

**SRI VENKATESWARA COLLEGE OF ENGINEERING (SVCE)  
PENNALAR, SRIPERUMBUDUR-602117**



**Department of  
Computer  
Science &  
Engineering**



**Reflection Report on  
Guest Lecture on  
Augment Reality and Virtual Reality**

**Speakers**

- 1. Shyam Rajan, (Alumni of SVCE: 1985-1989, CSE)**  
Co-Founder and CEO at VyVoxel,  
Bengaluru, Karnataka, India.
- 2. Shyamsundar Krishnamurthi SMC (Alumni of SVCE: 1985-1989, ECE)**  
Chief Customer Officer  
vy.ventures|Visionary|Client Engagement  
Santa Clara, California, United States.

**Coordinators**

1. Ms. S. Rajalakshmi, AP / CSE
2. Ms. J. Buvana, AP / CSE

To: HoD-CSE  
Noted/Good  
JCB  
17/10

**Conveners**

1. Dr. R. Anitha, Prof. & HoD / CSE
2. Dr. J. M. Gnanasekar, Prof./ CSE

**Date: 15/09/2022**

**Venue: Conference Hall, Dept. of CSE**

Forwarded to  
Principal:

*[Signature]*  
17/10/22

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PENNALUR, SRIPERUMBUDUR-602117**



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Computer  
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**INSTITUTION'S  
INNOVATION  
COUNCIL**

Quality and Innovation



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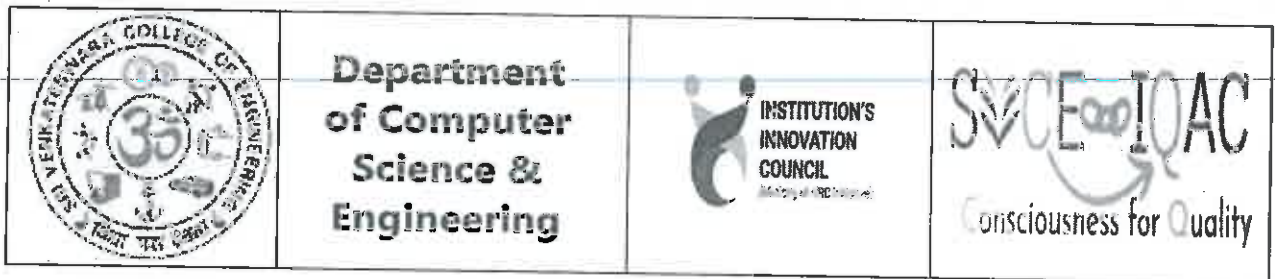
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**Sri Venkateswara College of Engineering**  
**(Autonomous - Affiliated to Anna University)**  
**Pennalur, Sriperumbudur - 602 117**

**Department of Computer Science and Engineering**

September 13, 2022.

**Submitted to HOD / CSE:**

Dear Madam,

**Sub:** Requisition to conduct a Guest Lecture on Augmented Reality and Virtual Reality - reg.

On behalf of the Department of Computer Science and Engineering, we would like to organize a Guest Lecture on Augmented Reality and Virtual Reality on September 15, 2022.10. The aim of this event is to give the idea of how Augmented Reality, Virtual Reality and Mixed Reality works, and how relevant products are developed. The major focus is to discuss AR, VR & MR skills required to develop such products and how to meet the current industry needs.

The resource persons for the guest lecture are as follows:

1. Shyam Rajan,  
**(Alumni of SVCE: 1985-1989, CSE)**  
Co-Founder and CEO at VyVoxel,  
Bengaluru, Karnataka, India
2. Shyamsundar Krishnamurthi SMC,  
**(Alumni of SVCE: 1985-1989, ECE)**  
Chief Customer Officer  
vy.ventures|Visionary|Client Engagement  
Santa Clara, California, United States

As the AR, VR and MR technologies will be helpful for the teacher student community in the near future, kindly grant permission to organize the event. Kindly consider and do the needful.

**COORDINATORS:**

S. RAJALAKSHMI, AP / CSE

J. BUVANA, AP / CSE

  
13/09/2022

  
13/09/2022

  
13/9/22  
HOD / CSE

## **Speaker 1:**

### **Shyam Rajan,**

Co-Founder and CEO at VyVoxel,  
Bengaluru, Karnataka, India.



