



# ATLAS Virtual Reality Application Development

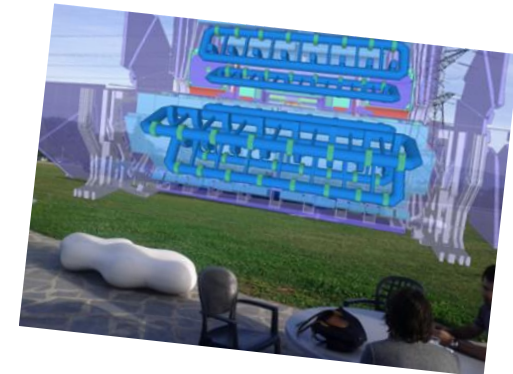


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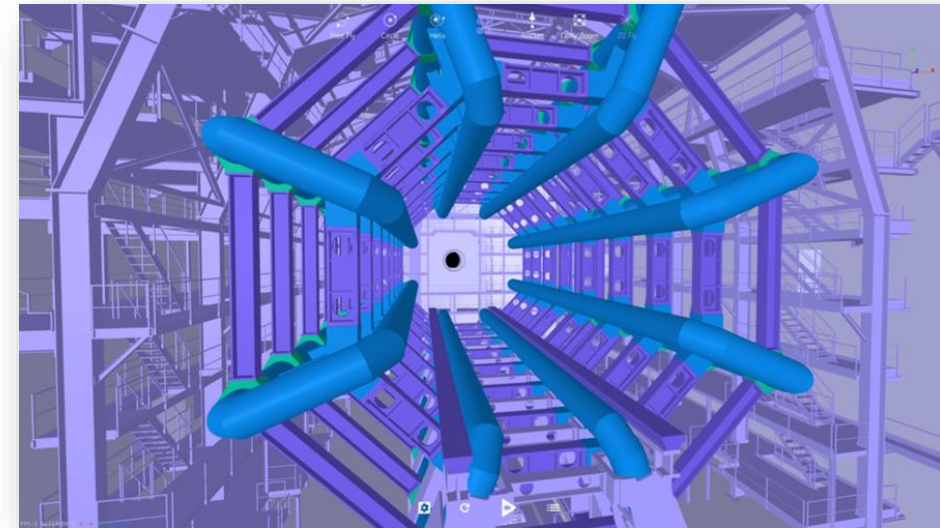
**Georgian Technical University**

- Visualization applications play an important role in Outreach & Education. Modern AR/VR/MXR technologies enable to study detectors, events, organizing public and cognitive events
- Outreach & Education sets basic requirements for visualization applications to be extensive, easily accessible, and compatible with the majority of the hardware and the operating systems, simple in use, with a well-developed user framework
- Browser-based applications created on gaming engines can fit these requirements

