

Delivering Railway Safety



Image : 1



About Kernex Microsystems

Reliable, Responsive & Resourceful

Founded in 1911 in Hyderabad India, Kernex Microsystems (India) Ltd. is an ISO 9001:2015 certified embedded solutions provider and system integrator with proven track record in providing professional Electronics Equipment operating under stringent / harsh environmental conditions for the Railroad industry. Our capabilities include from concept validation to Design, Manufacture, Installation and providing on going support, on turnkey basis.



Image 2



Image 3

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Kernex is committed to providing a broad range of high value added embedded R&D services and Electronics Manufacturing Services (EMS/CEM), enabling customers to maximize and optimize their resources and apply their core strengths in research and development (R&D), design, and marketing. These services benefit end-users and customers, in accelerating time-to market for a broad range of applications.

Kernex has large team of systems engineering experts, design engineer and support engineers, who help in providing customers with a comprehensive package of end-to-end services ranging from front-end consulting and planning to developing, integrating and managing customized turnkey technology solutions. Kernex focuses on quality control, cost structure, production capacity, timely delivery, and global logistics; to deliver world class products and solutions.

Core Competencies and Business Focus

Kernex has over 2 decades of experience and expertise in Conceptualization, Designs, Development, Engineering and Production and can undertake projects of and provide state-of-the-art solutions. With over highly skilled engineers of various competencies and last process engineering and a Quality Management System in place, we pride ourselves in providing state of the art solutions in the following fields:

- Safety Systems for the Railway sector
- Field testing, Verification & Validation of Railway Safety Equipment
- Customised Embedded Product Engineering & Development
- Environmental testing services
- Large scale integration of systems
- Manufacture, Erection, Installation & Commissioning of Turnkey Projects

Our Products

Delivering Niche Safety Products for Railroad Industry



Image 4



Image 11

LxGuard™ Level Crossing Protection System

Kernex Microsystems (India) Ltd developed a Level Crossing Protection System, LxGuard™ characterized by innovative design an intelligent mix of modern technology and safe working principles. LxGuard™ is ideal for preventing collision between Rail vehicles and Road Vehicles/pedestrians at level crossings. LxGuard™ employs triple redundant processors with '2' out of 3' voting logic, to achieve high degree of safety along with high availability. It comprises of axle counter to detect train approach, Lx Controller, Red and Yellow Flashing Lamps and bells to warn the road users and motorized barriers. Optionally, wayside train signals can be provided and interfaced to LxGuard™.

LxGuard™ combines low installation and maintenance costs with high levels of flexibility, integrity, and reliability. It can be easily adapted to the conditions of individual level crossings and customer specific requirements. It can also be readily interfaced with existing infrastructure and signaling systems.

Train SHIELD™ Train Collision Avoidance System (TCAS)

Train SHIELD™ is a collision avoidance system for Trains that integrates new technology with existing train control and operating system. TCAS is designed by and for Indian Railways suitable for both passenger & freight trains. TCAS has been certified to comply with SIL4 (Highest Safety Standards) by internationally accredited Safety Assessors. It provides for a rail safety working in conjunction with existing train operations, patterns and rules. Train SHIELD™ is a microprocessor based embedded product designed to prevent overspending and Signal Passing at Danger (SPAD) in train operations and thus prevent dangerous accidents. It also includes cab signaling and other logics to prevent collisions in block sections as well as in Station areas. The system consists of onboard units fitted in Locomotives and stationary units fitted in Station & Level Crossings. TCAS uses the latest Technologies in digital wireless communications and RFID to continuously detect and transmit train movement related information between locomotives. It integrates and interlocks the train information with data from track based sensors to create a safety overlay for train operations

