DEPARTMENT OF ECE PRESENTS

NEXUS

Vol.6 Edition 3
(July, August, September)

ABOUT DEPARTMENT

OUR VISION:

To excel globally in technical education and research in field of electronics and communication engineering and thus contribute to the welfare of society.

OUR MISION:

- To establish a unique learning environment to enable the students to face the ever-emerging challenges in electronics and communication engineering.
- To equip the students with a broad intellectual spectrum and prepare them for diverse and competitive career paths.
- To provide practical orientated education and foster tie-up with national/international educational institutes, research bodies, and industry to support students and faculty development pursuits.
- To provide ethical and value-based education by promoting activities addressing societal needs.

Program Educational Objectives (PEOs)

PEO1: Be able to successfully practice electronics and communication engineering with acquired skills and knowledge.

PEO2: Be receptive to new technologies and attain professional competence through advanced education, research work, and other professional activities.

PEO3: To prepare graduates who will practice their profession with ethics, integrity, and social responsibility in a global context.

PEO4: To develop leadership qualities with demonstrable attributes and to contribute to societal needs.

From Director's Desk

It gives me immense satisfaction that next issue of ECE newsletter is ready for the readers. A college newsletter mirrors the success story of an institution and act as a great medium to reach out to the outer world. It reflects upon the persistent and committed efforts made by faculty, staff and students for taking the institution one step ahead.

**Prof.(Dr.) Shakti Kumar**
(Director)

Continuing the same tradition, this issue of NEXUS (Vol 6 Edition 3), reflects upon commendable contribution made by all members of PIET family in their fields of expertise as well as for the overall growth of the college.

I congratulate everyone for their bit of service for the institution and do expect the same in times to come. I also congratulate the editorial team for bringing out present issue of newsletter.

From HOD's Desk

Dear Readers
Greetings to you!!

The newsletter is a forerunner of all departmental technical activities. With the well qualified faculty & energetic students, the club aims and continuously works for the technical enhancement. The newsletter covers the activities & achievements of the students & faculty. I am pleased to present the issue before the readers.
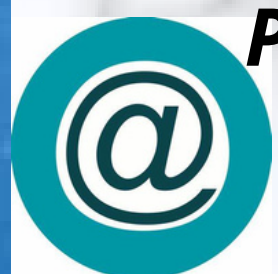
@ *Please feel free to drop in your suggestions to :* *hod.ece@piet.co.in*

Dr. Monika Gambhir
(HOD ,ECE)

FACULTY EDITOR

It is a matter of pride as well as pleasure to present before our readers next issue of Department Newsletter. We feel honored for the faith reposed in us for per- forming the role of editors of Department Newsletter.

We have put whole-hearted endeavors to give a complete and kaleidoscopic view of laudable achievements of ECE department. Through further issues of NEXUS, we do hope that we will come up to the expectations of our readers.

Please feel free to drop in your suggestions to :
sapna.ece@piet.co.in

Assistant Prof.
Sapna Arora , ECE

STUDENT EDITORS

HIMANSHU
(Chief Editor)

RISHABH JAIN
(Co-Editor)

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Article: Industrial Machine Connectivity on AWS

The Industrial Machine Connectivity (IMC) Quick Start helps you bring data from your Industrial Internet of Things (IoT) assets to the Amazon Web Services (AWS) Cloud in a structured way. It's for developers and AWS Partners, regional and global systems integrators, independent software vendors, and original equipment manufacturers who want to generate immediate business value from an IIoT architecture. The primary objective of the IMC Quick Start is to help AWS Partners deliver a proof of concept that addresses a use case of high value to the customer. For example, the customer might want to start by visualizing near-real-time operational metrics and analyzing root causes when a line goes down. After a successful proof of concept, the partner and customer may work together to build out the production architecture to address other critical use cases. The IMC architecture includes AWS managed IoT edge services and AWS-qualified edge hardware. You can use a range of programmable logic controllers (PLCs). And you can publish data over various protocols: HTTPS, MQTT (Message Queuing Telemetry Transport), and OPC Unified Architecture (UA). With this Quick Start, you can automate production rollout of a connected-factory architecture across multiple sites. You can organize, store, and manage your IIoT data in various ways:

• Create or transfer virtual assets.

• Create or transfer asset hierarchies.

• Create a time-series hot-data store.

