

CC ENGINEERS PVT. LTD.

Complex Systems Simplified; Through Simulation.



MOBILITY SOLUTIONS

Mini Rail Transit System

From Design To Prototype

An economical, ecological and emission-free green mobility solution for townships, campuses, parks and recreational centres.



ECONOMICAL

ECOLOGICAL

EMISSION-FREE

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INTRODUCTION

What is the Mini Rail Transit System?

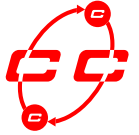
The Mini Rail Transit System (MRTS) from CC Engineers is an economical, ecological and emission-free green mobility solution.

It is designed for townships, recreational centres, toy trains in parks and on-campus transit, addressing the demand for sustainable public transit in compact or controlled environments.

Compact and modular track components allow quick and easy assembly, so the system can be produced, tailored and deployed quickly.

DESCRIBED AS AN

- Economical mobility solution
- Ecological mobility solution
- Emission-free green mobility solution



OVERVIEW

Sustainable transit for compact environments

The MRTS overall design combines efficiency and reliability with low ownership and operating costs - it can be produced, tailored and deployed more quickly than most other systems while still delivering superior results.



Applications



Townships

Township and residential-complex transit



Recreational Centres

Transit for recreational and leisure centres



Toy Trains in Parks

Toy train systems in parks and amusement centres

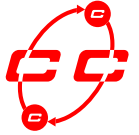


On-Campus Transit

University, institutional and campus mobility

ALSO SUITED TO

- Tourist and heritage site shuttle systems
- Intra-campus and last-mile connectivity



SYSTEM

A modular rail system



The MRTS uses compact, modular track components and lightweight rail-system construction to support quick and easy assembly.

It is built on innovative technology to provide reliability and customisation, and modularity is used to tailor rolling stock to specific customer requirements.

- Produced quickly
- Tailored to requirements
- Deployed quickly

01. Efficiency

Design optimised for efficient operation.

02. Reliability

Built on innovative technology to provide reliability and customisation.

03. Low Ownership Cost

Designed for a low overall cost of ownership.

04. Low Operating Cost

Designed to be economical to operate.

FOUR CONFIGURATIONS

Modular rolling stock

DMC — Driver Motor Car · TPC — Trailer Passenger Car.



15 Meter | Cars 2 DMC + 1 TPC | Capacity 20 Adults



20 Meter | Cars 2 DMC + 2 TPC | Capacity 32 Adults



25 Meter | Cars 2 DMC + 3 TPC | Capacity 44 Adults



30 Meter | Cars 2 DMC + 4 TPC | Capacity 56 Adults



EXPERIENCE

Passenger-centric design

The MRTS is a passenger-centric design. These features are intended to provide an enjoyable and pleasant journey. Supporting infrastructure such as stations, tunnels and bridges is designed with attention to passenger safety, dependability and aesthetic preferences.

- Tall windows

- Broad view of surroundings

- Ergonomic seats

- Attractive materials

- Climate control

- Real-time passenger information system

Safety systems

Obstacle Detection and Warning System

Helps drivers identify obstructions in dangerous circumstances. Included in all MRTS variations.

Overspeed Protection

Helps keep the MRTS within safe operating speeds.

Redundancy Controls

Redundancy controls form part of the safety design.

Emergency Mode

A dedicated mode used to support safe operation.

On-Board Surveillance System

On-board surveillance for passenger safety.

Passenger Emergency Communication System

For passenger safety and emergency communication.

Fire Detection System

Part of the onboard safety system.



TECHNOLOGY DRIVEN

Core technology systems



Train Control and Management System (TCMS)

A modern microprocessor-based TCMS provides a single point of control over the rolling stock.

- Doors
- Brakes
- PIS / PA
- Video surveillance
- Mode of operation
- HVAC



Electro-Pneumatic Braking System

Gives the driver immediate control of train speed with faster control response and quick on-vehicle reaction times, supporting regulation of rolling stock under varying circumstances.

