

PUBLISHED FROM BANGALORE

JUNE, 2022

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A bellwether in  
Indian Digital  
Technologies



Dasari Ramakrishna,  
Founder & CEO

# EFFTRONICS SYSTEMS

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# EFFTRONICS SYSTEMS

## A bellwether in Indian Digital Technologies

COVER  
STORY

**E**fftronics Systems founded in 1985, functions in four verticals – Smart Railways, Smart Cities, IoT and Smart Buildings. In the words of Dasari Ramakrishna, Founder and CEO, “I am inspired by the words of Sri Rabindranath Tagore.... where the mind is without fear....and knowledge is free....where words come out from the depth of truth”. The keyword for this techno enthusiast, Ramakrishna is “truth”. He firmly believes, truth can be identified using technology, which provides deepest insights, in turn “enhances wealth”. A B-tech from NIT Surat, and MTech from IIT Madras, Ramakrishna grew up with quest to dive deeper into all things around him.

### DIGITAL FORAY INTO SMART SIGNALLING OF RAILWAYS

Efftronics made an entry into Indian Railways 25 years ago, with a unique and pathbreaking product called Data Logger. Dubbed as a ‘black box’ by Railways, Data Logger is a quintessential equipment today in Railway signaling system, occupying a coveted place in more than 8000 Railway stations across the country. Data Logger was initially introduced to monitor all the vital signal parameters so that, in the event of any incident, scene could be replayed to know the ‘truth’.



**Dasari Ramakrishna,**  
Founder & CEO



Efftronics continued providing data acquisition systems and safety embedded system technology through unique solutions for the Railway signaling domain. The products designed and manufactured by Efftronics Systems focused to ensure the safe passage of trains by digitally detecting non-compliance of the rules by Loco Pilot/Station Master. A striking feature of Data Logger is to alert whenever Relay Interlocking malfunctions giving specific cause of malfunction. This reduces MTTR since fault localization is accurate. Analysis of these faults led to deeper diagnosis of Relay Interlocking system itself. Elaborating further on this aspect, Ramakrishna adds, “During the last two decades, we have deployed Data Logger system in Indian Railways, and have been continuously engaged to ensure the implementation of novel features as well as value addition, year on year. Diagnosing the problems of signaling, Data Logger provides documentary evidence accidents/incidents in minutes, records driver errors, bringing a cultural shift in the operations and maintenance of signaling system.” Therefore, post accident analysis and train arrivals/departures became digital, eliminating the human element, which was oftentimes man made and inaccurate!

Long before the world envisaged IoT, Efftronics pioneered the IoT by networking Data Loggers across the country. Networking Data Loggers at Division, Zonal and finally at Board level enabled Indian Railways to monitor the stations and arrive at post accident analysis within seconds of incident. This paved way for India’s largest IoT network, generating 22 million records daily, 6M things, across 200 plus networks.

Efftronics innovated many products for Railways and passed through rigorous inspection of RDSO. Today Efftronics deployed more than 12000 products located in more than 9000 locations, maintained by Company owned Customer Care spread over 140 locations across the country.

Various other innovative railway products offered by Efftronics Systems are the Integrated Passenger Information System (which provides Train information to Passengers using LED display boards, audio announcements and LCD TVs), installed in more than 80 stations. Solid State Block Proving by Axle Counter is used in Railways for the safe movement of trains between stations. Developed under European Railways safety Standard CENELEC with the highest Safety Integrity Level-4,

*With 800 strong employees today, Efftronics has been practicing Make-in-India and Atmanirbhar since its inception in 1985*

this product is designed with triple modular redundant architecture. At present this product is deployed in 155 stations. Validated by Third-party agencies like Jadavpur University and ERTL Laboratory, this product improves the safety and line capacity of railways.

#### CONDITION MONITORING OF RAILWAY ASSETS

Condition Monitoring of critical assets using ML and AI is another area Efftronics made inroads into. Condition Monitoring enables immediate alerts of an impending failure thus avoiding human judgement. Furthermore, Condition Monitoring enables predictive maintenance of critical assets eliminating preventive maintenance.

#### INROADS INTO OTHER VERTICALS

Smart Cities is the buzz word today in the country. Citizens are looking for Ease of Living. The concept is heavily dependent on digital technology seamlessly intertwined with civil infra. In Smart Cities, EFFTRONICS SYSTEMS is amongst the leading Companies with cutting edge technology exploration. Products/solutions include Adaptive Traffic Control System (ATCS), Visual Messaging Displays, LED based Video walls, Smart Transportation, Automatic Weather Stations (AWS) and Smart Water, which are already in use in Dehradun, Kakinada, Gandhinagar, Belgavi...to name

a few. The water distribution of city of Vijayawada with 1.5 million population, is closely monitored by Efftronics solution for Quality, Quantity and timeliness of freshwater distribution. Efftronics is on the verge of completing smart water distribution projects at some NTPC colonies. Smart Water monitoring and control operates from source to last mile. Another innovation that differentiated Efftronics is in Smart LED lights. In house R&D developed Smart LED lights that last a life of 10 years, carrying a warranty of 5 years. Efftronics has adapted the latest technologies like ML/AI/Deep Learning/Digital twins, using the latest communication platforms like BLE, Wi-Fi, and GPRS across its operations.

Drawing from the vast experience and exposure of Railways, Efftronics mastered building IoT for Industries willing to adapt Industry 4.0.

#### DELIVERING VALUE TO CUSTOMERS AND CONTINUE IMPROVING VALUE

“Delivering value to customers is the USP”, says Ramakrishna. He says, “Value is, overall benefits divided by cost of lifetime ownership, an equation that should be our guiding principle”. He explained how Efftronics adapts Design Thinking in developing products/solutions, which is ideation, creation, production, scaling up, installation, and maintenance. In effect Efftronics looks at lifetime engagement, through continuous upgrades, passing on the benefits to customer and continuously delivering value. While identifying the pain point, one needs to apply empathy to truly get to the bottom of the issue. Empathy

includes interaction with the stake holders to understand better.

#### ADAPTING TECHNOLOGIES-GROWING RECOGNITION

With 100 plus engineers relentlessly working in R&D, Efftronics boasts of 50 plus innovations. Adapting trending technologies, Efftronics remained in forefront, endearing many young minds. Efftronics believes in ‘catching them young’, from around 20 Engineering colleges in districts through a rigorous process, train them and prepare them for innovative thinking. Efftronics is CMMI 3 approved, ISO 9001:2015 Certified, DSIR recognized and RDSO listed.

“We have a state-of-the-art manufacturing facility following 5S and 6 Sigma principles. This is in line with our belief that product and process innovation lead to a company’s growth. We also have a robust customer support system, located at 135 locations crisscrossing India, providing 24x7 services to customers!” says Rama Krishna. “We have OEM partnerships with DELL, Oracle, AWS and Microsoft”, added Ramakrishna.



#### VOCAL FOR LOCAL, AATMANIRBHAR SINCE 1985

With 800 strong employees today, Efftronics has been practicing Make-in-India and Atmanirbhar since its inception in 1985. Efftronics not only pioneered in attracting local talent, maintaining a work culture that is local but also kept pace with the latest and best practices, adapting trending technologies. 