• Transfer data from a historian or a SCADA (supervisory control and data acquisition) system.

• Archive cold data in Amazon Simple Storage Service (Amazon S3).

When you launch the IMC Quick Start, an AWS CloudFormation template automates the deployment of resources into your AWS account. You deploy this Quick Start in either virtual mode (for evaluation and training) or physical mode (for customer deployments).

The mode you choose depends on whether your edge hardware is virtual or physical. The architecture for virtual edge hardware includes an Amazon Elastic Compute Cloud (Amazon EC2) instance. The architecture for physical edge hardware includes an industrial PC on the customer's premises. The mode determines the way you configure connectivity and security. All other cloud-based resources are largely the same for virtual and physical deployments.

This diagram shows a high-level view of a physical deployment. The dotted orange box outlines the IMC Quick Start's main components.

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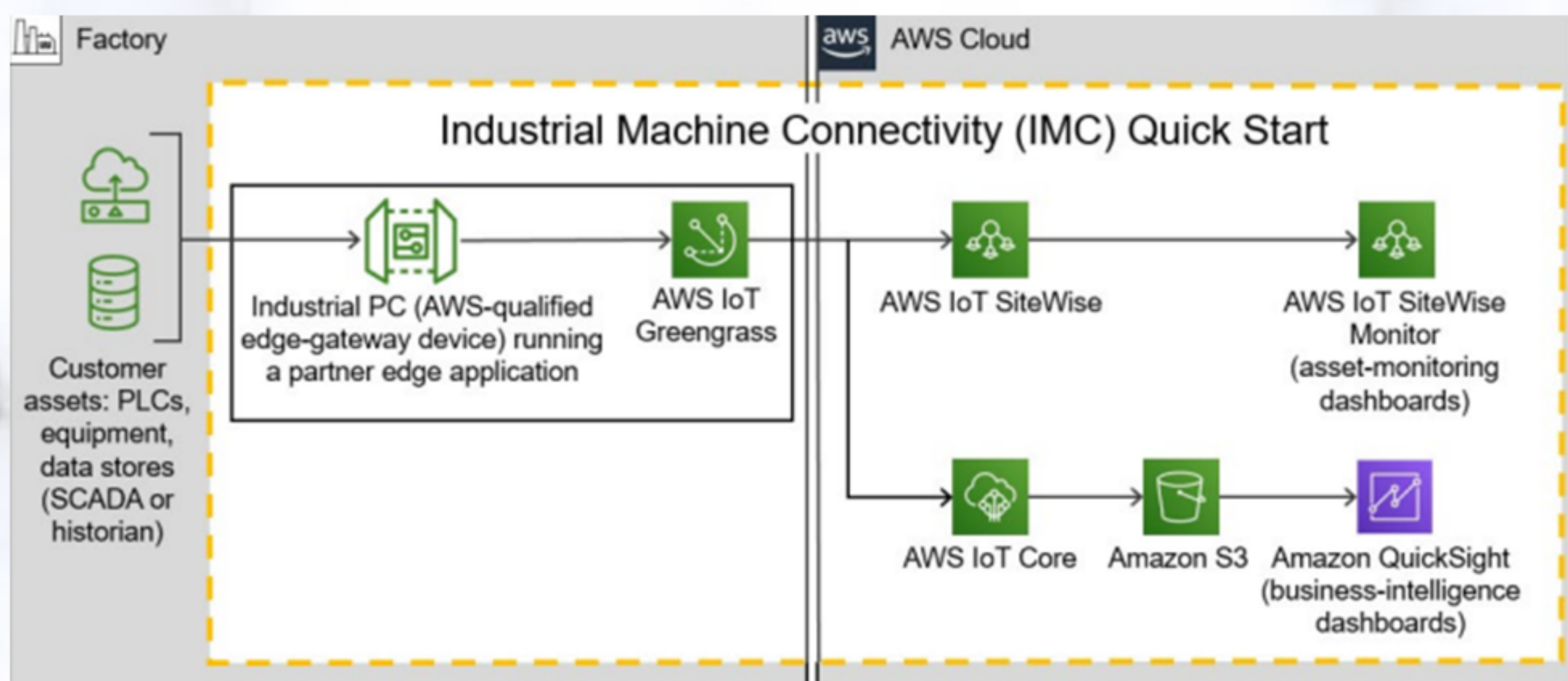
• <u>In the factory:</u>