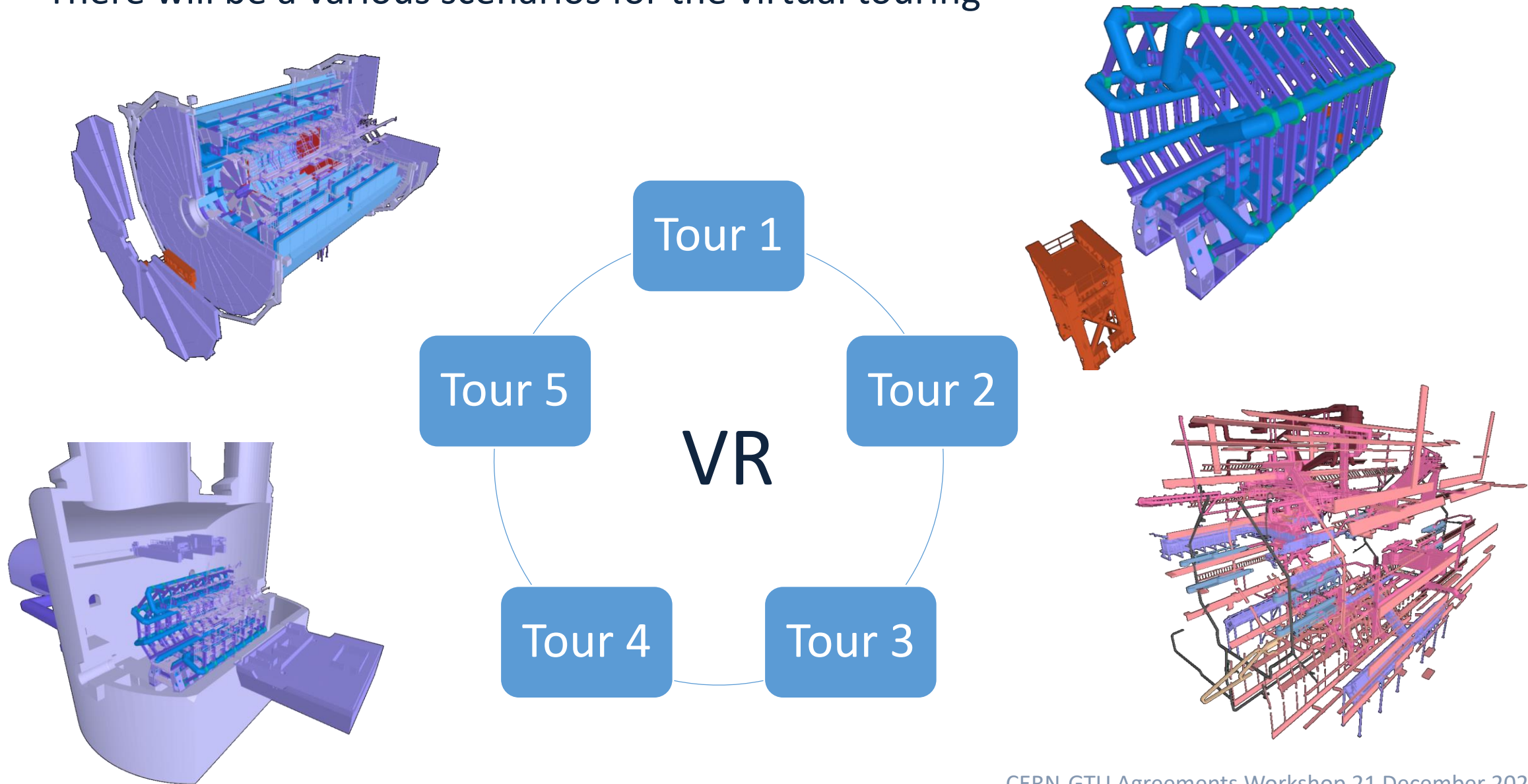


- Gaming engines are growing rapidly. There are > 500 engines
- Tracer-VR is built on the base of the WebGL/three.js gaming engine
- The main challenge in the development of a Browser-based visualization application for HEP Outreach & Education is to reach high PERFORMANCE and QUALITY of 3D scene
- Tracer-VR use special developments to ensure high performance – optimized loaders and so-called fast geometries

- Tracer-VR is the browser-based Virtual Reality application for organization of the virtual tours in ATLAS Point-1
- Tracer-VR will ease virtual visits by making the visitor experience closer to reality
- Application works in browsers, using average power mobile phones and cheap Google cardboards for 3D visualisation
- No special hardware, engines or super notebooks



