in Focus

About VRC

The NED University of Engineering and Technology, Karachi has established a state-of-the art facility for integrating virtual reality in the education, research and practice. The facility that is housed at the Department of Civil Engineering is named as "NED University Virtual Reality Center" is the first of its kind in the entire region (sub-continent). The facility houses three major systems including, virtual teaming system, walking VR systems, and Projection VR system.

The major objectives of VR Center are to gear up the performance, by being a capacity builder, solution provider and knowledge innovation hub.

Facilities

Virtual Teaming System
The virtual teaming system is equipped with latest interactive panel, video conferencing and webcasting equipment and software.

Walking VR Systems
There are multiple walking VR systems available at the center to provide virtual immersive environment to the user specifically for VR designing, and VR based individual training, as per customized needs of the trainee.

Projection VR Systems
The projection VR system is based on a Corner Cave-in concept that has the capability (both from software and hardware perspective) to provide a virtual-cum-immersive experience to a group of people.

Design and Modeling Software
The center is equipped with VR designing and development software, Building Information Modeling platforms, 3D to VR transformation platforms, and VR experience software platforms etc.

Events & Activities

Build Asia, December 14th -16th, 2018
NED Virtual Reality Center's team participated in Build Asia 2018 where they exhibited VRC in- house developed models on the virtual reality systems to give the flavor of what being immersed in an interactive environment feels like. The team gave poster presentations to the visitors explaining the ongoing projects at NED Virtual Reality Center.

Tech Fest'19, January 16th, 2019
Session on "Virtual Reality" conducted by Dr. Farrukh Arif at TechFest'19 Organized by Society for Promotion of Science, Engineering & Technology (SENTEC), at NED University of Engineering & Technology.

VR Center Inauguration, March 21st,2019
NED Virtual Reality Center was officially inaugurated by Ms. Nilofer Hameed, Company Secretary, HBL along with Vice Chancellor, NED University Dr Sarosh H Lodi on March 21st, 2019

Presentation on "Integrated Immersive Visualization for Infrastructure" at AI Engineers Inc. USA, April 9th, 2019, CT,USA
Dr. Farrukh Arif made presentation to company executive, engineers, and employees at AI Engineers USA regarding the joint project on "Integrated Immersive Visualization for Infrastructure" April 9th,2019, CT, USA.

Presentation "Integrated Immersive Visualization for Infrastructure" at MassDOT Transportation innovbation conference, April 9th-10th , 2019, MA, USA
A collaborative project between AI Engineers Inc. USA and NED University Virtual Reality Center was presented at MassDOT Transportation Innovation Conference on April 9-10,2019 at Worcester, Massachusetts, USA.

On-Going Projects

- Implementation of immersive visualization for cost planning during detailed engineering phase.
- Develeopment of virtual reality application for road traffic crash simulation.
- Utilizing immersive visualization for efficient infrastructure management decision-making and technical capacity building.
- Gesture Controlled Humanoid Robot with virtual reality visualization.
- Smart Construction Progress monitoring through videography processing interface.

Visitor's Gallery

Visit by Participants of 26th Mid-Career Management Course,
National Institute of Management (NIM), Quetta

Prof. Aftab Mufti
University of Manitoba,
Canada

UTem & 4B Business Consulting
USA Delagation

Fahad Masood
DPR Construction

Farhan Khan
Tarbiat Foundation

Irhsad Salim
be2c2

AVIANET & NOVEL DYNAMICS
Delegation

What's Happening In VR Wolrd?

Virtual reality is already known for its interactive environments where it looks like things are happening in real. with Facebook buying oculus in 2016 it was further confirmed that even social media giants consider it very important in building share environments. With VR hitting the entertainment world, it is also in news that Walmart has announced that this year they will be using 17000 oculus go and train their staff from customer service to achieving compliance.They will be familiarizing staff with new Pickup Tower Automated Vending units in immersive interactive environment before they deploy the staff in stores.

Project Showcase

"Integrating aerial surveillance, laser scanning and virtual reality technologies to provide Immersive Infrastructure Visualization-Case of Waterbury Bus Facility" was completed in collaboration with AI Engineers, Inc. USA.

One of the major challenge of managing development of a public infrastructure is the scale of facility to be monitored. Large scale of the facility generates large quantum of analytical and graphical data. Much of the graphical data is related to the visualization. Advancements in technology specially that in the areas of aerial surveillance and laser scanning can help a great deal in such data collection. Unmanned Aerial Systems (UAS) can provide high-quality photographs and videos that can be utilized to generate 3D models of infrastructure. It can be used for inspection and monitoring and can also provide valuable graphical data for generation of as-built 3D models. Laser scanning also provides capability to capture existing building conditions both external and internal. It can be utilized through image processing and/or integrating point cloud data to create as-built 3D models. This provides decision-makers with the as-built conditions with greater accuracy in shorter time as compared to traditional methods. Both aerial surveillance and laser scanning can generate 3D models but such models are not immersive. Virtual Reality provides capability to generate immersive visualization. Virtual reality is simulated artificial world having sensation of being "immersive-interactive-physics enabled" environment. Such visualization can help engineers, mangers and more importantly clients to visualize project information at immersive full scale. The 3D models generated out of the UAS and laser scanners can be transformed into virtual reality models and generate an integrated immersive infrastructure visualization. In this project, aerial surveillance, and laser scanned data from Waterbury Bus Maintenance and Storage Facility from Watertown, CT, was utilized to generate virtual reality based immersive visualization. The project included the methodology and protocols involved in the generation of virtual reality model, visualization itself using VR equipment, as well as its potential usage for stakeholders for decision-making and capacity building.
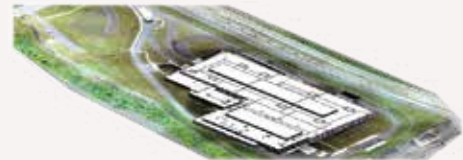

BUILDING INFORMATION MODELING

TERRESTRIAL LASER SCANNING

UNMANNED AERIAL SYSTEMS

INTEGRATED IMMERSIVE VISUALIZATION

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