  ◦ **AWS IoT Greengrass runs on an industrial PC (an AWS-qualified edge-gateway device). AWS IoT Greengrass ingests data from a partner edge application, such as Inductive Automation's Ignition or PTC's KEPServerEX.**

  ◦ **The partner edge application translates the data from the customer assets—including PLCs, equipment, and data stores (SCADA or historian)—into industrial protocols.**

• <u>In the AWS Cloud:</u>
◦   AWS IoT SiteWise stores the metadata for the asset-model hierarchy of the industrial assets on the factory floor. It also contains a managed database for the time-series data generated by these assets.
  ▪   After the hierarchy is defined in AWS IoT SiteWise, the partner edge application continuously ingests the asset data and transmits it to the AWS Cloud through a SiteWise connector within AWS IoT Greengrass.
  ▪   AWS IoT SiteWise serves as the hot-storage tier for both time-series data and metadata. All this data, including the metadata, is accessible to applications that can generate business value from it.
    ▪   The AWS IoT SiteWise Monitor feature enables you to build dashboards to visualize nearreal-time time-series data stored in AWS IoT SiteWise's time-series database.
  ◦ AWS IoT Core receives and routes MQTT messages either directly from the partner edge application or from the AWS IoT Greengrass core.
  ◦ Amazon S3 can serve as a cold-storage tier for data.
  ◦ Amazon QuickSight lets you build custom business-intelligence dashboards and visualizations for data stored in the S3 bucket.

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-Harsh Aggarwal
2819290,ECE

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Webinar: Roadmap to Crack Internship & placement Interviews

Department of Electronics & Communication Engineering organized a webinar on Roadmap to Crack Internship & placement Interviewsin India on 24 July, 2021.

Objective

·To share the job and internship opportunities

·To share tips for cracking interviews for Internship & placement in India and Abroad

· To take -up and resolve the student's queries regarding job and internships

Outcome:

·90 students and 11 faculty members participated in the event.

About Activity:

