A report

on

Industrial visit

efftronics®

To provide insight for enhancing wealth

Efftronics Systems Pvt Ltd

Mangalagiri

Date of visit: 29.08.2025

by

(DEEMED TO BE UNIVERSITY)

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

KONERU LAKSHMAIAH EDUCATION FOUNDATION

(Deemed to be University estd, u/s, 3 of the UGC Act, 956)

Green Fields, Guntur District, AP, India – 522 502

INDUSTRIAL VISIT EFFTRONICS PVT LTD, MANGALGIRI

DATE : 2 9. 08. 2025

SECTION : II YEAR

EVENT : Industrial Visit/ Field Visit

Faculty Coordinators:

Dr. N.Prabhakaran
Dr. AV Prabhu
Dr. S. Arunmetha
Dr. K. Venkatatnam

EVENT DESCRIPTION:

On August 29, 2025, the Department of Electronics and Communication Engineering organized an educational industrial visit for its second-year, first-semester students. The event took place from 14:00 to 17:00 hours, involving 70 enthusiastic students and 5 faculty members from KLEF. The main goal of this excursion was to expose students to practical applications of Electronic System Design, the Internet of Things (IoT), and modern Smart Systems, connecting theoretical knowledge with real-world expertise.

The visit started with a warm welcome from representatives of Efftronics, a leading electronics company. They delivered an engaging introductory speech that created a positive atmosphere for the day. Following the welcome, the representatives provided a detailed overview of Efftronics's innovative projects and technologies through an energetic virtual presentation. This session offered valuable insights into current industry trends and the vital role of electronics in shaping modern solutions.

After the presentation, students had the chance to participate in a hands-on activity at the company's facilities. This part of the visit was especially impactful because it allowed students to directly interact with advanced electronic systems and smart technologies, applying their academic knowledge in a real-world setting. Overall, the industrial visit was a valuable step in deepening students' understanding of the electronics field and sparking their enthusiasm for future pursuits in technology.

ABOUT THE COMPANY:

Efftronics is recognized as a dynamic provider of comprehensive electronic solutions, establishing itself as a prominent player in the Indian technology sector. The company focuses on cutting-edge innovations tailored for smart cities, integrated building management systems, railway operations, and various Internet of Things (IoT) applications.

As a leading provider of advanced signaling systems for Indian railways, Efftronics is committed to enhancing the safety and efficiency of train operations nationwide. Their innovative signaling technologies are designed to facilitate seamless communication and coordination, minimizing the risk of accidents and delays, and ensuring the railway system is reliable and punctual.

In the realm of building management, Efftronics provides advanced solutions that significantly improve operational efficiency. Their systems cover various areas such as energy management, security surveillance, and environmental control, enabling buildings to operate at peak performance while supporting sustainability. These intelligent solutions not only reduce energy consumption but also enhance security measures and maintain optimal environmental conditions within structures.

Moreover, Efftronics plays a vital role in reshaping urban environments. By developing advanced technologies for intelligent city management, they help transform urban landscapes into more livable and efficient spaces. Using emerging technologies like Artificial Intelligence (AI), the Internet of Things (IoT), and Big Data analytics, Efftronics enables cities to optimize resource use effectively. This results in less traffic congestion, improved public services, and a better quality of life for residents in metropolitan areas.

SESSION ACTIVITIES DURING EFFTRONICS VISIT:

Students visited Efftronics and learned about

- Data Loggers
- Different types of Actuator equipment
- Different types of multi-colour display systems
- Battery monitoring unit & Signalling Systems
- IoT Security Systems

The session offered an in-depth examination of data loggers and black boxes, two essential electronic devices used at railway stations. These advanced tools carefully monitor and record critical information related to train schedules, including arrival and departure times, as well as track signaling system activity. By gathering this data, railway operators can effectively detect and correct potential errors made by signal controllers, locomotive pilots, or the signaling systems themselves, thereby improving overall train safety and reducing the risk of accidents. During the session, a thorough demonstration showed how station masters use these data loggers. It is noteworthy that these devices are currently installed in about 500 railway stations across India, emphasizing their widespread role in daily operations.

