

Reference List

Rail Systems Engineering Sdn Bhd (RSE) was founded in 2008 and is based in Kuala Lumpur – Malaysia. Its focus is on Railway Operations Planning and Studies and in Digital Rail.

Now Rail Systems Engineering is a group of companies with HQ in Malaysia, offices in Malaysia and Switzerland and representatives in Germany and Philippines.

Simulation Studies, Timetables and Operation Concepts

Rail Systems Engineering Sdn Bhd is specialised in Railway Simulation and Timetable planning. The company is based in Kuala Lumpur. We provide simulation studies, consulting in operational planning and training for our clients.

Rail Systems Engineering uses the Simulation Software **OpenTrack** for Railway Simulations. The add-on software **OpenPowerNet** is used for Power Simulations. Timetable planning tool **Viriato** is used for feasibility Studies and Operational timetables.

Digital Rail

Starting 2017 Rail Systems Engineering added "Digital Rail" to its portfolio, including setting up its own software development team.

Our focus in Digital Rail is in Automatic Train Operation and Remote Control of trains (both onboard and trackside). We develop our own Digital Rail products, where our ATO GoA2 onboard unit is available for market, other products are under development and will be readily available from 2024.

Research and Development

Starting 2025 Rail Systems Engineering officially added "R&D" to its portfolio, currently developing products in ATO environment and doing research in optimising train operation.

Reference Table of Simulations performed by Rail Systems Engineering Sdn Bhd or where we had significant involvement in studies and simulations and projects in Digital Rail (ATO).

Railway	Client	Project Description	Year
 DB Cargo	 DB Cargo	Remote Control for ATO Trains, Betuwe Route Testing and Handover of Remote Supervision Center and ATO-TS-Server for trains running on Betuwe Route in Holland. (RSE is part of REMOOT consortium, with OTIV and Mobility 42)	2026 
Klang Valley Transport Plan		Klang Valley Master Transport Plan Propose future express services.	2025 
 BEM BANGKOK EXPRESSWAY AND METRO	 BEM BANGKOK EXPRESSWAY AND METRO	Supply, Training and Support Supply and train OpenTrack Simulation software and support for BEM Thailand.	2025 
		Testing RSE ATO-TS-Server Testing of RSE's ATO-TS server and running test operation.	2025 
 Autonomous Rail Systems Hub Global Control and Test Center for Autonomous Trains		Test Center for Autonomous Trains RSE is opening its Test Center for automatic and autonomous trains in Kuala Lumpur. Providing testing services for Operators and Industry.	2025 

Railway	Client	Project Description	Year
Commuter Rail		Passenger service optimisation Optimisation of passenger services in critical Areas and Construction sites	2025
Selangor Rail		Feasibility study of a Proposed Mainline Railway RSE was appointed as the Operations Planning Consultant for HSSI to prepare the Operations Concept Document including Timetables, Depot and Fleet Sizing for passengers and freight trains based on the given Demand Forecast.	2024 
Commuter Rail		Analysis of impacts of Temporary Speed Restriction Analyse impacts of TSR on headway and running time of a busy commuter line in preparation for future turnout and track renewal plan.	2024
Mining Rail		Operations and Construction Planning Define and refine requirements for Operations and Construction Planning for a Mining Rail using OpenTrack software.	2024
		Supply, Training and Support Supply and train OpenTrack Simulation software and support for Rail Technology Research and Development Agency.	2024 
		Supply, Training and Support Supply and train OpenTrack Simulation software and support for DNV Korea.	2024 
	Tragen	Supply, Training and Support Supply and train OpenTrack Simulation software and support for KRRI (Korea Railroad Research Institute).	2024 
Wanda Line		Supply, Training and Support Supply and train OpenTrack Simulation software and support for CTCI.	2024 
		Supply, Training and Support Supply and train OpenTrack Simulation software and support for the King Mongkut University of Technology North Bangkok.	2023 
		Line Capacity Study of KTMB network Analyse and calculate the line capacity of KTMB network using UIC 406 standard.	2023 
		Supply, Training and Support Supply and train OpenTrack Simulation software and support for the Politeknik Perkeretaapian Indonesia.	2023 
		Supply, Training and Support Supply and train OpenTrack Simulation software and support for the National Railway Operator KAI in Indonesia.	2023 
		Stockholm Metro Headway and running time simulation study for a proposed new alignment between Fridhemsplan – Alvsjo.	2023 
		Remote Control for ATO Train, Betuwe Route Develop and supply a Remote Supervision and Control center including onboard interface for ATO trains on Betuwe Route. (RSE is part of REMOOT consortium with OTIV and Mobility 42)	2022 ongoing 
North South High Speed Line		Pre-feasibility study of 1500km High Speed Line with mixed traffic, Vietnam We verify the line capacity of the proposed 1500km North South High-Speed Line in Vietnam for mixed traffic operations.	2022 
North South High Speed Line		Pre-feasibility study of timetable concepts, Vietnam We verify the feasibility of timetable concepts (different headways) on the proposed North South High-Speed Line in Vietnam.	2022 
		Divre III and IV, South Sumatera Line capacity study of Divre III and Divre IV lines. A total of 660 km of single and double track with a mixed traffic service of passenger and freight trains.	2022 