**(Alumni of SVCE: 1985-1989, CSE)**

<https://www.linkedin.com/in/shyam-rajan-404007a/>

Shyam Rajan has over 30 years of experience in product development and technology management at companies such as GE and Philips. He is an experienced technology professional / CTO with a demonstrated history of working in the medical imaging, medical devices and 3D visualization software domains. He was the CTO of the GE Healthcare team at the John F Welsh Technology centre in Bangalore, where he led a team of 1300 engineers and technologists working on life saving medical devices and technologies.

He was also the Exponential markets leader at the Global Research Center, where he was responsible for creating an inter-disciplinary lab (Forge Lab, both in Bangalore and in New York state) to evaluate how GE stays ahead in exponential markets and technologies that change the competitive landscape dynamically, before they disrupt GE businesses.

He is skilled in product realization, technology strategy development, engineering / people management, product realization in the emerging markets, cross functional collaboration and driving an innovation and entrepreneurial culture across the organization.

Prior to joining GE, Shyam ran his own consulting and training company.

Shyam holds a Doctor of Philosophy (Ph.D.) in 3D graphics and Visualization and a Master's degree in Computer Science from the Royal Melbourne Institute of Technology. Melbourne. Australia.

He is passionate about developing technologies that make an impact, ranging from lifesaving devices to the innovative use of imaging and extended reality (AR/VR) to improve human productivity.

He is a firm believer that "low cost" does not translate to low technology – on the contrary the opposite is mostly true.

**Speaker 2:**  
**Shyamsundar Krishnamurthi SMC**

Chief Customer Officer  
vy.ventures|Visionary|Client Engagement  
Santa Clara, California, United States



**(Alumni of SVCE: 1985-1989, ECE)**

<https://www.linkedin.com/in/shyamsundar-krishnamurthi-smc-39bb005>

Shyamsundar is responsible for driving initiatives and go-to-market strategies across the multiple product lines of Vy Ventures. He brings deep insights from over 25 years of delivering data and digital transformation solutions in financial, healthcare, pharmaceuticals, insurance, state, federal, automobile, utility, facility management, retail industry verticals.

Shyam specializes in technology services strategies, deeply passionate about understanding customer's business pains, architecting the best-fit solutions, and aligns delivery in full lifecycle application development and implementation, data, analytics, and AI strategies.

Shyam is a bachelor of engineering from Madras University, Chennai, certified in IBM Cognos Business Intelligence Suite and a certified Scrum Master.



**Report**  
**Guest Lecture on Augmented Reality and Virtual Reality**

15/09/2022

The guest lecture started with the welcome address by Dr. R. Anitha, HOD / CSE and introduced the speakers of the event.

**Shyam Rajan (Speaker 1)** introduced the basics of AR, VR and MR. It is one of the fastest growing areas. He explained its importance by quoting the business review on *"Its currently a 20 billion USD market and it is expected to grow to around 200 Billion USD market in the next 5 years"*. He also said that, by 2025, half of medium and large businesses in advanced economies will adopt extended reality solutions. This could be accelerated due to the pandemic as in-person contact remains limited.



**Explaining the concepts of AR, VR and MR**

He stated about the career opportunities in the field of AR, VR and MR are as follows:

According to the World Economic Forum's Future of Jobs Report:

- 54 per cent of employees of large organisations would need significant re-and up-skilling
- Organisations will focus on providing tools and systems that help with knowledge transfer

VR will make costly, difficult, or otherwise-impossible scenarios and simulations not only possible but immediately within reach and shareable across distance. It will also provide more effective training and onboarding – even when employees are distributed. As a result, start-ups and corporations will look to create more and more engaging user experiences for both their customers and employees.

He insisted that AR, VR and MR are not only for gaming. AR, VR and MR has application across multiple industry areas – healthcare, manufacturing, supply chain, logistics, packaging, pharma, field service, retail /online shopping, education and training.