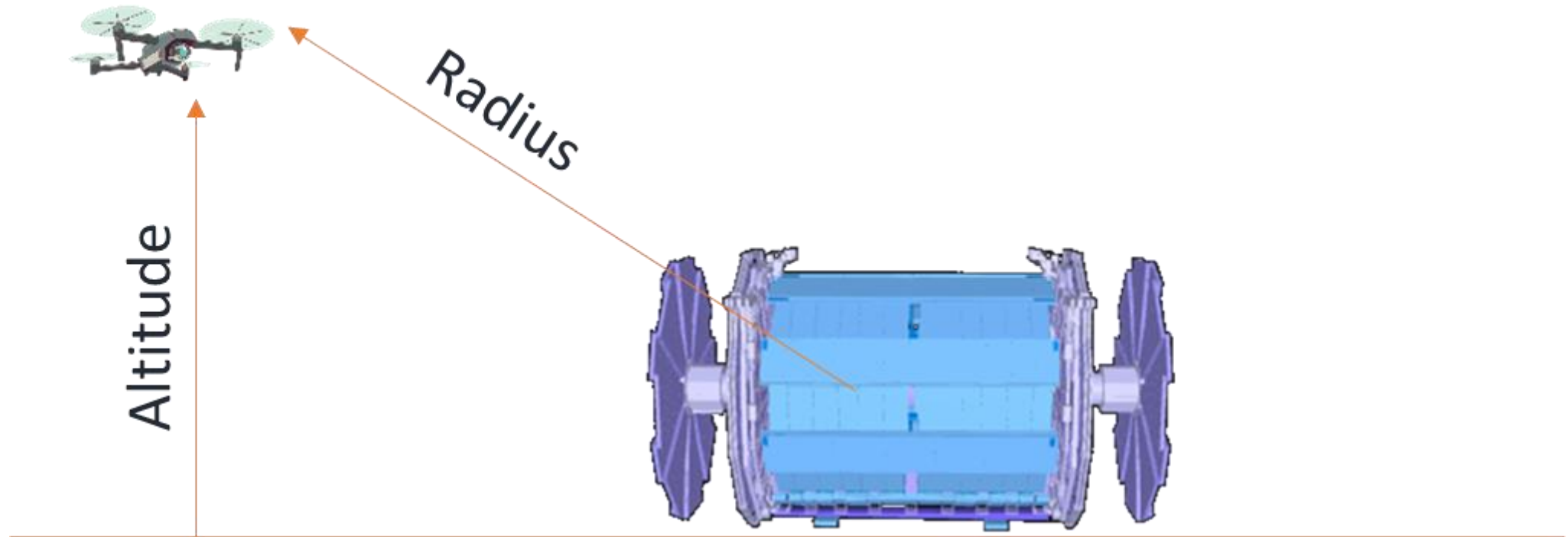
- There will be a various scenarios for the virtual touring



- ✿ - Drone functionality enables the setup of the camera's automatic movement according to preset algorithms:
  - 🔄 Circular fly around the Z0 point from the actual point of the camera
  - 🌀 Helix, movement on Evolent with increasing of high
  - 🚀 Vertical movement on top of the Z0
  - 📺 Movement on the beam line up to Z0 and backward movement