Services we offer

From idea to Customizations, Production & Beyond

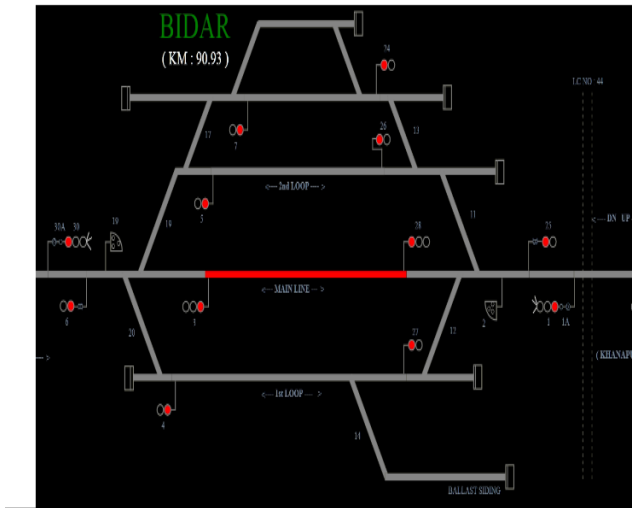


Image 6



Image 7

Embedded Hardware Development

At Kernex, our hardware engineering team along with our embedded software experts, allow us to offer a complete product relation service. Our R&D team is fully equipped, trained and experienced on designing and developing embedded projects for our customers from various industry domains viz. Railways, Defense, Industrial Automation, control systems and so on.

Embedded Software Development

We provide next -generations embedded software engineering services to our customers that satisfy their specific business requirements. We have rich expertise in developing firmware and embedded applications for a wide range of products. We use our DSP expertise and IPs to develop fast embedded middleware, rich applications and interactive GUI. Our embedded expertise covers applications development and optimization over a wide range of popular RTOS platforms and proprietary micro-kernels, processor depend real-time assembly coding and real time multi-threaded applications.

Environmental Testing Services

Our test procedures are written according to stringent engineering guidelines. We are capable of developing ICT and functional tests to satisfy customer needs.

SMART YARD – an Automated Wayside Inspection and Detection System for Rail Yards

SMART YARD System is a step forward for Railways and is a part of “CONNECTED” RAILWAYS.

SMART YARD enables the existing yards by providing the functionalities like On-line fault detection, Monitoring of critical components of freight & passenger rolling stock operating over Railways network.

SMART YARD typically comprises Automatic sensor based fault/ abnormality detection/health & condition monitoring and reporting system for better asset management of railway rolling stock fleet with a minimum of human interference. The system include Fault detection systems like:

- Online monitoring of Rolling Stock
- Machine vision based Inspection system for Rolling Stock
- Hot Axle Hot Wheel detector (HAHW)
- Track side Bogie/Wagon Monitoring system cum Hunting Detector

Customer Commitment and No Compromise Infrastructure

Kernex Head Quarters is located at Plot No.38 to 41, Hardware Technology Park, Maheshwaram Mandal, Hyderabad – 501 510, India. Kernex also has a large manufacturing facility of 2,60,00 sq.ft. at Hardware Park, Hyderabad(behind Hyderabad Airport). This houses corporate office, design, engineering, manufacturing and associated support activities.

Image 8



At Kernex, Quality is Paramount

Quality drives everything that we do—from technology to processes to human resource practices. Backed by ISO 9001 certifications, Kernex constantly seeks to raise the bar on quality by introducing novel concepts and stringent controls

Image 10



This infrastructure is well connected to all parts of the city and provides good working environmental. The Facility is architected for round-the clock operations for designs and manufacturing of modules, subassemblies and assemblies of modern electronic systems. Following state of art facilities are available at this location as an integrated modern setup;

- Research and development
- Manufacturing facilities
- Testing facilities (Verification and Validation)
- Quality Assurance Labs with full scale environmental stress screening (ESS) facilities
- Training Facilities with state of the art training aids for employees.
- Simulation, Testing and demonstrations areas for products proving and client acceptance tests.

Our proprietary Quality Management System provides a flexible proceeds frame work that enables continuous quality improvement. These practices address all phases of product lifecycle i.e., from capturing requirements, design development of prototypes, coding verification & validation and post-delivery maintenance. A team of experienced quality professionals utilize our QMS system to ensure delivery of technologically outstanding products and services. All assessed by means of ongoing customer satisfactions survey and knowledge augmentation from our day to day R&D experiences.

Our Clients (Partial List)

- Egyptian National Railways
- Indian Railways
- North Frontier Railway
- Konkan Railway
- Richard Bay Coal Terminal, South Africa
- Sri Lanka Railways

Corporate Facts.

Global Headquarters; Hyderabad, India

Incorporated in 1991; Traders on both NSE and BSE since 2005

More than 150 employees world wide

ISO9001:2000 certified in 2005 renewed in 2019

Corporate Headquarters

Kernex Microsystems (India) Ltd

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