The technologies needed for AR, VR and MR are

1. Programming - Unity 3D, C# programming for Mobile & web development
2. User Interaction Design - Unity 3D, Vuforia
3. 2D / 3D Asset Creation - Unity 3D, Blender, Maya

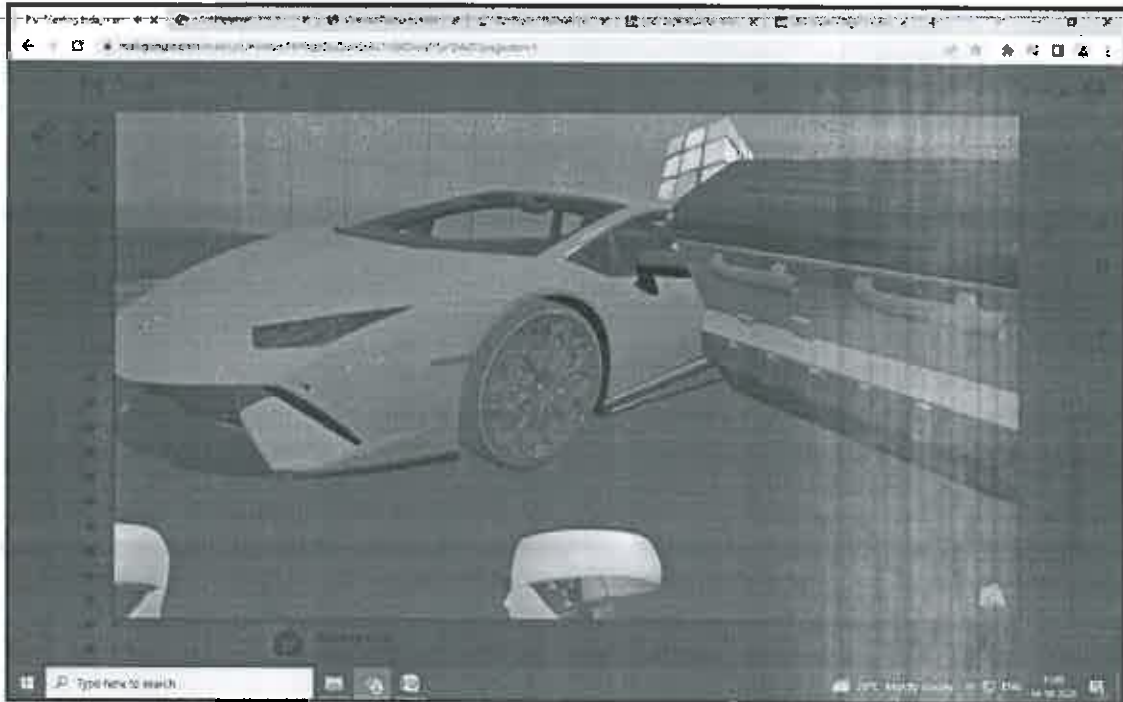
A sample screenshot of the presentation is shown in the below figure:



**Technologies and capabilities needed for AR, VR and MR.**



A demonstration was done on assembling the parts of an engine using virtual reality and making it to work with expected accuracy. A demonstration was also done on working of an aircraft engine using augmented reality in his garden using smart phone.



**Demo - Assembling the parts of an engine using VR**

He said there are 2 myths with respect to AR, VR and MR technology.

They are:

1. Only for gaming
2. Costly

He said, it is not the fact. The requirements are so simple. To setup a lab, the requirements are 4-5 PCs, a high end smart phone, Unity software (open source) and VR glasses (Oculus – Around 25K to 50K).

**Shyamsundar Krishnamurthi SMC (Speaker 2)** elaborated on the courses on AR and VR offered by Vyvoxel.

The courses are offered in 2 levels:

- Basic Level (150 hours) - overview of the fundamentals of 3D graphics: coordinate systems, transformations, modelling, rendering, lighting, textures and animation.
- Advanced Level (150 hours) - advanced level of writing industry standard AR and VR applications.

**The detailed syllabus with duration for the basic level are given below:**

- 12 hours - Introduction to 3D graphics concepts
- 12 hours - Introduction to Unity 3D and exploring the unity 3D interface
- 6 hours - Importing and creating assets
- 6 hours - Writing your first AR application
- 24 hours - C# programming introduction
- 12 hours - Adding basic physics to the assets
- 6 hours - User interface elements in Unity 3D
- 6 hours - Publishing to Android and IOS
- 24 hours - Augmented Reality project work
- 6 hours - Virtual Reality fundamentals
- 6 hours - VR Application essentials
- 24 hours - VR Project work
- 12 hours - Publishing to headsets
- 6 hours - Conclusion and next steps

