



Intelligent Transit Management System for Ahmedabad Janmarg Limited (AJL)

CLIENT: Ahmedabad Janmarg Limited

LOCATION: Ahmedabad, India

PROJECT DESCRIPTION

Vayam GMV Intelligent Transportation Pvt. Ltd., an SPV of Vayam Technologies Limited and GMV Sistemas S.A.U of Spain has implemented the country's first ever successful Intelligent Transit Management System in BRTS Ahmedabad for Ahmedabad Janmarg Limited.

Currently, the system is catering to 1.25 Lakh passengers per day by plying 160 Buses and 128 bus stops for a total route length of 84 Km.

INTELLIGENT TRANSIT MANAGEMENT SYSTEM:

The term intelligent Transit systems (ITS) refers to information and communication technology (applied to transport infrastructure and vehicles) that improve transport outcomes (available for free download online) such as transport safety, transport productivity, travel reliability, informed travel choices, social equity, environmental performance and network operation resilience. ITMS ensures more informed travelers, planners, managers, buses and commercial vehicle operators, emergency response services, etc, thereby facilitating safety, equity, efficiency and environmental protection.

OBJECTIVES OF AHMEDABAD JANMARG LIMITED (AJL)

The aim of the project is commuter satisfaction, reliability and punctuality of bus operations there by enhancing the efficiency of AJL'S city bus operations and better management of fleet of buses. For this objectives are as follows:

- Monitor the movement of the buses on the digital geographical map of Ahmedabad city in real time,
- Collect data related to their geographical position, vehicle movement pattern, provide relevant information to Passengers
- AJL wants to implement automatic fare collection system with in the ITMS

AJL has designed and developed ITMS to meet corporate objective of enhancing service standards, bring in commuter market approaches, better organization of planning and operations. Apart from this, Integration of Para-transit services with ITMS, integration of control, capital movement, marketing and automated collection and payment of transit fares, bring AJL to world class operational efficiency and automation for its transit operations.

The Powerful AVLS and AFCs Technology of GMV along with the CMMi Level 5 accredited system Integration and Management Processes of Vayam Technologies

Limited has jointly led to the success in the project. People use the smart cards and tokens for ticketing.

Connectivity is the backbone of the entire system, there is a 2 MBPS MPLS connectivity in the central control room, 1 mbps MPLS link at depot and all the bus stops are connected by 512 MBPS link, with 99% uptime. The location of the Buses is getting tracked by the powerful On Board Unit equipped with a GPS antenna, designed by the Spanish company GMV Sistemas, named as M-20 unit having GPS Receiver of 20 Channels. 24 ports, which talks to the Driver control Unit and controls the Driver, driver microphone and alarm. It is integrated with PIS and Voice announcement system in the bus for the display and announcement of the next bus. The location details are being sent to the Central Control Room and bus stops using the GPRS SIM. The Driver communicates with the central Control Room through the Driver Control Unit in the buses.

Station Ticket terminal, Access Control System with Station card Validator at entry and exit point in the bus stops are the source of fare collections. The bus stops have Touch screen based ticketing application, over the POS machines with integrated the Card readers and receipt printer. It also has a Cash Till, which is electronically operated.

Every station has a Station PIS which displays Expected time of arrival of the buses of particular routes.

In the Depot, the depot manager is deployed for uploading the routes in the buses and generating the different kinds of reports related to the bus routes, schedules, bus dispatch, crew deployment, maintenance management etc. A similar application is also deployed in terminals. The Depot management system is regularly interacting with the vehicle Scheduling and dispatch system.

The Central Control room is the Brain of the system, controlling all operations. All the software are running in the Control Room. The vehicles can be tracked on Video-walls using AVLS Application, which has multi screening facilities.

Control room consists of a team of people who are continuously tracking the movement of the buses. An Incident Tracking system is also an integral part of the control room operations, which has EMS, NMS as well as CRM for tracking different kinds of incidents and fault management. The Call center also replies to problem or enquiries related to fare, buses, schemes, etc. The AFCs data from all the station servers are getting pulled in the control room and then it goes to Master sales data where all the data is consolidated and then it is been transacted for statistical analysis and report generation. These are tallied with financial management system. The financial management system or the clearing house application has provisions for budgeting, accounting of revenue and expenditure and generation of reports for annual profit and loss and audit.

The control room also performs the action of Card and Token initialization and Personalization of Cards for students and regular commuters.

BENEFITS OF THE SYSTEM:

- The Automated Vehicle tracking lead to estimate the distance traveled by the buses each day. Accordingly revenue can be paid to them. Because AJL pays the owners on the basis of distance traveled.
- It also lead to check on fuel consumption and helps in managing the revenue
- This helps in serving the customers better by letting them know the arrival time, service duration and service location. It helps to check if the bus has stopped at its location or not and whether the bus was on route or deviated from it. If it has deviated what was the cause behind it.
- It helps in estimating the average speed of the vehicle, which helps in fuel consumption, reduces maintenance cost and checks over accidents, thereby saving lots of indirect cost. It helps to control the insurance bills also.
- It leads to better crew and asset management.
- The Automated Fare Collection system regularize the revenue generation of the Ahmedabad Janmarg Limited. As no one can escape the ticket purchasing and the entire revenue details are directly transacted.
- The contactless cards and tokens are easier to manage and use by the passengers.
- The contactless cards and tokens are more reliable, maintenance costs will be less, transactions are quicker and security is enhanced. Last but not the least, greater data storage capacities led the way to new applications.
- It leads to remote surveillance of the revenue generation.
- The alarm system inside the buses and the incident management system in the control room provide a considerable level of security to the commuters from any untoward incidents and lead to safe and secured journey.
- The public information system about the bus arrival times, the routes can be obtained over the Integrated Portal and the Public Information system on the buses and Bus stops giving them a relaxed travelling options and better time management.