# A REPORT ON INDUSTRIAL VISIT

## at

## Council of Scientific & Industrial Research (CSIR), Bangalore

## on

## 26.09.2024 for B.Tech- IT 2$^{nd}$ Year And 3$^{rd}$ Year



**September 2024**

Organized by

**THE DEPARTMENT OF INFORMATION TECHNOLOGY**

School of Computer, Information and Mathematical Sciences

On September 26, 2024, students from the II and III year, B. Tech IT, along with two faculty members – Mr. Mohammed Wajid Khan and Mrs. Ramya, visited CSIR Fourth Paradigm Institute (CSIR-4PI), Bengaluru, for an industrial tour. This visit provided an excellent opportunity to explore cutting-edge high-performance computing (HPC) and cybersecurity research at the institute, particularly the "Ananta" Supercomputing Facility, which plays a crucial role in India's scientific and technological advancements.

**About CSIR-4PI**

CSIR-4PI is a premier High-Performance Computing (HPC) and Cybersecurity research center, providing state-of-the-art computational facilities to scientists and researchers across CSIR. The "Ananta" supercomputer housed at CSIR-4PI is one of India's top supercomputers, with a peak computing capability of 360TF, supporting over 200 scientists in solving grand challenges in science and engineering.

In addition to HPC, the institute is engaged in cybersecurity research, including Darknet traffic analysis, network traffic processing using Apache Spark, deep learning for wind speed forecasting, and secure cryptographic hash function design. CSIR-4PI's infrastructure is backed by a high-speed National Knowledge Network (NKN), facilitating seamless access to computing resources.

**OBJECTIVES OF THE VISIT**

- Gain insights into HPC and cybersecurity research at CSIR-4PI.
- Understand the "Ananta" supercomputing facility, its architecture, and applications.
- Explore cybersecurity research areas, such as Darknet traffic analysis, Apache Spark-based network analysis, and cryptographic security solutions.
- Learn about deep learning applications in renewable energy forecasting.
- Identify potential areas for collaboration or internships in relevant fields.
- Interact with scientists and domain experts to exchange knowledge on emerging technologies.
- Gather insights for future research projects and engagements with CSIR-4PI.

**Visited Student Details:**

**2nd Year Name List:**

| S. No | Name | RRN |
|-------|------|-----|
| 1 | 230081601002 | ABDUL MUNAF ABDUL LATHIP |
| 2 | 230081601004 | ABDUL SAMAD A |
| 3 | 230081601005 | AFIA JAHAN K |
| 4 | 230081601006 | AFRUDEE A |
| 5 | 230081601008 | AHAMATH MUSTHAFA M |
| 6 | 230081601009 | AHAMED ATHIL S |
| 7 | 230081601011 | ANAS HUSSAIN U |
| 8 | 230081601012 | ARSHATH AHAMED |
| 9 | 230081601016 | FALEELA SHAHIBA M S |
| 10 | 230081601017 | HAJA MUEENUDEEN |
| 11 | 230081601019 | HASSAN |
| 12 | 230081601020 | HILAL AHMED H |
| 13 | 230081601021 | ISHAC AFRIDEEN M |
| 14 | 230081601022 | JAASIR N |
| 15 | 230081601023 | JAFFER SATHICK |
| 16 | 230081601025 | KISHORE KUMAR S |
| 17 | 230081601030 | MANOJ KUMAR M |
| 18 | 230081601031 | MOHAMED AASHIK M A |
| 19 | 230081601032 | MOHAMED AFRITH B |
| 20 | 230081601034 | MOHAMED AYMAN Z |
| 21 | 230081601035 | MOHAMED FAHEEM |
| 22 | 230081601037 | MOHAMED FIRNAS E P N |
| 23 | 230081601038 | MOHAMED HAATIM J |
| 24 | 230081601039 | MOHAMED HAFEEZ A |
| 25 | 230081601040 | MOHAMED JAFRAN S |
| 26 | 230081601041 | MOHAMED JASAM |
| 27 | 230081601042 | MOHAMED JASIM M |
| 28 | 230081601043 | MOHAMED NAEEM M |
| 29 | 230081601044 | MOHAMED NAFIL A |
| 30 | 230081601048 | MOHAMED SHAHID AQIL |

