Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	15 October 2022
Team ID	PNT2022TMID32228
Project Name	Smart solution for railways
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Weather monitoring	In many ways railways can be more susceptible to the effects of the weather, The main parts of the rail in-frastructure affected include the track and switch points, conductor (power) rails and overhead wires/catenary systems.
FR-2	Train and track condition	With the addition of a low-cost sensor, type, location and severity of the track defects are reported using the system. The system improves safety and network performance by efficiently directing maintenance crews to the location of defects, minimising time spent on maintenance and inspection.
FR-3	Signals and control centre	On a rail transport system, signaling control is the process by which control is exercised over train movements by way of railway signals and block systems to ensure that trains operate safely, over the correct route and to the proper timetable.
FR-4	Train tracking(timing)	Live train running status for Indian railway trains means the current location of any train and its real time delay status. It also includes estimated arrival time of the train at upcoming stops
FR-5	Booking & ID proof	The user is not required to give any input of the photo identity card details of any of the passengers while booking the ticket. Passenger don't carry ID proof with our hand and in case of we have save ID proof at cloud and show it.
FR-6	Railways employability &emergency factor	During the emergency it helps to alert the police / doctors for any situation and the employability of the railways will improve by these factors

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Usability is to measure the ease of use in user centered interaction designs.

NFR-2	**Security**	• Railway Safety Solutions by AI, Firewall, and Diagnosis. • Smart Ports. • Intelligent Surveillance System in Metro. • Automate Traffic Law Enforcement.
NFR-3	**Reliability**	Reliability as **the percentage of trains arriving within a certain margin from the scheduled arrival time**
NFR-4	**Performance**	Various passenger facilities/ amenities like, lifts, escalators, toilets, battery operated vehicles, wheel chairs, waiting rooms, Foot over Bridge etc. are being extended to more and more stations.
NFR-5	**Availability**	Smart railway is a technologically advanced approach to efficiently manage railway operations through sharing of rail data across rail infrastructure components, such as passengers, control centers, ticketing department, and freight.
NFR-6	**Scalability**	To this day, railway actors obtain information by actively hunting for relevant data in various places. Despite the availability of a variety of travel-related data sources, accurate delivery of relevant, timely information to these railway actors is still inadequate.