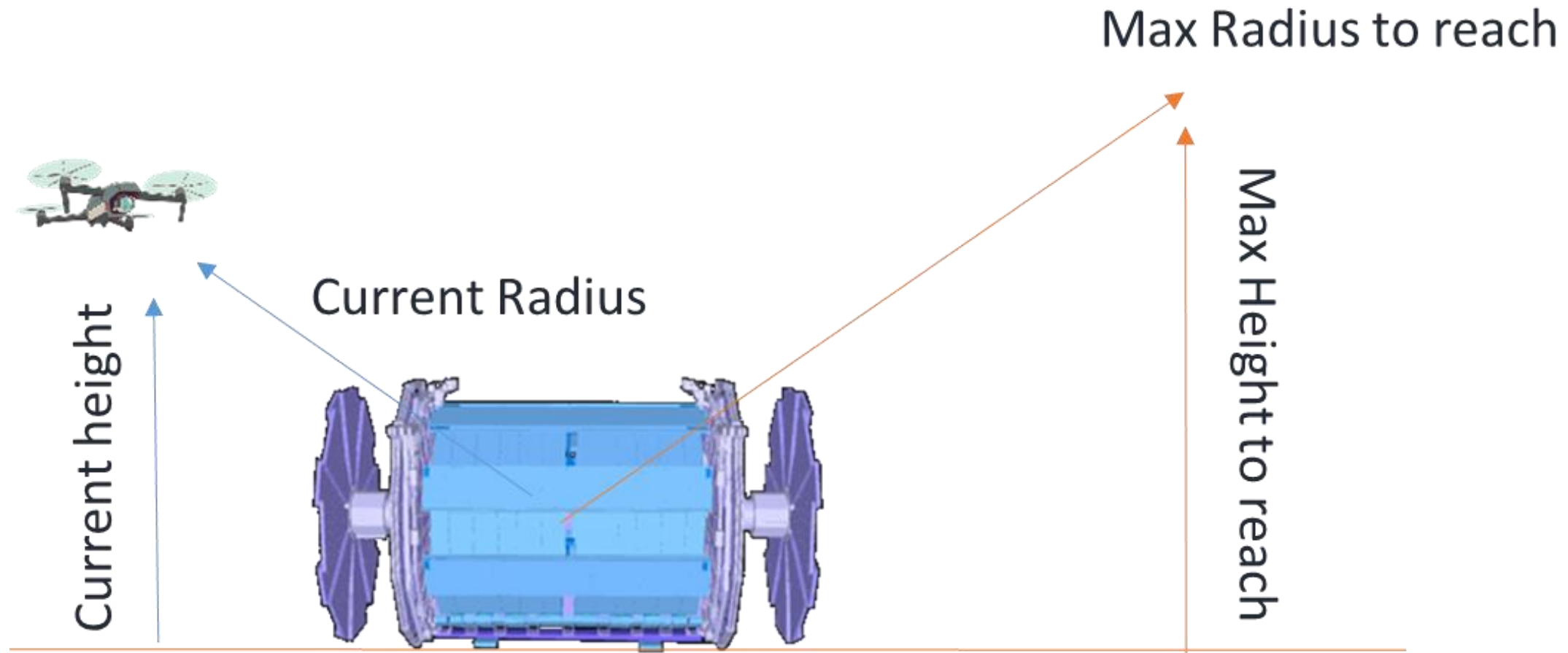


- Circular Movement





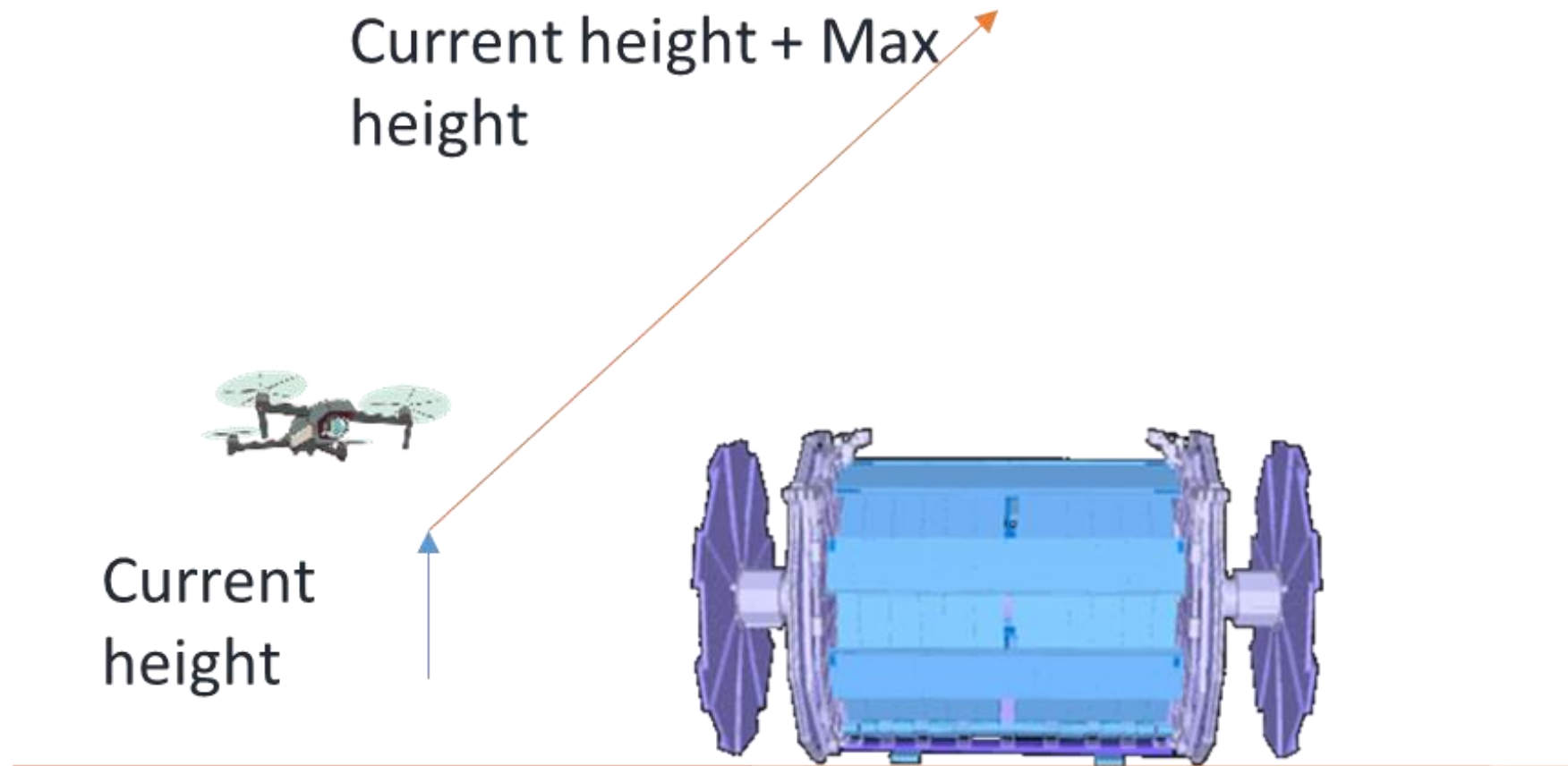