The presentation also examined the complexities of manufacturing processes related to railway technology. Attendees observed the assembly procedures for Printed Circuit Boards (PCBs), which are essential components in various railway systems, enabling connections and operations throughout. Both manual assembly techniques and automated machine processes were demonstrated, offering a thorough overview of production methods. Unfortunately, due to ongoing renovations at the facility, the demonstration of the early stages of PCB manufacturing—specifically the creation of bare boards before component assembly—could not take place. Nonetheless, the session concluded with an engaging video presentation showcasing the entire LED (Light Emitting Diode) production process, an innovative technology increasingly used in modern railway signaling systems.

Overall, this enlightening session provided a comprehensive understanding of the technologies and manufacturing processes that support railway safety and operational efficiency. By emphasizing the importance of data loggers, black boxes, traffic signaling, and manufacturing techniques, attendees gained valuable insights into the mechanisms that ensure the safe and smooth operation of India's railways.

PCB Designing and Manufacturing:

The presentation provided a thorough examination of the various types of printed circuit boards (PCBs), detailing their distinct characteristics and applications:

1. **Single-Sided PCB**: This type features components mounted on only one side of the board, making it simple and cost-effective for basic electronic functions. It's widely used in low-density designs and consumer electronics.

2. **Double-Sided PCB:** Contrasting with single-sided variants, double-sided PCBs allow components to be mounted on both surfaces, significantly increasing the circuit's density and complexity. This design facilitates more robust interconnections and is ideal for more sophisticated electronic devices.

3. **Multi-Layer PCB**: These boards contain multiple layers of circuitry, typically more than two, which are stacked and interconnected. Multi-layer PCBs are essential for advanced applications, such as computers and telecommunications, where a high degree of miniaturization and performance is necessary.

The presentation carefully outlined the PCB manufacturing process, breaking down each key stage. It started with the initial phases of design and layout, where schematic diagrams are transformed into physical forms. This was followed by an explanation of the complex processes involved in layer stacking, which ensures that each layer is connected correctly for optimal operation.

The key aspects of material selection were highlighted, especially the importance of using high-quality substrates and conductive materials to improve durability and electrical performance. Attendees also learned about precise etching techniques that define circuit paths on the substrate, which are crucial for the reliability and effectiveness of the final product.

Additionally, the presentation showcased the evolution of PCB layer design, demonstrating how technological advances have improved performance metrics, such as reducing signal loss and enhancing thermal management. The use of simulation tools for testing designs before manufacturing was also shown, highlighting how these innovations contribute to higher quality standards in production. With clear visuals and practical examples, the audience appreciated the complex nature of PCB manufacturing, gaining essential insights into the many considerations engineers face when producing high-quality printed circuit boards that meet modern technological demands.

PHOTO GALLERY OF THE VISIT:

GROUP PHOTO AFTER VISIT INFRONT OF EFFTRONICS COMPANY

DURING SESSION

26.08.2025

From

Dr. S. Arunmetha & Dr. N. Prabhakaran
Associate Professor, ECE
KLEF (Deemed to be University)
Green Fields, Guntur, Andhra Pradesh

To

The Registrar
KLEF (Deemed to be University)
Green Fields, Guntur, Andhra Pradesh

Respected Sir,

Sub: Permission to visit the Industry and Transportation - Request– Reg

I would like to inform you that we are planning to arrange an Industrial visit for our Second-year ECE students. In view of the above, we received the confirmation mail from Efftronics Systems Pvt Ltd.

Details of the Industrial Visit Plan:

Company Name: Efftronics Systems Pvt Ltd

Address: Plot No.4, IT Park,Auto Nagar, Mangalagiri, Guntur District - 522503.