- Immediate speed control
- Faster control response
- Quick on-vehicle reaction
- Regulation under varying conditions



Solar Battery Powered MRTS

Offered as an eco-friendly light-rail transit solution with a hybrid electric power source.

- Emission-free mobility
- Hybrid electric power source
- Solar and battery power

*TCMS covers doors, brakes, PIS/PA, video surveillance, mode of operation and HVAC. Solar-capacity, charging, range and energy-consumption figures are confirmed per project.

TURNKEY

Turnkey infrastructure scope

01. Turnkey solutions with rolling stock

02. Track laying

03. Stations and platforms

04. Tunnels and bridges

05. Traffic Management System

06. Route engineering

07. Rail networking



SPECIFICATION

Design data

Maximum train length over couplers (6 cars)	~32 mtrs
Driver Motor Car body length	~5.7 mtrs
Trailer Passenger Car body length	~4.2 mtrs
Car body width	~1.4 mtrs
Car body height	~2.6 mtrs
Gauge	Narrow Gauge (500–1000 mm range)

Dimensions are given for the standard configuration; car and consist length vary by rolling-stock type

SPECIFICATIONS

Performance data

PARAMETERS	PARKS	TOWNSHIP	TRACK > 3 KM
Maximum operating speed	10 km/h	20 km/h	30 km/h
Emergency brake distance, fully loaded train	<100 m*	<130 m*	<150 m*
Minimum battery backup	3 Hrs.	> 3 Hrs.	> 3 Hrs.
Passenger capacity per coach	12–15 per coach	16–20 per coach	>20 per coach
Total passenger capacity, 6-car configuration	48–60 passenger	64–80 passenger	>80 passenger
Wheelchair capacity	1 Per DMC	1 Per DMC	1 Per DMC
Gauge of rail track	500–1000 mm	500–1000 mm	500–1000 mm



AT A GLANCE

Product capability summary

Rolling Stock

- Modular train configurations
- Driver Motor Cars
- Trailer Passenger Cars

Passenger Systems

- Climate control
- Passenger information
- Emergency communication
- Surveillance

Control Systems

- TCMS
- Operating modes
- Safety controls

Braking

- Electro-pneumatic braking
- Emergency braking
- Overspeed protection

Safety

- Obstacle detection
- Redundancy controls
- Emergency mode
- Fire detection

Energy

- Battery power
- Solar-supported hybrid electric configuration

Infrastructure

- | | | | |
|------------|-----------|----------------------|---------------------|
| ▪ Track | ▪ Tunnels | ▪ Rail networking | ▪ Platforms |
| ▪ Stations | ▪ Bridges | ▪ Traffic management | ▪ Route engineering |

Where the MRTS is deployed

01. Township and residential complex intra - campus transit

02. Recreational parks and amusement-centre toy train systems

03. University and institutional campus mobility

04. Tourist and heritage-site shuttle systems

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CREDIBILITY

Why CC Engineers

Founded in 1987 and headquartered in Pune, Maharashtra, CC Engineers Pvt. Ltd. designs, manufactures and delivers dynamic simulators and technology-intensive customised projects for the transport and defence industries.



In-house engineering

- Civil
- Mechanical
- Electrical
- Electronics
- Computer engineering
- Software
- Manufacturing
- Turnkey project execution



Services

- Software Development
- Modeling for Simulations
- Turnkey Project Execution
- Design, Development & Innovation
- Manufacturing
- Civil Engineering



Certifications

- ISO 9001:2015
- MSME registered
- NSIC registered

Clients



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FAQ

What is the Mini Rail Transit System used for?

Townships, recreational centres, parks and campus transit — an economical, eco-friendly green mobility solution with quick deployment.

Is the MRTS solar powered?

A solar battery-powered variant is available, providing an emission-free, hybrid electric mobility solution for light-rail transit.

What track gauge does the MRTS use?

Narrow gauge (500–1000 mm), suitable for compact, modular deployment in parks, townships and campuses.

Move people, sustainably, from design to prototype.

Compact, modular, emission-free rail mobility, delivered turnkey.



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