- Helix Movement

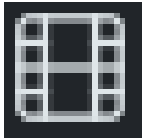






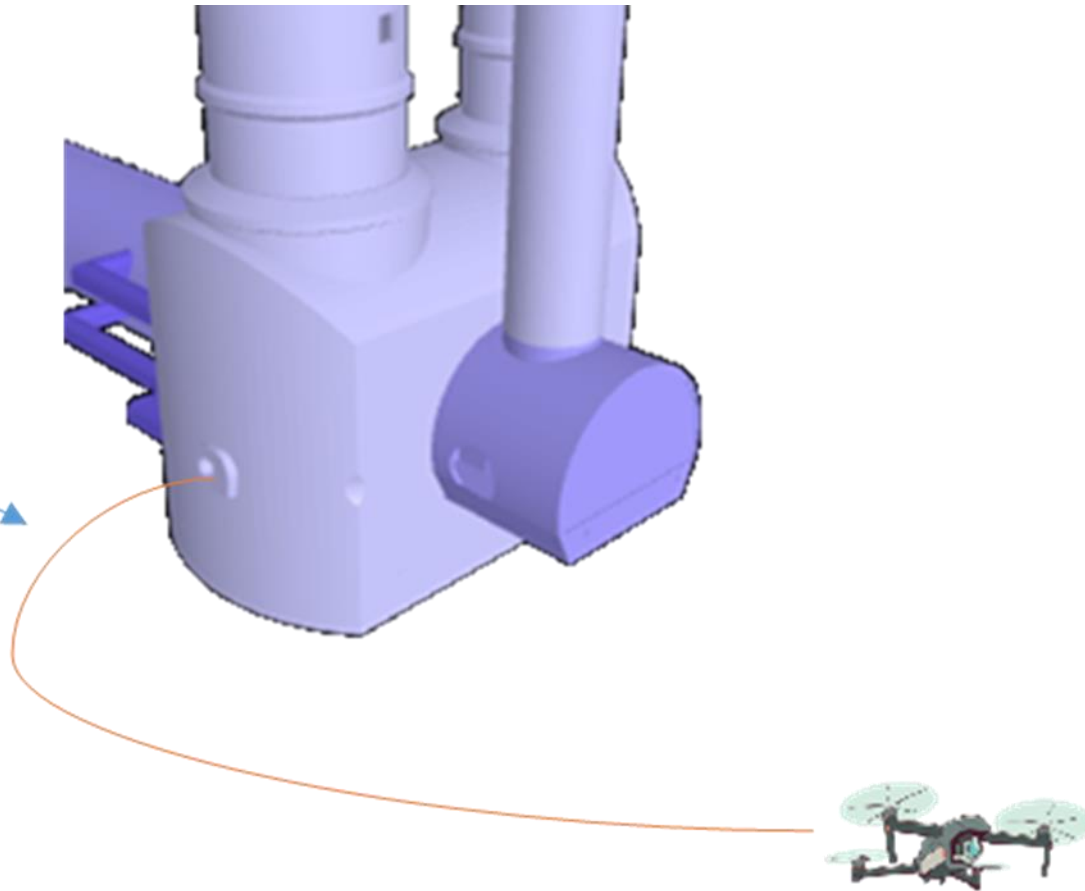
- Vertical Movement