Date and Time: 29.08.2025 at 1.30 pm to 05.30 pm

Students: Second-year ECE (65 Members)

Faculties: Three Faculty Members (Two Male faculty members and one Female Faculty)

As per the visit plan, our four faculty members will also accompany us. I kindly request permission to visit Efftronics Systems Pvt Ltd and to be provided with transportation facilities.

Thanking you,

Yours Sincerely,

S Arunmetha.

Encl:

Permission Letter from Industry

Transport Requisition Form

Forwarded for consideration

REGISTRAR
Koneru Lakshmaiah Education Foundation
(Deemed to be University)
Green Fields, VADDESWARAM-522 302.
Guntur District, Andhra Pradesh.

Alternate HOD
Department of ECE
K L University
VADDESWARAM

PRINCIPAL
College of Engineering
Koneru Lakshmaiah Education Foundation
(Deemed to be University)
Green Fields, VADDESWARAM-522 3
Guntur District, Andhra Pradesh.

Sl No	STUDENT_ID	STUDENT NAME	Onward Sign	Return Sign
1	2400040002	MENTA SAI NIHHAAR		
2	2400040004	T PERUMAL		
3	2400040006	PAMIREDDY VENKATA KISHOR KUMAR REDDY		
4	2400040007	KURRA SOMA SEKHAR VENKATA DURGA DAS		
5	2400040010	SEERAM ESWAR VENKATA RAM CHARAN		
6	2400040012	DANDIBOYINA DONI VENKAT		
7	2400040019	BANGARU VENKATA KRISHNA MAHESH		
8	2400040026	MALLIDI ABHIRAM MANIKANTA REDDY		
9	2400040029	KARUTURI JAGADEESH KUMAR		
10	2400040031	LAKKAKULA YASHVANTH KUMAR		
11	2400040034	MUKALA GOVIND		
12	2400040065	KARI ZIGNASH PHANI SRIHARI		
13	2400040068	ATMAKURU HEMA VENKATA SAI SATHVIK		
14	2400040071	PINNINTI PAVAN KUMAR		
15	2400040083	TELAMEKALA NARENDRA		
16	2400040098	MUTYALA GEETHA KRISHNA		
17	2400040120	BELLAM LOKESH		
18	2400040142	SHAIK MISBHA SHAREEF		
19	2400040146	KANURI CHARITH SAI		
20	2400040150	GOSTU PAVAN PARTH VENKATA SAI MANIKANTA		
21	2400040151	ATLURI NAGA CHETAN		
22	2400040152	SEKUBOYINA ESWAR VADAN		
23	2400040162	MANDAVA NIKHIL		
24	2400040166	KORRAPATI MAHI VENKAT PAVAN		
25	2400040180	GORIPARTHI VASAVI VALLI		
26	2400040184	PADE VIGNA VARDHAN		
27	2400040190	YAKKANTI PRANATHI		
28	2400040200	VADIKELA GNAPIKA HIMABINDU		
29	2400040211	SAI SUDEEP VEERANKI		
30	2400040217	PASUPULETI VEDA VYASA		
31	2400040220	KENGUVA SAMEER		
32	2400040242	THALLA MANIVARDHAN REDDY		
33	2400040253	KOTHAKOTA KRISHNAVENI		
34	2400040255	RAYI VEERA SAI		
35	2400040258	BADDEPUDI MIDHILESH		
36	2400040295	MANDIGA NANDHAN		
37	2400040300	BOLLA SAI DEEPTHI		
38	2400040304	PEDDIREDDY BHARATH CHANDRA		
39	2400040309	SHAIK RUHEENA		
40	2400040323	MANDLA UMASREE		
41	2400040325	MANDALANENI SAI BHARGAVI		
42	2400040326	KOKKERA VISHNU VARDHAN		
43	2400040339	AYAN CHOWDHURY		