Coding Ninjas was founded in 2016 to bridge the knowledge gap between colleges and industry. Founded by Ankush Singla, Kannu Mittal and DhawalParate, Coding Ninjas boasts of world-class teaching faculty and a state-of-art learning platform for Coding education with faculty alumni of IIT, Stanford, IIIT and Facebook. Coding Ninjas teaches 17+ Programming courses in Foundation,l Advanced, Data & Development courses such as Machine Learning, Data Science, Web Development, Android and more. Today, Coding Ninjas ecosystem comprises of 40,000+ students and alumni, 1000+ Campus Ambassadors, 2000+ Teaching Assistants, and 150+ employees.
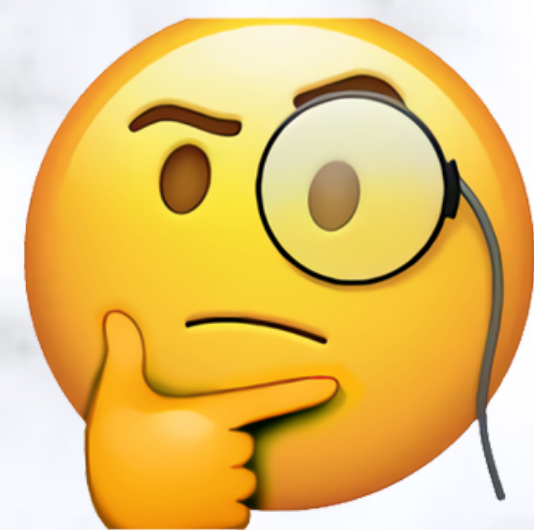
Glimpse of the event
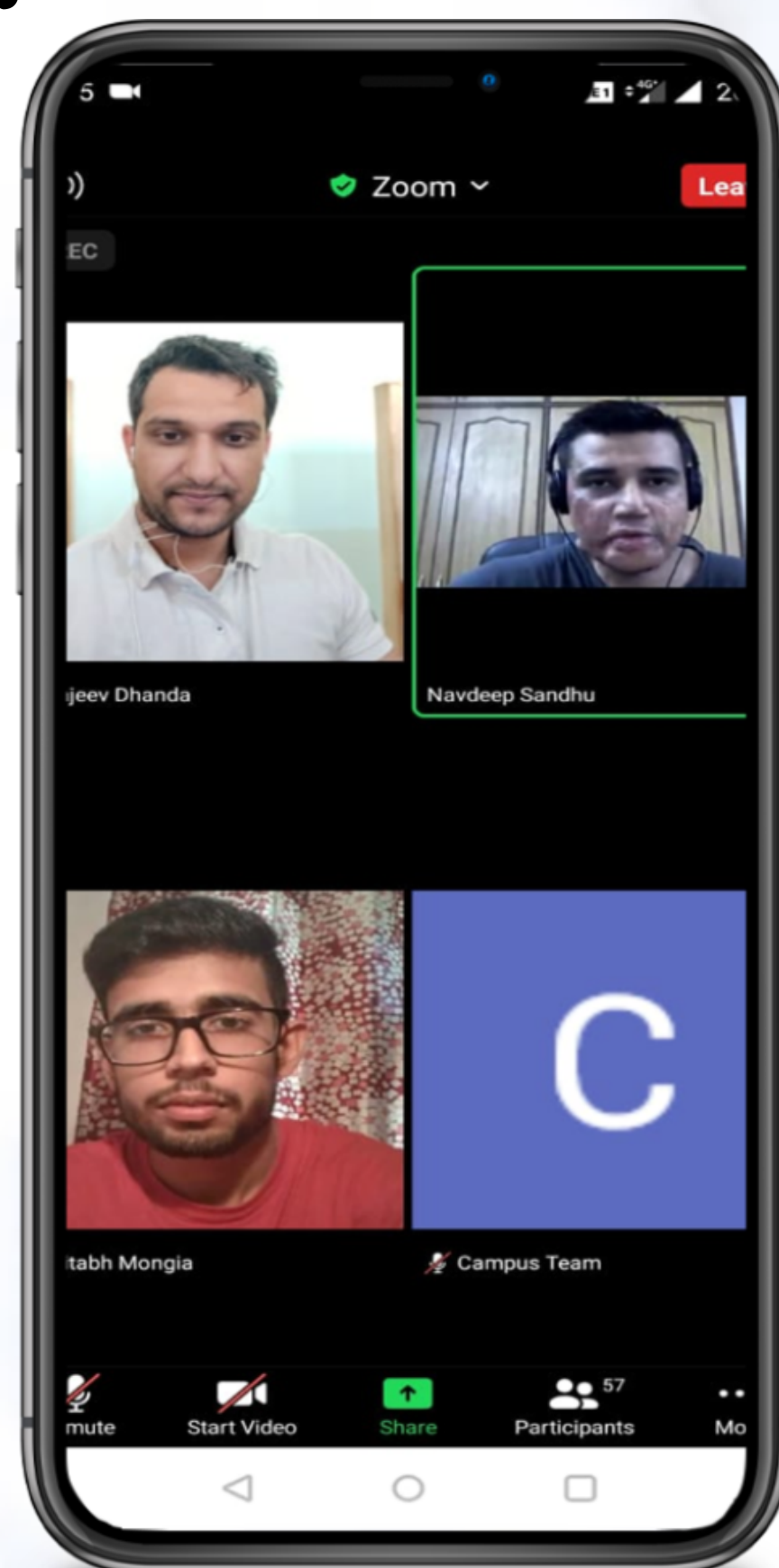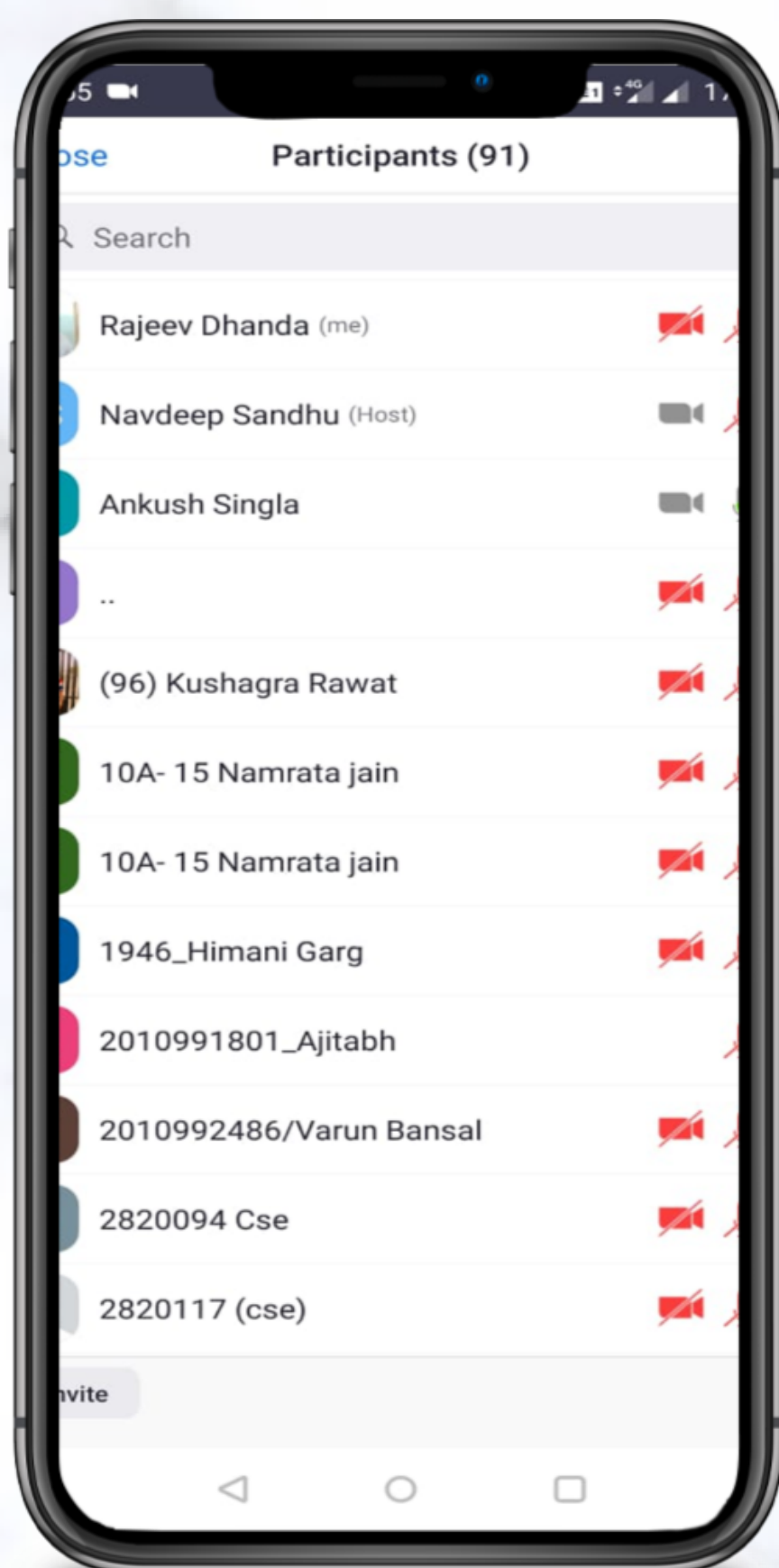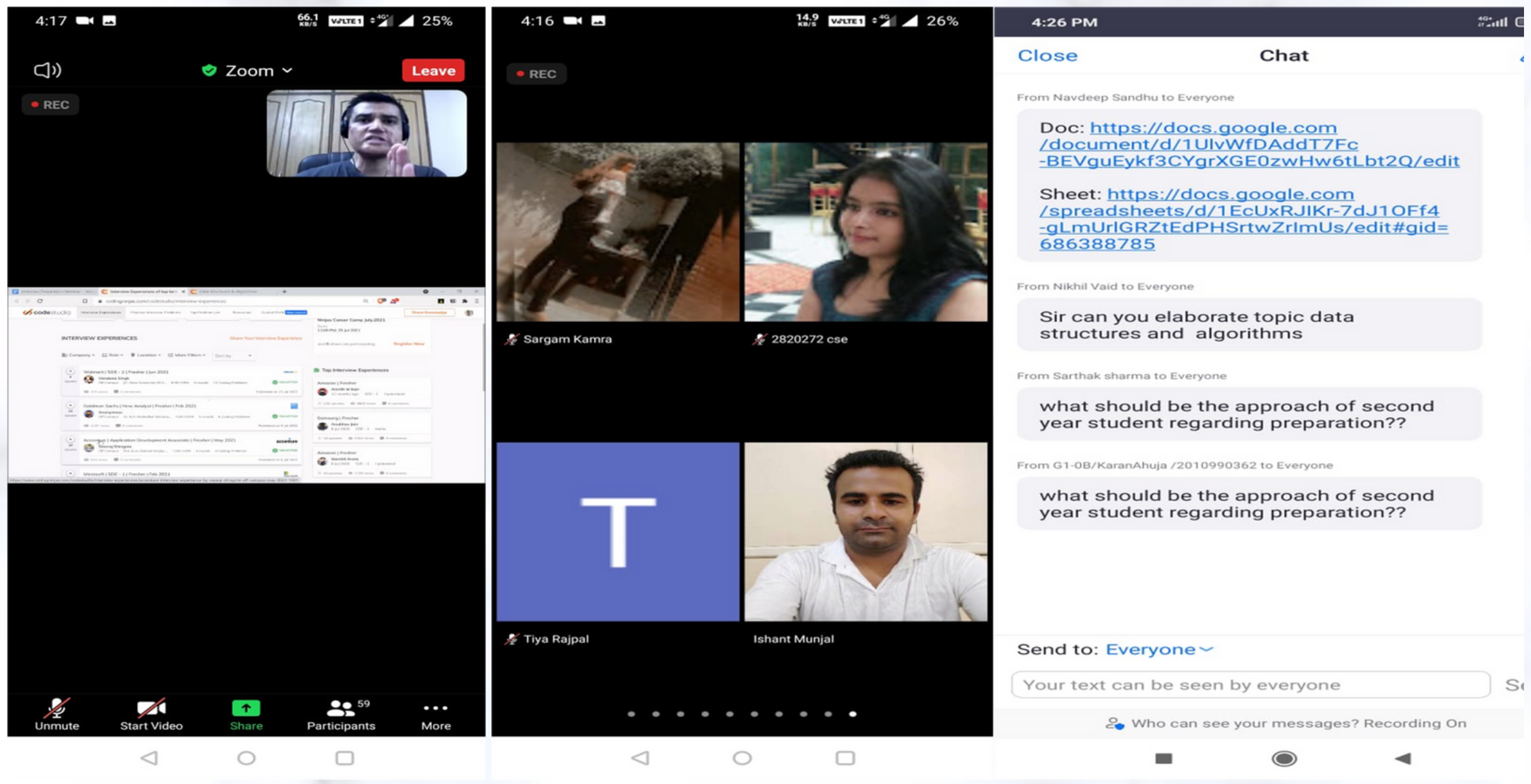
Coding Ninjas Session Feedback