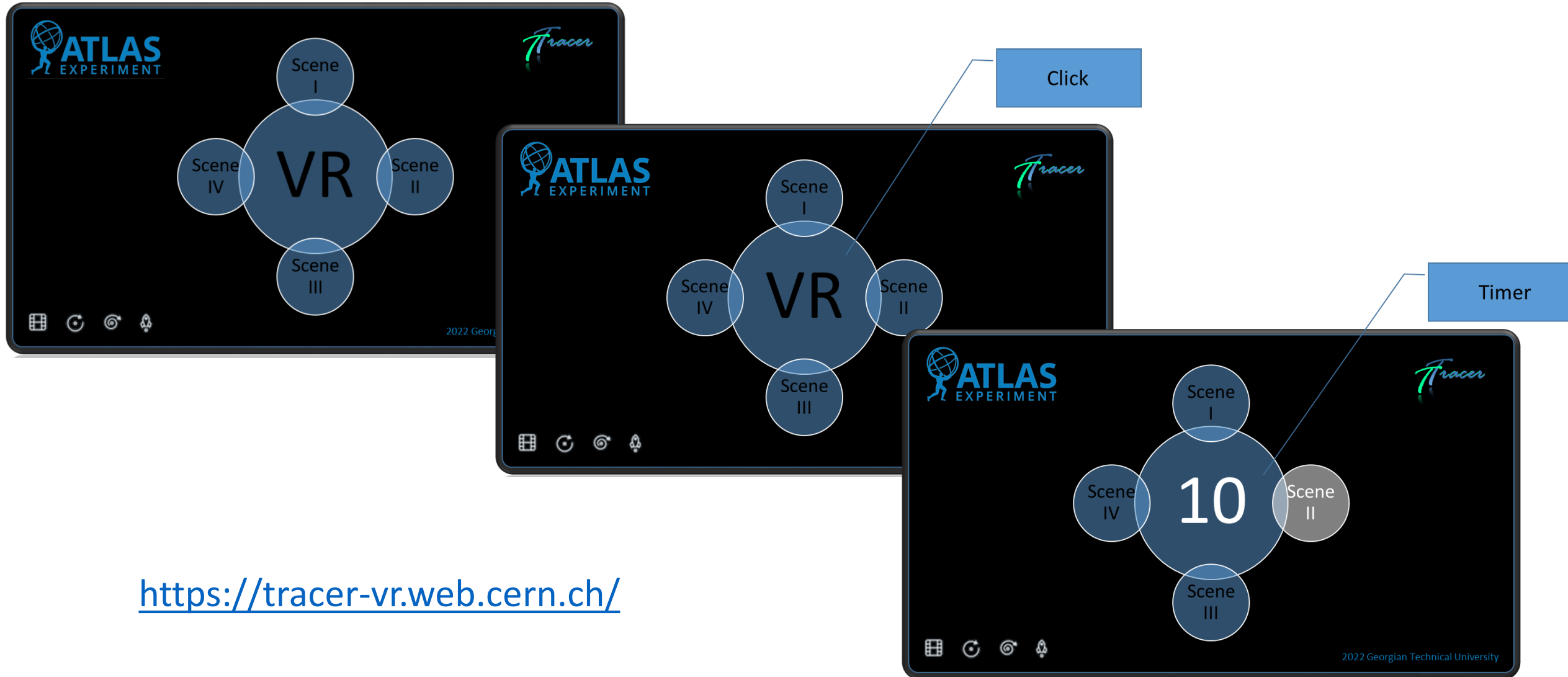


- Movement on the beam line

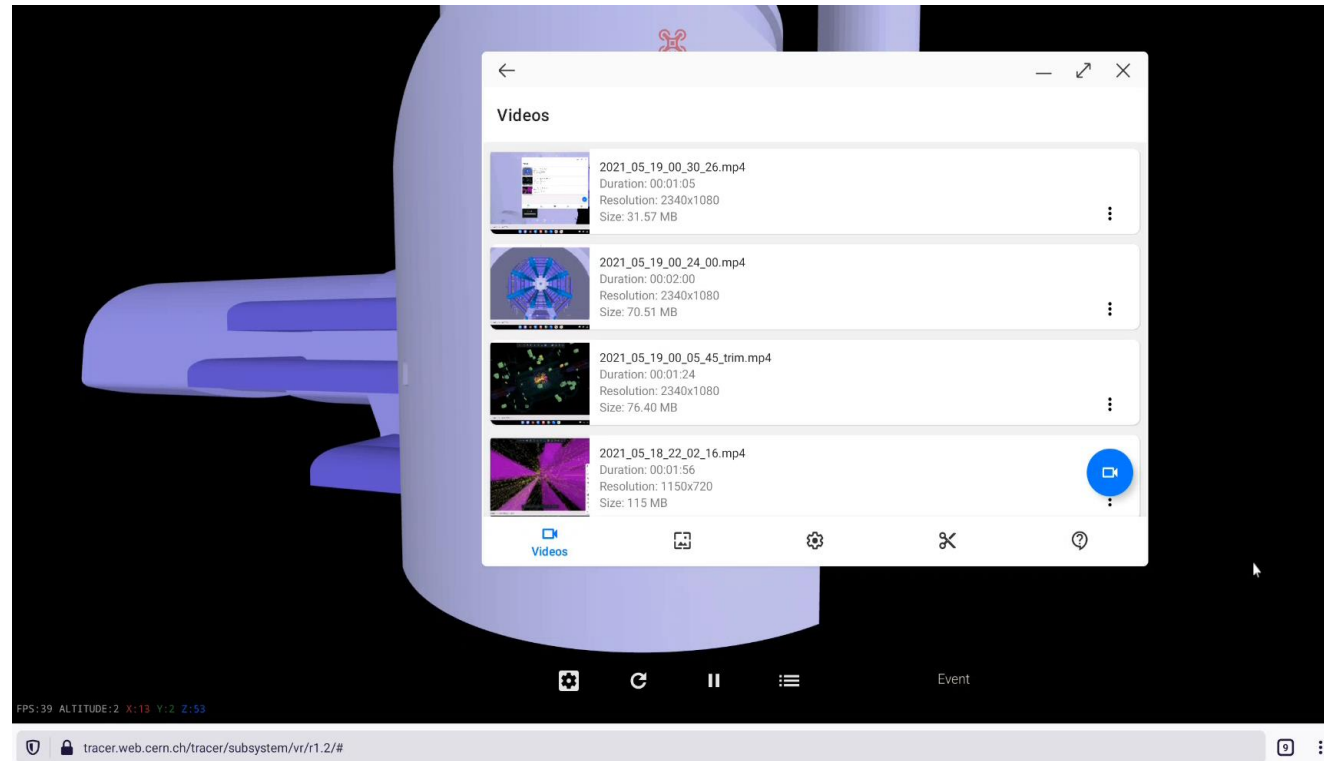