44	2400040368	NAGANDLA KRISHNA PRAMOD SAI		
45	2400040369	AVULA SAI TEJA		
46	2400040414	HARIHARANADAM SAI LALITHA		
47	2400040423	BALUSU DEEPTHI		
48	2400040432	KARNATI JYOTHIKA		
49	2400040439	MADDELA HASINI		
50	2400040441	PATABALLA KAMAL SATISH		
51	2400040444	KAVIRAT KARTHIKEYA		
52	2400040445	VANDANA ESWARARAO		
53	2400040448	M LOKESH		
54	2400040450	PONNALA SUSHANTH		
55	2400040454	YELLETI HARSHAVARDHAN		
56	2400040461	MANDALAPU PARTHVI LAKSHMI REDDY		
57	2400040466	KARI CHIRU NAGA HASAN		
58	2400040467	ABBADI NIKHIL REDDY		
59	2400040474	MEDISETTY SATYA VENKATA KARTHAVEERYA DATTA		
60	2400049019	SIMHADRI HARI VENKATA SIVA GANESH		
61	2400049025	ABHI RAM REDDY		
62	2400049035	GONUGUNTLA . PRANEETH		
63	2400049038	KANALA SAI VISHNU NIPPAN REDDY		
64	2400049056	CHITRALA HARIKA		
65	2400049038	K. Sai vishnu nippan reddy		
66	2400049056	CHITRALA HARIKA		
67	2400060004	THATITHURI ROHINI PRIYA -EEE		
68	2400060010	MANDRU JASHWANTH KUMAR-EEE		
69	2400060027	Gajula Naga Lakshmi Sravani-EEE		
70	2400060033	BOTCHA KARUNAKAR-EEE		

Outlook

Fw: PERMISSION FOR INDUSTRIAL VISIT - KLEF IEEE SB & ECE - Reg

From Dr. Prabakaran N <prabakaran@kluniversity.in>
Date Sat 2025-10-18 17:00
To Arunmetha S <sarunmetha@kluniversity.in>

1 attachment (13 KB)
Industrial visit.xlsx;

Get Outlook for Android

From: Arunmetha S <sarunmetha@kluniversity.in>
Sent: Friday, August 29, 2025 10:57:45 AM
To: HRDCELL <hr@efftronics.com>
Cc: HR PERFORMANCE CELL <HRPMC@efftronics.com>; HOD-ECE <hod.ece@kluniversity.in>; S V Aswinkumer <svaswin@kluniversity.in>; Dr. Prabakaran N <prabakaran@kluniversity.in>
Subject: Re: PERMISSION FOR INDUSTRIAL VISIT - KLEF IEEE SB & ECE - Reg

Dear Sir/Madam,

Please find the List of students who are to be participated to the Visit along with 3 of my faculty members.

List Contain 70 but mostly 10 students may absent mam.

Total our Strength is 60.

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With Regards

Dr. S. Arunmetha
Associate Professor, Dept. of ECE and EL&GE
Associate Dean R&D - Sponsored Research
K L E F, Deemed to be University
(DST - PURSE Sponsored University)
Green Fields, Vaddeswaram
Guntur District, A.P., INDIA-522502
Mobile: +91 99948 31313
Phone: +91-8645-350200; Extn.: 1041
E- Mail: sarunmetha@kluniversity.in
sarunmetha@gmail.com
KLEF: https://www.kluniversity.in
Scopus: https://www.scopus.com/authid/detail.uri?authorId=55574396000

Researcher ID: http://www.researcherid.com/rid/O-3031-2017
ORCID ID: https://orcid.org/0000-0002-2494-4714

From: HRDCELL <hr@efftronics.com>
Sent: Monday, June 9, 2025 3:41 PM
To: Arunmetha S <sarunmetha@kluniversity.in>
Cc: HR PERFORMANCE CELL <HRPMC@efftronics.com>
Subject: PERMISSION FOR INDUSTRIAL VISIT - KLEF IEEE SB & ECE - Reg

Dear Sir,

Greetings of the Day...!

As a part of extension of our co-operation to Academic Institutions and to ignite aspirations of students towards Research we have been organizing Industrial Visit as per your request.

