HBL®

Train Management System

Introduction

Use of the rail networks around the world is growing fast. Railways and metros often wish to run more trains on the existing infrastructure, to carry more passengers and freight - and generate increased revenues. Optimizing existing infrastructure avoids the huge investment required for new lines and new trains. One proven way to achieve greater frequency of service is to use cutting edge technology solutions to manage rail traffic – and to do it in a sustainable manner.

HBL's Train Management System

HBL's Train Management System (TMS) is an integrated real-time Traffic Management System that offers monitoring and control of train movements. TMS imports the status of signals, track circuits and points etc. from the station interlocking system on a real time basis. TMS also obtains the train/rake identification details from the originating point of the TMS zone/territory. This information is processed and used to monitor the movement of trains and facilitates timely decision making. TMS can regulate train movement, diversion of trains, induction of trains, withdrawal of trains and planning reversal of trains in the TMS zone/territory defined in the scheme.

The TMS remote route setting option enables controllers to set the routes for the regular traffic movement and also prioritize the handling of emergencies.

Benefits

- Increased line capacity by reducing the headway between trains - using real-time availability of train movement information.
- Improvement in punctuality (in maintaining schedule) of the trains - by better planning.
- Optimized decision making - by efficient management of speed restrictions
- Faster response to emergencies
- Centralized traffic control (CTC) reduces command control operations for regular train movements
- Accurate and uniform availability of real-time data to all controllers resulting in seamless operations during handing/taking over of trains.

Key Features

- Train Describer System (TDS).
- Decision Support System (DSS).
- Train Graphs.
- Mimic Indication Panel
- Interfacing with other TMS
- Remote Route Setting (CTC)
- MIS reports
- Simulation and Training System
- Integration with Passenger Announcement System

Key System Components

Train Describer System (TDS):

TDS is the main logic engine of the TMS. TDS stores and retrieves the information related to all the running trains. Each train is automatically assigned with a unique Train ID at the entry and exit of the TMS zone based on the Master Time Table. There is a facility to assign train number manually in case of Unscheduled trains/Special Trains/Diverted trains. TDS collects the train identification details from train originating stations and maintains the data throughout the train trip. Train movement is predicted and the expected arrival and departures are calculated by the system.

Train Graphs:

Distance vs Time graphs can be plotted to represent train movement. This tool aids in detecting the train delays and cross overs to plan the traffic efficiently. Projected graph is available with editing option to verify the traffic restrictions. Scheduled graph is also available in the back ground in a different colour to observe the deviations / delays.

Mimic Indication Panel:

Real time train movement is available on Mimic panel (Video Wall) at control room with complete TMS zone display. It provides the controllers an overview of the complete system along with the Signal conditions. The station layout can be designed as per the requirements of the operators. Real time display of train movement is provided along with Train/Rake numbers on the suitably located, glare free Mimic panel.

Field Interface Units (FIU):

PLC based FIUs are used to record various signaling events. The data from the interlocking system is acquired by the FIUs and stamped with date & time. Each FIU has a capacity of accepting up to 4000 inputs with Dual Ethernet ports for redundancy of connectivity. The Data availability to central location is within 500 m sec and failure of a single FIU in the TMS network does not obstruct the data flow from other stations.

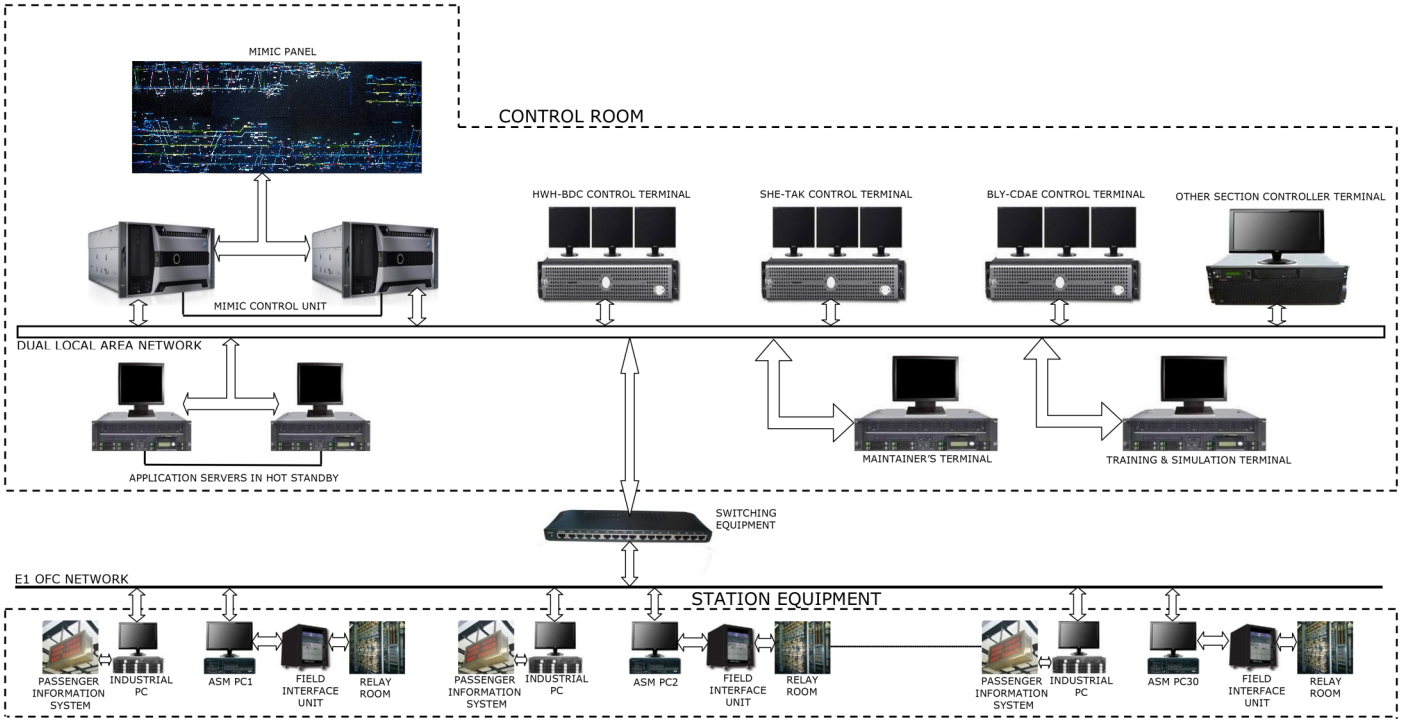
Passenger Information System:

TMS can interface with the Central Announcement System (CAS) for automatic announcements to commuters giving correct train information. Input from the TMS giving real time status of trains is used to drive the various indicators & Display Units on the stations.

MIS Reports:

The TMS provides customized reports for analysis with flexibility in designing new reports based on the user defined parameters. Reports related to punctuality, delays, failures, rake/crew utilization etc can be generated.

System Architecture



Our Other Signaling Products

Train Collision Avoidance System

Integrated Power Supply

HBL Power Systems Limited
8-2-601, Road No 10, Banjara Hills Hyderabad 500034, TG, INDIA
website : www.hbl.in, e-mail : contact@hbl.in,

Corp Comm / TMS/ Oct 2019