**The detailed syllabus with duration for the advanced level are given below:**

- 12 hours - Industry standard architecture and design principles
- 12 hours - Advanced physics and extending the Unity 3D Physics engine
- 12 hours - Collision detection and level design
- 12 hours - Game and AR/VR design patterns (MVC, singleton,observer)
- 12 hours - Advanced rendering and lighting
- 12 hours - Advanced animations
- 6 hours - Integrating Artificial Intelligence into the simulation
- 6 hours - Exploring particle systems to create smoke, fire, water..
- 6 hours - Terrains and outdoor scenes
- 6 hours - Publishing to the Web using WebGL
- 24 hours - Detailed AR Project
- 24 hours - Detailed VR project
- 6 hours - Publishing to headsets
- 6 hours - Conclusion and next steps



**Q&A Session**

Participants raised queries on implementation aspects of AR, VR and MR technologies, whether the course can be included in the curriculum, possibility of setting up lab in our campus and career aspects of students. Both speakers clarified all the queries raised in the Q&A session.

Finally, HOD / CSE thanked the speakers for sparing their valuable time for the event.



**Brainstroming session**

After the guest lecture, a brainstorming session includes speakers, coordinators, convenors and Dean Educational Development – Dr. K.S. Badrinathan was convened by HOD/CSE to add this course as a part of special elective in R2022 Curriculum.

Also it was planned to have a proposal on certification course and Centre for AR, VR and MR in our campus for the technological benefit of Teacher-Student community. It was concluded that the request will be taken to higher authorities to provide the course on AR/VR/MR to the interested students as a Value Added Course / Certification Course / Special Elective Course.

### **Objective:**

The objective of this event is to give the idea of how Augmented Reality, Virtual Reality and Mixed Reality works, and how relevant products are developed. The major focus is to discuss AR, VR & MR skills required to develop such products and how to meet the current industry needs.

### **About the Programme:**

In this COVID 19 times, the aim of most industries is to undergo digital transformation, and augmented reality (AR), virtual reality (VR) and mixed reality (MR) play an important part in this transformation. Today, AR, VR and MR are an important part of Industry 4.0 and IIoT, as they help improve performance of the concerned industry. The combination of VR / AR technologies with artificial intelligence and Internet of Things (IoT) will present powerful application areas that will revolutionize varied industrial and medical sectors. As it is obvious that AR, VR and MR technologies are changing our world, it is necessary to impart the knowledge on these technologies for the students. This new avenue helps the student to enrich their knowledge in a different domain to develop his technical skills.

### **Benefits:**

After participating in the guest lecture, the participants can be able:

- To get an overview of AR, VR and MR technologies.
- To know about the tools required for implementation.
- To know the career aspects in near future.
- To know about the applications in various fields.
- To get an idea of working with AR, VR and MR applications.

  
**Prepared by (Coordinators)**

1. Ms. S. Rajalakshmi, AP/CSE
2. Ms. J. Buvana, AP/CSE

  
**HOD/CSE**

Dr. R. Anitha

## SRI VENKATESWARA COLLEGE OF ENGINEERING

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

## ATTENDANCE SHEET

15.09.2022

## GUEST LECTURE ON AUGMENTED REALITY AND VIRTUAL REALITY



S. NO	Name of the Faculty	Signature of the Faculty
1.	S. Sankarajothi Sathi	S. Sankarajothi Sathi 15/9/22
2.	Dr. N. Revathi	N. Revathi
3.	V. Padma	V. Padma
4.	V. Rajalakshmi	V. Rajalakshmi 15/9/22
5.	R. Poornima	R. Poornima 15/9/22
6.	S. Yuvaprakha	S. Yuvaprakha 15/9/22
7.	R. Ramesh	R. Ramesh 15/9/22
8.	S.D. Nandakumar	S.D. Nandakumar
9.	Shobhanjali P. Nair	Shobhanjali P. Nair 15/9/22
10.	P. Uma	P. Uma 15/9/22
11.	A. Ajee Sweetin Teena	A. Ajee Sweetin Teena 15/9/22
12.	S. Poorani	S. Poorani 15/9/22
13.	Dr. P. Vinodhaya Lakshmi	P. Vinodhaya Lakshmi 15/9/22
14.	S. Janani	S. Janani 15/9/22
15.	Dr. P. Geetha	P. Geetha 15/9/22
16.	Dr. P. Janakiamma	P. Janakiamma 15/9/22
17.	Dr. J.M. Gnanasekar	J.M. Gnanasekar 15/9/22
18.	K. Srinivasan	K. Srinivasan
19.	L. Venkatesachalam	L. Venkatesachalam
20.	T. Praveen Kumar	T. Praveen Kumar

