

Science and Engineering Research Board
(a statutory body of the Department of Science & Technology, Government of India)

S & 5A, LGF,
Vasant Square Mall
Sector-B, Pocket-5, Vasant Kunj,
New Delhi – 110 070

Brief report of the organized event
(Financial Assistance to Seminar / Symposia)

Date: 05-10-2023

APPLICATIONS OF AUGMENTED REALITY AND VIRTUAL REALITY IN CIVIL ENGINEERING

SERB Sanction / File No:

1. **Name of Academic Institution under whose auspices the Seminar was organized:**

K. S. School of Engineering and Management

2. **Title of the Seminar: Applications of Augmented Reality and Virtual Reality in Civil Engineering**
3. **Duration / Period of the organized event: 02 days**
4. **Grant Sanctioned: Rs. 1,10,000/-**
5. **Summary of the event:**

The seminar was organized with the aim of dissemination of knowledge of Augmented Reality (AR) & Virtual Reality (VR) technologies in engineering applications to industry practitioners, research scholars, faculty and students. This seminar gave an insight into the fundamentals of AR/VR technologies and related concepts.

The Programme objectives were:

1. To create awareness about AR & VR technologies and developing related applications.
2. To understand the socio-economic benefits by implementing AR/VR applications in engineering.

Day 1:

Inaugural function was held on 14th September, 2023. Keynote speaker Prof. Pradipta Biswas, Associate Professor, Centre for Product Design and Manufacturing, IISc, Bengaluru Indian Institute; Prof. B K Raghu Prasad, Formerly Professor, IISc; Sri. R Rajagopal Naidu, President, KSGI, Dr. K V A Balaji, CEO, KSGI and Dr. K Rama Narasimha, Principal, KSSEM were present for the inaugural function after which technical sessions were continued for the day.

Dr. Pradipta Biswas, Associate Professor, Centre for Product Design and Manufacturing & Robert Bosch Centre for Cyber Physical Systems, Indian Institute of Science, Bengaluru was the Key-Note Speaker for the event. He explained about the different AR/VR displays and their specifications, smart simulation, speech and motion impairment, eye-gaze controlled AR toy car game, AR/VR based interfaces and the applications of these technologies in various fields including health care. He summarized on concepts such as combining IoT and computer vision technology with XR technology, comparing different ranges of XR-AR/MR/VR and investigating different combinations of interaction technology with XR. The key take-aways were the learning of scope and applications of AR/VR/MR although there are open issues such as accessibility and motion sickness which needs to be addressed. This was followed by a demo-session on augmented reality by a team of research scholars from CPDM, IISc, Mr. Subin Raj and Mr. Maharudra Kharsade. VR gaming consoles were also arranged for the delegates to experience games with real-life features, led by Mr. Koushik BH and team.

Ms. Preethi B S, Zonal Lead, Experience Center, UltraTech Cement Limited, Bengaluru spoke about virtual reality, concepts related to VR, its applications and how it can be beneficially used in the fields of architecture and medicine. Ms. Preethi and her team also demonstrated in the hands-on-session how VR allows architects and clients to experience and understand buildings before they actually exist by engaging them in an immersive 3D environment.

The participants were able to walk through the proposed building in a life-like simulation, which gave them a better understanding of what the building will look like once constructed and give them a deeper connection to the project at varied stages like conceptualization design development and building information modeling.

Day 2:

Mr. Satish Shivarudraiah, Co- Founder / Design & Operations at Handmade spoke about how AR/VR technologies can be used in civil engineering field, the various hardware and software tools required for AR/VR and its working procedures.

Mr. P. Srinivasulu, Architect and 3D Graphic Illustrator demonstrated the use of SketchUp for Mobile app which offers augmented reality (AR) viewing capabilities enabling us to view 3D models within the context of our existing physical space.

Dr. K V Gangadharan, Professor, Department of Mechanical Engineering & Centre for System Design, NITK Surathkal presented an insightful session on "Virtual Reality for Experiential Learning". Research Scholars Mr. Manish (JRF), Mr. Shravan Kumar (JRF) and Mr. Dilip Kumar (Project Manager) from NITK also gave a demo-session on the virtual reality training platform developed at NITK. The assembly of E - Cycle designed for the students of NITK was considered in creating a training scenario. The participants also had a hands-on experience of assembling the parts of the E-Cycle.

Valedictory session was held on 15th September, 2023 for which Prof. K V Gangadharan was present to issue the certificates.


Dr. K. RAMA NARASIMHA
Principal/Director

K S School of Engineering and Management
Bengaluru - 560 109


(Convener Signature)

Professor & Head
Dept. of Civil Engineering
K.S. Group of Institutions
K. S. School of Engineering & Management
Bangalore-560 062

Participation Information:

| S. No | Participation in the event | Nos. |
|-------|---|------|
| I. | Key-note speakers | 01 |
| II. | Senior Scientist | 03 |
| III. | Young Scientist | 07 |
| IV. | Postgraduate Students | 14 |
| V. | Students (Undergraduate & Postgraduate) | 09 |
| VI. | Industry persons | 01 |
| VII. | Research Scholars | 04 |
| VIII. | Faculty | 32 |
| IX. | Other category (Please specify each category) | - |

Photographs Section: Please paste high resolution photographs in given spaces below or may be submitted directly on online / email in JPEG format.

1. Inaugural Session



2. General Photograph



DAY 1

3. General Photograph



DAY 2

4. General Photograph



VALEDICTORY SESSION

Dr. K. Rama Narasimha

Dr. K. RAMA NARASIMHA
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