buses, 2314 kms daily, 1.6 Cr savings)

- Reduction in Incidents of bunching

Apr-13	Apr-14	Apr-15	Apr-16	Apr-17	Aug-17
346	135	46	10	9	9

- Reduction in number of unscheduled stoppages



# Control Room Enabled Bus Operations



- Real Time Bus Tracking
- Real Time Incident Management
- Two-way Communication
- Helpline Assistance
- Operational MIS Data
- Trip Planner Option
- IT based Traffic Monitoring
- Real Time Alerts
- Crew Management
- Monitoring Bunching, Schedule adherence, Punctuality
- Driving Behaviour Monitoring
- Public Grievance Management
- Working closely with Traffic Police for effecting one way/two way traffic, defending Motor Vehicle Cases, Dasara operations etc.

# Improvements in Operations

COUNTS PER BUS PER TRIP

Sl.	ATTRIBUTE	Oct '15	Nov '15	Dec'15	Jan'16	Feb' 16	Feb'17	Aug'17
1	NO OF BUS STOPS SKIPPED	5	3	2	1	2	1	1
2	NO OF SPEED VIOLATIONS	6	3	3	1	2	2	2
3	NO OF SUDDEN ACCELERATION	15	9	8	3	3	3	2
4	NO OF HARSH BRAKES	7	4	3	1	2	1	2

ACCIDENTS	2014-15	2015-16	2016-17	2017-18 (Till Sep-2018)
FATAL	14	08	06	02
MAJOR	03	00	02	02
MINOR	33	31	36	05
TOTAL	50	39	44	09
INJURIES	40	33	45	06
DEATHS	15	08	07	02

YEAR	SMS			IVRS	COMMUTER PORTAL	
	No of People Queried	No of SMS received	SMS Sent	IVRS calls	USERS	PAGE VIEWS
2013-14	5969	29209	44241	12272	43328	140662
2014-15	5871	16791	33064	16491	65809	199731
2015-16	5340	24197	29027	28691	65070	187074
2016 -17	6712	205214	19141	36931	89722	214128

KSRTC will shortly implement Open Data Policy



# Improvements in Operations

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Load factor	80.6	81.5	74.2	81.3	84.9	85.2
Dead km percentage	6.9	6.2	6.2	6.5	6.4	5.0
Cancellation due to late departure (km)	26662	59067	55329	24331	12436	11456
Cancellation due to early departure (km)	31725	87764	76246	42288	18195	4877

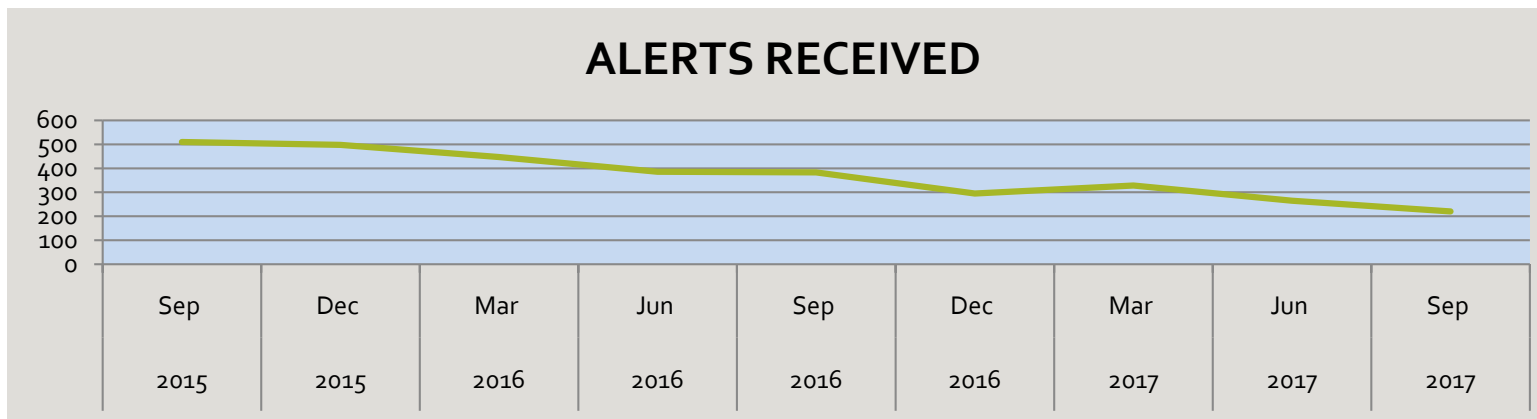
- Reduction of Staff in Central Bus Station
- Savings on lubricants & filters
- Benefitted Rs 6 Cr Savings in 2015-16

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Schedules	400	400	438	430	422	422
Per day eff.kms	94842	92209	93301	94027	94202	90285
Earning per bus	6210	6676	7166	7665	7625	7293
Crew on roll	1629	1589	1691	1670	1615	1654
Staff ratio	5.5	5.3	5.1	5.2	5.1	5.1
Crew Ratio /schedule	4.07	3.97	3.86	3.88	3.83	3.92

# Improvements in Operations

SL NO	YEAR	MONTH	ALERTS RECEIVED
1	2015	Sep	510
2	2015	Dec	498
3	2016	Mar	447
4	2016	Jun	386
5	2016	Sep	383
6	2016	Dec	295
7	2017	Mar	328
8	2017	Jun	265
9	2017	Sep	220

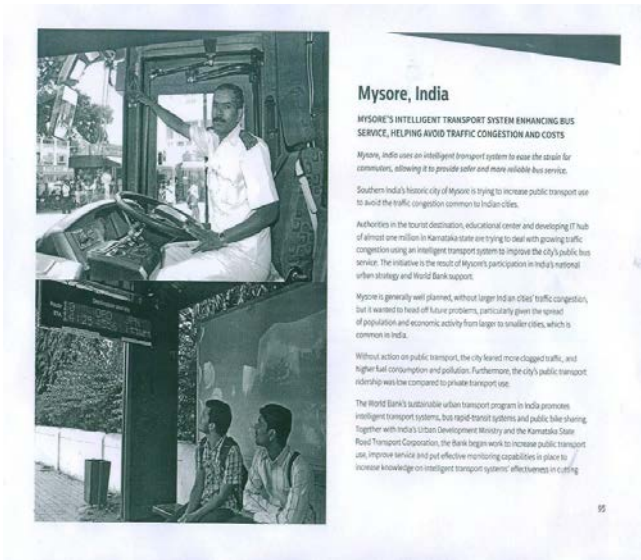
- Reduction in average Passenger Wait Times from 20 minutes in 2012 to 12 minutes in 2016
- Higher number of users in Mobile APP, SMS, Portal...
- Higher Fleet and Crew Utilisation
- Improved modal share to KSRTC buses from 39.8 in 2012 to 46.3 in 2016 (est.)
- Winner of National e-Governance Gold Award



Mysore ITS project featured in "What Makes a Sustainable City?" – A sampling of Global Case Studies Highlighting Innovative Approaches to Sustainability in Urban Areas published by World Bank Group.

Gol showcased Mysore Intelligent Transport System through video during Hon'ble Prime Minister of India visit in UN Climate Change Conference, COP 21 in Paris held from 30<sup>th</sup> Nov to 11<sup>th</sup> December, 2015.

National Media Meet organized in Feb-2017



<https://openknowledge.worldbank.org/handle/10986/23580>

Success story published by World Bank Report



Thank You



National e-Governance Gold Award 2016-17