15/9/22



## SRI VENKATESWARA COLLEGE OF ENGINEERING

FEEDBACK - CONFERENCE / SEMINAR / WORKSHOP / FDP / GUEST LECTURE ✓

Name of the Faculty/Staff	S. D. NANDAKUMAR
Designation & Department	Ap, CSE
Industry / Institution Visited	Svce
Duration of Training / Course with date	15.09.2022
Details of the Training / Course	Guest lecture on "AR and VR"
Plants visited during training	-
Whether the training/Course was useful? In what way? Give reasons. Yes, Got insight on what AR, VR technology are and their appl. How <sup>innovative</sup> products can be build with these technologies	
Any other suggestions CoE for AR/VR can be established by the CSE dept. <div style="text-align: right;"> Signature</div>	
Effectiveness review by HoD the concepts of AR/VR and its applications. — Faculty understood and <div style="text-align: right;"> Signature of HoD</div>	

The person who has attended the course should prepare this in triplicate and submit copies to: A1, A3 and Dept.





## SRI VENKATESWARA COLLEGE OF ENGINEERING

FEEDBACK – CONFERENCE / SEMINAR / WORKSHOP / FDP / Guest Lecture ✓


Name of the Faculty/Staff	S. POORANI
Designation & Department	AP-CSE
Industry / Institution Visited	Guest Lecture on "AR & VR"
Duration of Training / Course with date	1 hr 30 minutes, 15/SEP/22
Details of the Training / Course	AR & VR.
Plants visited during training	SVCE.
Whether the training/Course was useful? In what way? Give reasons.	Yes. Know about the real time application examples on AR & VR.
Any other suggestions	—  Signature 15/9/22
Effectiveness review by HoD	— Faculty has got the idea of the application related to AR/VR and the implementation.  Signature of HoD 15/9/22

The person who has attended the course should prepare this in triplicate and submit copies to: A1, A3 and Dept.



SRI VENKATESWARA COLLEGE OF ENGINEERING  
FEEDBACK FROM THE SPEAKER - GUEST LECTURE




DEPARTMENT : CSE

Name of the Speaker	: Shyam Rajan
Designation	: Co-Founder and CEO
Institution/University/Organisation	: VyVoxel, Bengaluru, Karnataka, India.
Mobile / E-mail	: <a href="mailto:shyam.rajan@vyvoxel.com">shyam.rajan@vyvoxel.com</a>
Title of the Lecture	: Guest Lecture on Augmented Reality and Virtual Reality
Date	: 15.09.2022
Time	: 11:45 am
Venue	: Conference Hall, Dept. Of CSE
Comments by the Speaker	: Very interactive and energising session
Suggestions for improvement	: Nil
Signature of the Speaker	: 

  
Signature of Coordinator 15/10/2022

  
Signature of HOD 15/10/22

**SRI VENKATESWARA COLLEGE OF ENGINEERING(SVCE)  
PENNALUR, SRIPERUMBUDUR-602117**

	<b>Department of Computer Science &amp; Engineering</b>	 INSTITUTION'S INNOVATION COUNCIL (A Faculty of IIMB Initiative)	 SVCE IQAC Consciousness for Quality
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**OUTCOME**

After the completion of the Guest Lecture, the participants:

- ❖ Understood the concepts of Augmented Reality , Virtual Reality and Mixed Reality and the applications with this exciting new technology.
- ❖ Received an idea on industry standard development platforms such as Unity3D, Vuforia, ARCore and ARKit.
- ❖ Explored the applications of AR, VR and MR applications in real world scenario.
- ❖ Career opportunities in the field of AR, VR and MR technology is also identified.

**Participant Details**

<b>Participant Type</b>	<b>Internal</b>
Faculty	18
Supporting	4
<b>Total</b>	<b>22</b>

*S. Rajalakshmi*  
17/10/2022  
*J. Buyana*  
17/10/2022  
COORDINATORS

1. S. RAJALAKSHMI, AP/CSE
2. J. BUYANA AP/CSE

*Dr. R. Anitha*  
17/10/22  
HOD/CSE  
Dr. R. Anitha

