## Vara lakshmi Penneru

# Project Design Authority (PDA)

Over 22 years of global experience in the Railway Signalling Industry, specializing in signalling engineering design, installation, principles testing, and commissioning. Led complex Signalling projects for Indian Railways, Westinghouse Rail Systems UK, Network Rail UK, Invensys Rail Australia, Malaysian Railways, Thales UK and Thales Singapore.

Possess extensive experience across a broad spectrum of signalling technologies, including conventional systems such as Panel Interlocking and Relay Interlocking, as well as advanced CBTC systems like Distance To Go Radio (DTGR), CITYFLO 650, and SelTrac systems. Proven ability to lead safe, reliable, and future-ready signalling solutions in both brownfield and greenfield environments

#### **KEY SKILLS**

- · Project design authority
- Technical Advisor
- · Technical proposals and Budget forecasting
- Vendor and Sub-contractor selection and management.
- Resource development and competency management
- Project management combining comprehensive technical knowledge.
- Overall in-charge for project commissioning planning and execution.
- Key contributor for project planning and management.
- · Stake holder management
- · Expert in developing system migration strategies
- Expert in re-signalling solutions
- · Degree of Bachelor of Arts
- IRSE Signalling Principles designer 1.1.550
- IRSE Signalling Verifier 1.1.160
- Member of IRSE (MIRSE)
- Member of Singapore Standards committee

#### **EXPERIENCES**

## **Project Design Authority**

Hitachi Rail, Singapore - Since June 2024

HITACHI Inspire the Next

- Define and validate the Signalling system requirements, translating functional needs into technical specifications.
- Oversee system design processes, integrating Signalling interlocking logic, hardware interfaces, and fail-safe mechanisms
- Define and implement CBTC system validation principles throughout all phases of the project lifecycle.
- Technical interface coordination with civil, track work, communications, power supply systems, platform screen door contractors, signalling operator and suppliers. Approving authority for all interface control documents.
- Define and manage system migration strategies for Singapore North-South and East-West (NSEW) rail projects, ensuring seamless integration with legacy infrastructure and minimal service disruption.
- Review of hardware and software safety case documentation and leading HAZOP sessions.

## **Project Design Authority & Engineering Manager**

THALES

#### Thales Solutions Asia Pte Ltd, Singapore - May 2014 to 2024

- ▶ Head of Department for all Signalling interlocking design activities for the Singapore North-South and East-West (NSEW) resignaling brown field project and Tuas West Extension (TWE) green field project. NSEW project comprises 54 stations across 95km and 3 existing depots and TWE comprises 4 stations and one depot.
- Manage, coach and mentor system architectural technical teams, subsystem teams and signal interlocking teams.
- Lead collaborative discussions between internal teams, vendors and customers to clarify and define system requirements.
- Approve the system architecture and provide leadership and guidance to the architecture team.
- Technical advisory to sub-contractors and vendors
- Head of Decommissioning for NSEW projects
- CCRB member with safety case preparation support for NSEW&TWE projects.
   Migration strategy Manager for all the NSEWP projects.
- Ensure that technical and safety standards are maintained in all aspects of design within the allocated project.

- Supporting bid team with cost estimation, schedule risks, technical description, migration plan and material estimates.
- ▶ Trained Singapore SMRT maintenance and operations team on CBTC wayside signalling design principles.
- Presented NSEW Re-signalling wayside interlocking design and changeover principles to IRSE Singapore and IRSE Malaysia sections.
- Worked as an Engineering Manager with responsible to provide signalling solutions for North-South and East-West lines and Tuas Extension projects (NSEW/TWE) in Singapore.
- Manage the design team and work package with forecasting manpower requirement to management for all the design works.
- Assist and monitor with the planning and progress of works in relation to timeline and budget.
- Worked as an interface point between Thales Canada, Thales France and LTA/SMRT Singapore for wayside interface signalling solution.
- Provided conceptual design solution for the system changeover from existing legacy system to new CBTC system
- Responsible to provide complete signalling solutions for Canberra station, Tanah Merah extension and 4in1 depot including interface with other systemwide contractors and vendors.
- Managing signalling interlocking team including work package management.
- Responsible to deliver Proof of Concept stations, North South Line, East west line and Tuas extension.
- Review of design/signalling principles/scheme plans/control tables/testing methodology/fault reporting to ensure safe introduction back to revenue service.
- Responsible to confirm that all design work is controlled, implemented and undertaken in accordance with relevant instructions/standards.

#### **Design Manager**

## **BOMBARDIER**

#### BOMBARDIER TRANSPORTATION, MALAYSIA - April 2013 to April 2014

- Worked as a Project Engineer and design manager for Klang valley Mass Rapid Transit (KVMRT) with Bombardier Cityflo 650
  automatic train control solutions for Sungai Buloh-Kajang line in Malaysia
- Responsible to manage the Signalling Design Group's and project
   Manage, control and monitor design activities ensuring timescales, contractual requirements and quality are met
   Managing the sub-contractors. interface with other SWC's and customer
- Confirm that all design work is controlled, implemented and undertaken in accordance with relevant instructions/standards.

#### **Hardware Application Engineer**

#### THALES

#### Thales Asia solutions Pte Ltd - April 2012 to April 2013

- Lead designer Produced conceptual COC principle design for NSEW Singapore project with existing Westinghouse rail system interface with CBTC Thales Seltrac CBTC system with Changeover Cubicle comprises 53 stations and a route length of 95 km.
- Responsible to deliver Proof of Concept stations design for Changi Airport, Changi Online, EXPO, Tanah Merah stations and Bishan Depot Test Track.
- > Supporting to supplier and procurement team in addressing the technical issues for Signalling racks.

## Senior Signalling Design Engineer

# Infotech

### INFOTECH ENTERPRISES LTD., BANGALORE - May 2010 to April 2012

- Responsible to produce Design, Checking and Verification of Signalling Systems.
- Ensure that Technical and Safety Standards are maintained in all aspect of Design within the allocated project
- Provide support and guidance to the Design Manager on all technical aspects of the allocated project.
- Assist in the forecasting of Manpower requirements for all design work to enable allocation of resources to be made.
- Worked as a verifier (Independent checker) for Control table of the Siemens technologies used in New Delhi and Shivaji Stadium,
   IGI Airport Station & Dwaraka Sector 21 of Delhi Metro Rail Corporation (DMRC)
- Produced bookwiring Vol.2, SMCPLC design, Cut-in design, COC recovery design, Modification design and Record updated in Thales Seltrac moving block system for Northern line JNUP (Jubilee and Northern Line Upgrade Project)

## Senior Design Engineer

## McML

#### MCML SYSTEMS PVT LTD, BANGALORE. - March 2004 to April 2010

- Commencing as a trainee engineer reaching the post of Senior Design Engineer
- (Team Leader) with responsibility for the management of a team of 15 staff, plus trainees.
- Worked as Design Engineer and Team leader for producing and verifying the Signalling interlocking design.
- Worked as Design Engineer on Scheme design project (Consisting of stages like data capture, DTG-R Simulation using Scheme Simulation tool) for Sub-section 15, Sub-Section 16 and Victoria line section of LUL for Westinghouse Rail Systems, UK.
- Produced Phase-2: Standardization of Route lists for England & Wales on South East, LNW and Western region of Netowrk Rail of Babcock Rail