| 31 | 230081601051 | MOHAMED YOUSUF M M |
|----|--------------|---------------------|
| 32 | 230081601053 | MOHAMMAD IRSATH MAJITH A |
| 33 | 230081601054 | MOHAMMED FAHEEL M |
| 34 | 230081601055 | MOHAMMED MUZZAMMIL S |
| 35 | 230081601056 | MOHAMMED SHAFAN MANAZ M |
| 36 | 230081601059 | NADHA SAAFIYA R |
| 37 | 230081601060 | RAFEQHA M |
| 38 | 230081601062 | ROHITH G |
| 39 | 230081601063 | SURESH BABU C S |
| 40 | 230081601064 | TANLAM KRISHANTH |
| 41 | 230081601066 | VISHAL WILLBRITE A |
| 42 | 230081601067 | YASHWANTH P B |
| 43 | 230081601068 | YUVRAJ |

**3rd Years Name List:**

| S.No | RRN No. | Student Name |
|------|---------|--------------|
| 1 | 220081601001 | AAMINAFATHIMA |
| 2 | 220081601002 | ABDURRAOOF. A.R |
| 3 | 220081601006 | AHAMEDABDEENSAC |
| 4 | 220081601007 | ANISH KUMAR S |
| 5 | 220081601008 | ASHWINN |
| 6 | 220081601009 | ASHWINIS |
| 7 | 220081601013 | EMADEENS |
| 8 | 220081601014 | FARHATNAUSHEEN |
| 9 | 220081601017 | GUNALINIR |
| 10 | 220081601019 | HARISHHASANM |
| 11 | 220081601022 | ISMAIL THOUFEEQ |
| 12 | 220081601023 | IZHAAN WASEEM. M |
| 13 | 220081601024 | JANI ARAFATH. A |
| 14 | 220081601026 | KHALIDSULTANK |
| 15 | 220081601028 | MAMTANASREEN |
| 16 | 220081601029 | MOHAMEDABDULAZEEZ |
| 17 | 220081601030 | MOHAMED AKRAM. S |
| 18 | 220081601031 | MOHAMEDFAIZM R |
| 19 | 220081601032 | MOHAMED FAZHULULLA. S |
| 20 | 220081601033 | MOHAMEDFAZILA |

| 21 | 220081601034 | MOHAMEDISMAILFAIZALM |
|----|--------------|----------------------|
| 22 | 220081601035 | MOHAMED ISMAIL. M.S |
| 23 | 220081601036 | MOHAMEDJASEEN M |
| 24 | 220081601037 | MOHAMEDJASIMA |
| 25 | 220081601038 | MOHAMEDMUHSIN |
| 26 | 220081601041 | MOHAMED RIDHWAN. R |
| 27 | 220081601042 | MOHAMED SATHIK. N |
| 28 | 220081601043 | MOHAMMAD HARIS YOUSUF |
| 29 | 220081601044 | MOHAMMED HIZBULLAH. M.Y |
| 30 | 220081601045 | MOHAMMED IMTHIYAS M |
| 31 | 220081601048 | MUHAMMAD HAMTHAN |
| 32 | 220081601049 | MUHAMMADH. M |
| 33 | 220081601050 | MURSHITHA PARVEEN. M |
| 34 | 220081601051 | MUSHFIQ AHMAD |
| 35 | 220081601052 | NADEEM ISMAIL. M |
| 36 | 220081601053 | NIYAJUDEEN. N |
| 37 | 220081601054 | NOORUL AFREEN. M.T |
| 38 | 220081601056 | REEMA SHEAIK |
| 39 | 220081601058 | RISHIKA RAI |
| 40 | 220081601059 | SANJAY. V |
| 41 | 220081601060 | SHAHUL HAMEED ASSAF. M.M |
| 42 | 220081601066 | SYED SUHAIL AHMED |
| 43 | 220081601067 | TANZINA RESHFIYA. T.F |
| 44 | 220081601068 | UMAR FAROOK RIZWAN. H |
| 45 | 220081601069 | VALAI MOHAMMED NABHAN |
| 46 | 220081602001 | AHAMED NAWFAL |

**Faculty Coordinators:**

1. Mr. Mohammed Wajid Khan, AP/IT
2. Mrs. R. Ramya, AP/IT

The visit commenced with an introduction to CSIR-4PI, highlighting its role as a premier research and development institute under the Council of Scientific & Industrial Research (CSIR). Students learned about the institute's evolution, its research contributions, and the impact of its computational infrastructure on scientific advancements.