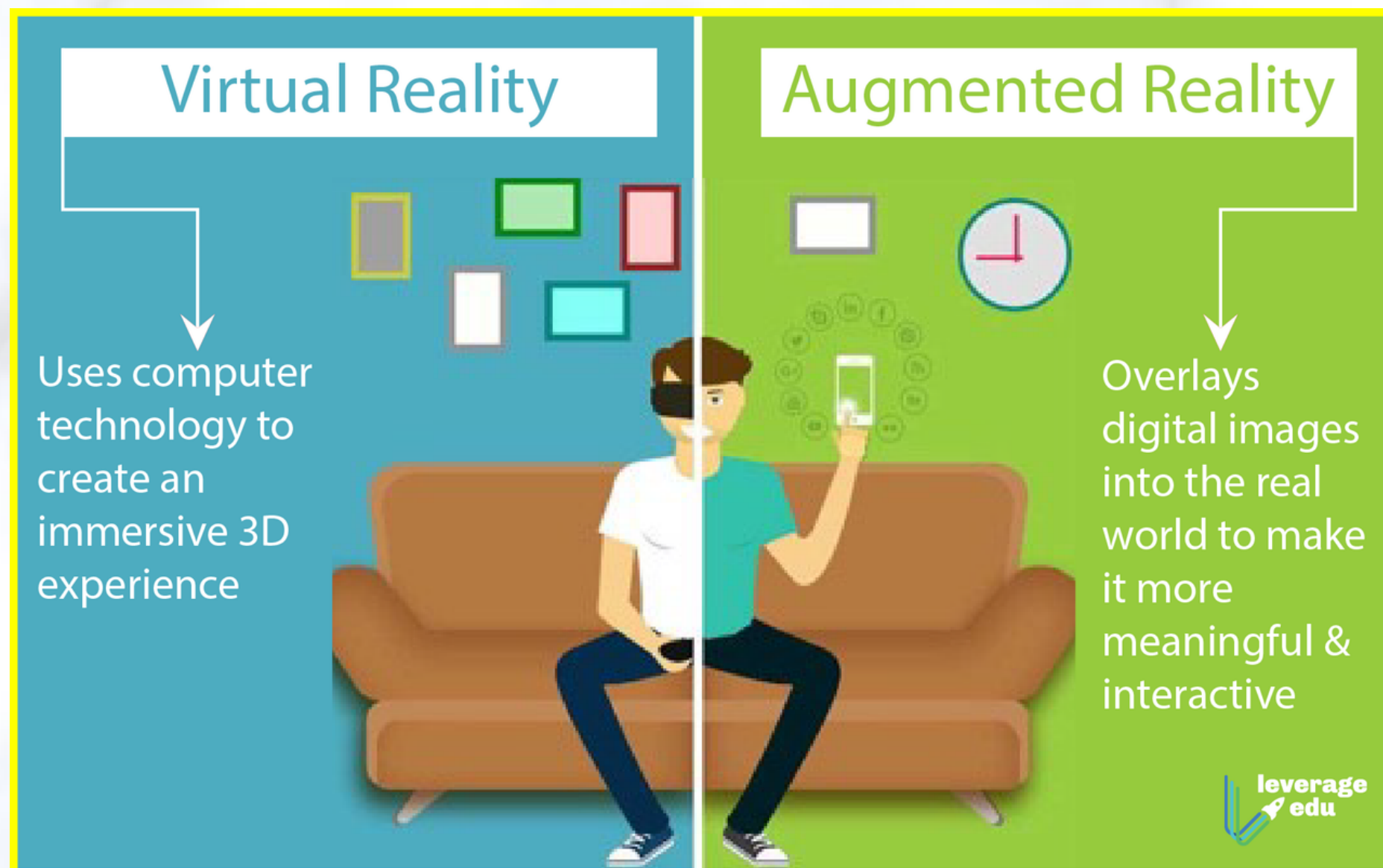|	A	B	C	D	E	F	G
1	Timestamp	How satisfied were you with the event?	How relevant and helpful do you think it was for you?	How satisfied were you with the session content?	Any overall feedback for the event?	Name and Roll Number	Department
2	2021/07/24 1:05:41 PM GMT+5:30	5	4	4	Good	Rajeev Kumar and 2002	ECE
3	2021/07/24 1:05:50 PM GMT+5:30	5	5	5	Useful	Monika, 20	ECE
4	2021/07/24 5:11:05 PM GMT+5:30	5	4	5	PERFECT	AGHA RABAB FATMA 281	ECE
5	2021/07/24 5:11:34 PM GMT+5:30	5	5	5	Great	Sarthak 2819092	CSE
6	2021/07/24 5:12:07 PM GMT+5:30	4	4	4	Good	2819277	ECE
7	2021/07/24 5:12:48 PM GMT+5:30	4	4	5	The session was quite informative	Lakshya 2818274	ECE
8	2021/07/24 5:16:55 PM GMT+5:30	5	5	5	PERFECT	Bharat Wadhwa 2819023	CSE
9	2021/07/24 5:17:53 PM GMT+5:30	4	4	4	Grateful to have knowledge regarding coding	Tanya sharma , 2818273	ECE
10	2021/07/24 5:24:29 PM GMT+5:30	5	5	5	Brilliant	Gaurav and 2819093	CSE
11	2021/07/24 5:26:52 PM GMT+5:30	5	5	5	Amazing it was!	Srishti and 2819119	Cse
12	2021/07/24 5:45:07 PM GMT+5:30	5	5	5	Good	Kunal 2819463	Ece
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14	2021/07/24 6:15:19 PM GMT+5:30	4	4	4	Good	Gaurav Kumar,2818265	ECE
15	2021/07/24 6:16:37 PM GMT+5:30	4	4	3	PERFECT	Mubarak Husain (2818272)	ECE
16	2021/07/25 7:58:44 PM GMT+5:30	4	4	4	Brilliant	Kajal 2819011	CSE