Visit will be conducted with a **limit of 50-55 students.**

As per our Industrial visit allotment schedule and previous telephonic conversation, we **reschedule** Industrial visit for your students on **29-Aug-2025** between **14:00 to 17:00hrs**.

***Please confirm the same**

Note: No Mobile/Camera is entertained in to Organization Premises.

Regards,
Srupanika D
HRD,
Efftronics Systems Pvt Ltd.
+91 8645-666777

From: Arunmetha S <sarunmetha@kluniversity.in>
Sent: 18 March 2025 18:58
To: HRDCELL <hr@efftronics.com>
Subject: Re: PERMISSION FOR INDUSTRIAL VISIT - KLEF IEEE SB & ECE - Reg

Dear Madam,

Thank you for the confirmation

Please mark your calendar for the same date and time.

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From: HRDCELL <hr@efftronics.com>
Sent: Monday, February 24, 2025 8:51:42 AM
To: Arunmetha S <sarunmetha@kluniversity.in>
Subject: RE: PERMISSION FOR INDUSTRIAL VISIT - KLEF IEEE SB & ECE - Reg

Dear Sir,

Greetings of the Day...!

As a part of extension of our co-operation to Academic Institutions and to ignite aspirations of students towards Research we have been organizing Industrial Visit as per your request.

Visit will be conducted with a **limit of 50-55 students.**

As per our Industrial visit allotment schedule and previous telephonic conversation, we **confirm** Industrial visit for your students on **18-Jul-2025** between **14:00 to 17:00hrs**.

*Please confirm the same

Note: No Mobile/Camera is entertained in to Organization Premises.

Regards,
Srupanika D
HRD,
Efftronics Systems Pvt Ltd.
+91 8645-666777

From: Arunmetha S <sarunmetha@kluniversity.in>
Sent: 11 February 2025 11:32
To: HRDCELL <hr@efftronics.com>
Cc: Suman Maloji <suman.maloji@kluniversity.in>; HOD-ECE <hod.ece@kluniversity.in>; M.S.G.Prasad <msivagangaprasad@kluniversity.in>; G S K Santosh <gsksantosh17@kluniversity.in>; SAMPAD KUMAR <sampadpanda@kluniversity.in>; M Sujatha <sujakarthik77@kluniversity.in>; D Sreenivasa Rao <sreenuece@kluniversity.in>
Subject: PERMISSION FOR INDUSTRIAL VISIT - KLEF IEEE SB & ECE - Reg

Dear Sir/Madam,

Greetings from KLEF,

On behalf of the Department of Electronics and Communication Engineering (**ECE**) and the **KLEF IEEE Student Branch**, I would like to request permission to conduct an industrial visit to your esteemed company. KLEF is committed to providing quality education and industry-driven skill development programs. As part of our Embedded System Automation Skill Course, we aim to offer our students practical exposure to advanced embedded system applications and automation technologies.

This visit is planned for our second-year ECE students, accompanied by faculty members, on a date that aligns with your availability. The Embedded System Automation Skill Course focuses on real-time applications, including IoT, industrial automation, robotics, and smart embedded solutions. **A visit to your company would provide students with valuable industry insights into embedded system design, microcontroller-based automation, and real-world applications of cutting-edge technologies**.

We kindly request **your approval and guidance in scheduling this visit at your convenience in the month of Feb/March 2025**. We appreciate your support in strengthening industry-academia collaboration and look forward to your positive response.

Thank you for your time and consideration.

.....

With Regards

Dr. S. Arunmetha
Associate Professor, Dept. of ECE and EL&GE
Associate Dean R&D - Sponsored Research
K L E F, Deemed to be University
(DST - PURSE Sponsored University)
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Scopus: https://www.scopus.com/authid/detail.uri?authorId=55574396000
Researcher ID: http://www.researcherid.com/rid/O-3031-2017
ORCID ID: https://orcid.org/0000-0002-2494-4714