Railway	Client	Project Description	Year
		Supply, Training and Support Supply and train OpenTrack Simulation software and support for the Ministry of Transportation in Indonesia.	2021 
		Line C, Prague Metro Search for possible gains in headway if the line is resigalled to CBTC.	2021 
		Successful completion of ATO GoA2 project (Phase 1) We have successfully retrofitted our RSE ATO onboard unit on a train without ETCS and the train is now running automatically from start to stop	2021 
		Scopes of work for the feasibility study of ATO GoA4 on Betuwe Line (Holland) Provide consultancy service to define the frameworks required to start an ATO GoA4 project	2021 
		Sub second simulation for Cross Zurich network Verify the gain in line capacity from Zurich Oerlikon to Zurich Loewenstrasse when the route setting time is optimised to as close as sub seconds.	2021 
		Digital Twin for Industrial Product development As part of the ATO GoA2 for ETCS L1/LS Rail Systems Engineering is developing a digital Twin system to test the ATO Onboard Unit under simulated system, by using OpenTrack with API. Simulation allows for real time data to be provided to the system under test.	2019 
		Operations Simulation, ATO GoA2 Operations Simulation for ATO GoA2 project as part of Swss MOT's SMARTAIL 4 Initiative.	2018 
		Express Rail Link – Node Capacity Study KL Sentral Verify the train capacity of KL Sentral station with regards to implementation of possible new services.	2018 
		KL LRT Line 3 In partnership with IFB (Institute fuer Bahntechnik – Dresden) Power Study and Simulation for 36km long LRT from One Utama to Klang (CBTC)	2018 
MANILA MRT-7		Operations Simulation, Failure Mode Analysis Report Simulation Studies and Failure Mode analysis for Ricardo's Project "Manila MRT-7"	2017 
		Supply, Training and Support Supply and train OpenTrack Simulation software and support Bangkok Expressway and Metro. (Operator of Blue Line and Purple Line)	2017 
		Supply, Training and Support Supply and train OpenTrack Simulation software and support SRTET – Airport Rail Link Bangkok to Suvarnabumi Airport. Build-up of Simulation Model of complete Airport Rail Link Line	2017 
		Supply, Training and Support Supply and train OpenTrack Simulation software and support for Ricardo Korea.	2017 
		Timetable Planning System Supply fully configured Timetable Planning and Simulation System for the complete KTMB network. Including Viriato and OpenTrack software, server and workstations, training and support. (ongoing)	2017/18 
		Supply, Training and Support Supply and train OpenTrack Simulation software and support Rail Solutions Engineering for an MRT project.	2017 