Brain Teaser ???

1. What kind of dog never bites?
2. What wears a cap but has no head?
3. What starts with E, end with E and only has one letter?
4. What starts with a T, end with a T and is full of T ?
5. What three letters can frighten a thief away?
6. How many cheese sandwiches can you eat on a empty stomach?
7. What can you hold in your left hand, but not in right hand?
8. Why is six afraid of seven?
9. I have cities but no houses, forests but no trees, rivers but without water; what i am?
10. When will a net hold water?

Virtual Reality and Augmented Reality

Virtual Reality
Uses computer technology to create an immersive 3D experience

Augmented Reality
Overlays digital images into the real world to make it more meaningful & interactive

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The next exceptional technology trend - Virtual Reality (VR) and Augmented Reality (AR), and Extended Reality (ER). VR immerses the user in an environment while AR enhances their environment. Although this technology trend has primarily been used for gaming thus far, it has also been used for training, as with VirtualShip, a simulation software used to train U.S. Navy, Army and Coast Guard ship captains.

In 2022, we can expect these forms of technologies being further integrated into our lives. Usually working in tandem with some of the other emerging technologies we've mentioned in this list, AR and VR have enormous potential in training, entertainment, education, marketing, and even rehabilitation after an injury. Either could be used to train doctors to do surgery, offer museum goers a deeper experience, enhance theme parks, or even enhance marketing, as with this Pepsi Max bus shelter.

Fun fact: 14 million AR and VR devices were sold in 2019. The global AR and VR market is expected to grow to $209.2 billion by 2022, only creating more opportunities in the trending technology, and welcoming more professionals ready for this game-changing field.

While some employers might look for optics as a skill-set, note that getting started in VR doesn't require a lot of specialized knowledge - basic programming skills and a forward-thinking mindset can land a job; another reason why this new technology trend should make up to your list of lookouts!
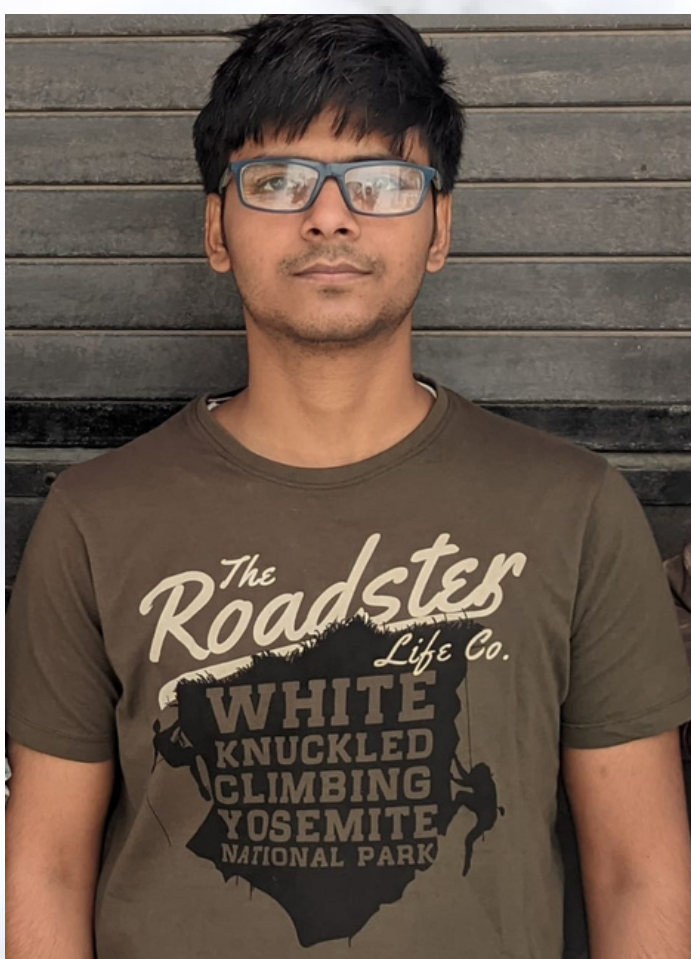
-Himanshu
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PLACEMENTS

Tanya Sharma
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3.8 lacs p.a.

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Avinash
Infosys
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Aanchal
TCS
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Agha
Hettich
3.0 lacs p.a.

Priyesh Arya
Capgemini
3.8 lacs p.a