During the visit, students were introduced to Ananta – the supercomputing facility at CSIR-4PI. They explored its capabilities, architecture, and applications across multiple scientific domains. The centre provided resources, including websites and learning materials, to help students further their understanding beyond the visit. Additionally, internship opportunities were discussed, enabling students to potentially engage in research projects utilizing CSIR-4PI's HPC infrastructure.

The visit concluded with a discussion on CSIR-4PI's contributions to India's supercomputing ecosystem, including its role in scientific research, network security, data analysis, and AI-driven computing solutions. Students also gained insights into national initiatives such as the National Knowledge Network (NKN) and CSIR's efforts in strengthening India's computational research landscape.

## OUTCOMESOFVISIT

- **Enhanced Understanding of Supercomputing Technology:** Students gained deeper insights into high-performance computing, particularly through an exploration of the Ananta Supercomputer's capabilities and specifications.
- **Awareness of Research and Development Initiatives:** The visit provided exposure to ongoing R&D projects at CSIR-4PI, highlighting contributions to big data analytics, AI, climate modeling, cybersecurity, and network traffic analysis.
- **Potential Collaboration Opportunities:** Students identified opportunities for collaborative research and internships, particularly in leveraging CSIR-4PI's HPC resources for data-intensive applications.
- **Education and Career Development:** The visit offered students valuable career insights in high-performance computing and data science, exposing them to real-world applications and future opportunities in the field.
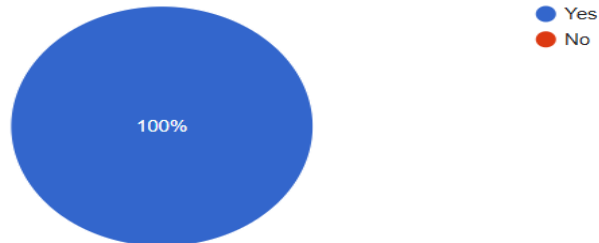
## CSIR-4PI-Bangalore (Industrial Visit for B. Tech - IT 2$^{nd}$ And 3$^{rd}$Year) 26.09.2024
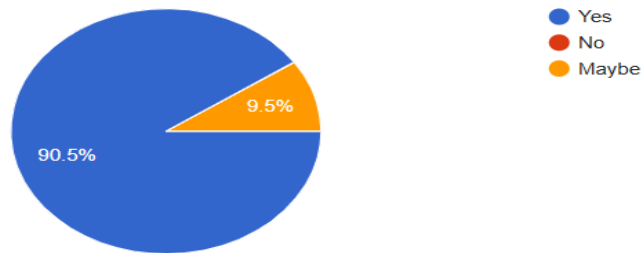
# Students Feedback:

### Did the visit provide clarity on its objectives and contributions to the field?
41 responses



- Yes
- No

100%

### Did the visit meet your expectations in terms of gaining insights into CSIR's High-Performance Computing Technology?
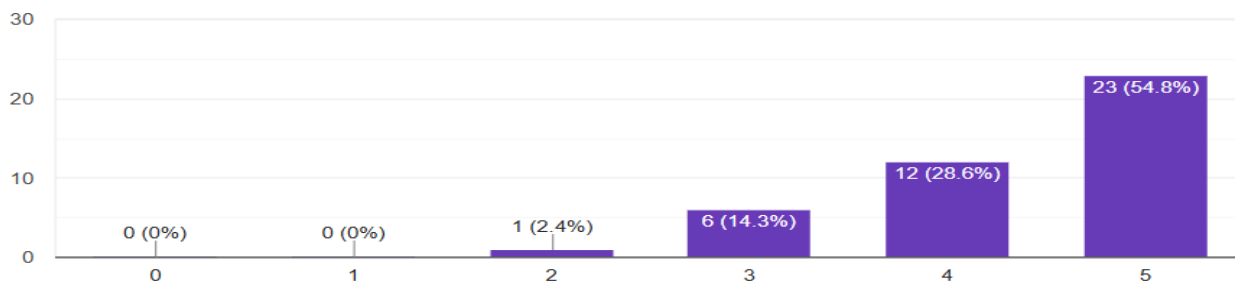42 responses



- Yes
- No
- Maybe

90.5%   9.5%

### How would you rate your overall visit
42 responses

Copy chart



| Rating | Responses |
|--------|-----------|
| 0 | 0 (0%) |
| 1 | 0 (0%) |
| 2 | 1 (2.4%) |
| 3 | 6 (14.3%) |
| 4 | 12 (28.6%) |
| 5 | 23 (54.8%) |

**Class Advisor**                                   **HOD/IT**

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