Railway	Client	Project Description	Year
		SRT electrification greater Bangkok Power simulation of SRT's greater Bangkok area as part of an electrification Study. "Hua Hin - Pak Nam Poh - Bangsue - Nakhon Ratchasima - Pattaya" In partnership with IFB (Institute fuer Bahntechnik - Dresden).	2016 
		Northern & Northeastern Double Tracking Standard Operations Plan and Simulation for SRT's "Pak Nam Poh - Den Chai" and "Khon Khaen - Nong Khai Double Tracking"	2016 
		HS Kunming - Rayong Study of operation of the southern section of Kunming - Rayong standard gauge line: Nakhon Ratchasima to Rayong and Bang Sue. Mix freight operations with fast and high-speed passenger trains. Study of overtaking, entry and exit the HS line.	2015 
		Bangkok Yellow line - Reversing Study Detailed study about train reversing at Ratchada Terminal station.	2015 
		Bangkok Grey Line - Rolling Stock Analyse operations of the 23km Monorail and determine the number of Rolling Stock needed.	2015 
		KL LRT Line 3 Concept Study Operations Plan and Simulation for 36km long LRT from One Utama to Klang (CBTC)	2015 
		Metro Seoul - Gimpo Line Build up a simulation model for the new Gimpo Line of Metro Seoul. (CBTC)	2015 
		Timetable Ipoh - Padang Besar Generate a timetable Ipoh Padang Besar section for traffic management system at SCC Bukit Mertajam.	2014 
	VAST	Bangkok Yellow line - Runtime simulation Runtime simulation of Bangkok's Yellow line monorail. Simulation with updated data in accordance to the project progress and additional design information.	2014 
		KLJR - Braking curve verification Simulation to verify braking curves of different train types at specific locations.	2014 
		AREX (Korea) - Extension to Terminal 2 Airport link to Incheon International Airport, Simulation of the extension from Terminal 1 to upcoming terminal 2. Key elements: 3 services (Commuter, Express, High Speed) and 2 different signalling / ATP systems (ETCS Level2 and TVM 430) on one line.	2014 
		THSR (Taiwan) - Extension to Nangang Taiwan High Speed Rail, extension from Taipei station to Nangang Station. Key elements: 4 minutes interval train service, including the entry and exit at the terminal station Nangang. The Simulation is carried out to confirm on the contractual design requirement.	2014 
	VAST	Bangkok Yellow line - Runtime simulation Runtime simulation of Bangkok's Yellow line monorail to verify running time. Simulation at early project stage with limited information available.	2013 

Railway	Client	Project Description	Year
		KL MRT Line 1 – Power Simulation In partnership with IFB (Institute fuer Bahntechnik – Dresden) Power Simulation Study for Kuala Lumpur's MRT Line 1.	2013 
		Express Rail Link – Extension to KLIA Extension of the ERL line from KLIA 1 to KLIA 2. Simulation done to verify the new timetable with the extended service. Verify running time and track allocation at the airport terminals.	2013 
	Global Rail	KLSR – add. Detail verification Simple simulation to verify some specific scenarios as an addition to the simulation study done previously.	2012 
	Global Rail	KLSR – Design Verification / Timetable Re-Signalling of Kuala Lumpur Sentral area. Extensive simulation study to verify the new signalling design including signal locations. Proof the contractually required headway/train interval through the KL area (SPK – KL Sentral – Simpang Batu) and propose a timetable.	2011 

Academic Support

Rail Systems Engineering Sdn Bhd is supporting universities and academic works, by supplying OpenTrack, teaching masters and PhD students and academic research members.

Railway	Project Description	Year
	Mahidol University, Nakhon Pathom, Thailand Supply OpenTrack Simulation software, give training and support to masters and PhD level students and give support for their thesis projects.	2015 ongoing 
	Korea National University of Transportation, Uiwang-si, Korea Supply OpenTrack Simulation software, give support for their users (Students and Academic Staff).	2017 