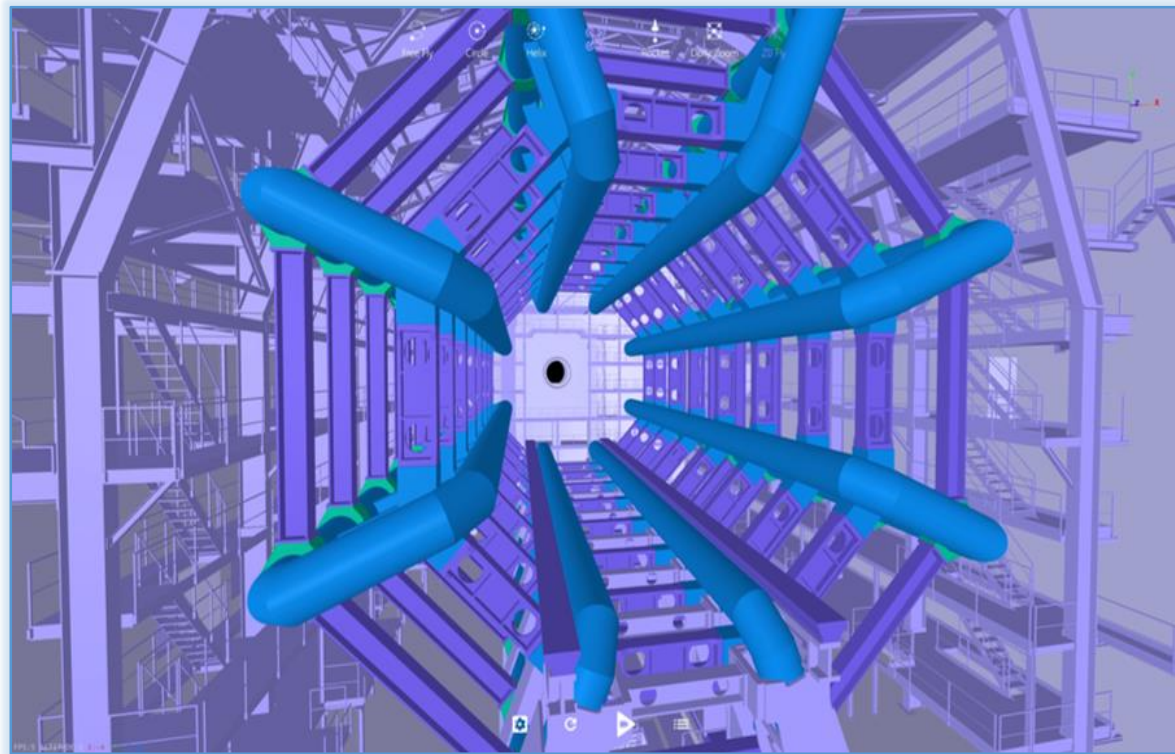
A drone will start flying on this path



- Application interface in the mobile phones



<https://tracer-vr.web.cern.ch/>



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Thanks!