# ATLAS Virtual Reality Application Development

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- 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
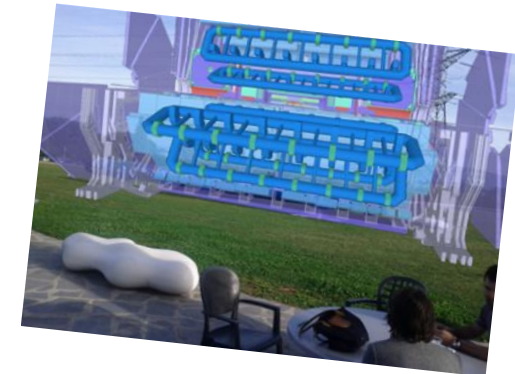
- Gaming engines are growing rapidly. There are > 500 engines

- 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
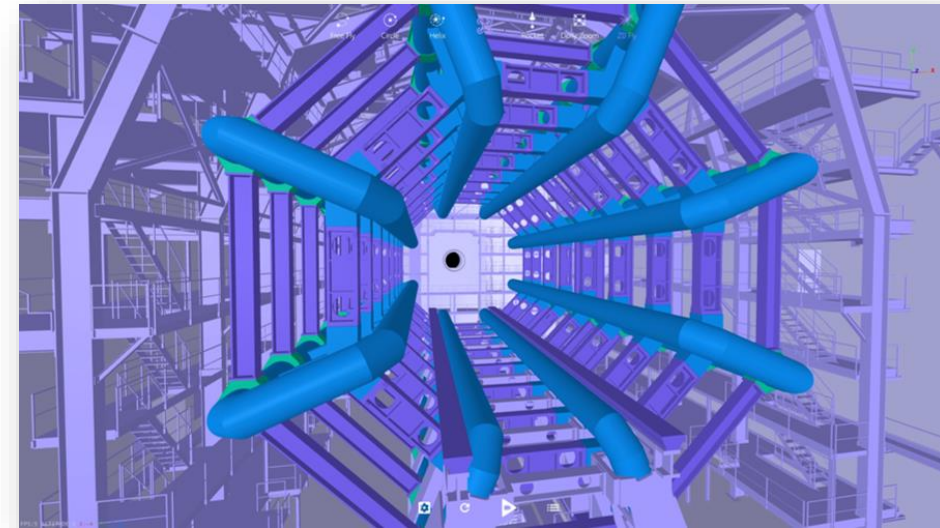
- There will be a various scenarios for the virtual touring
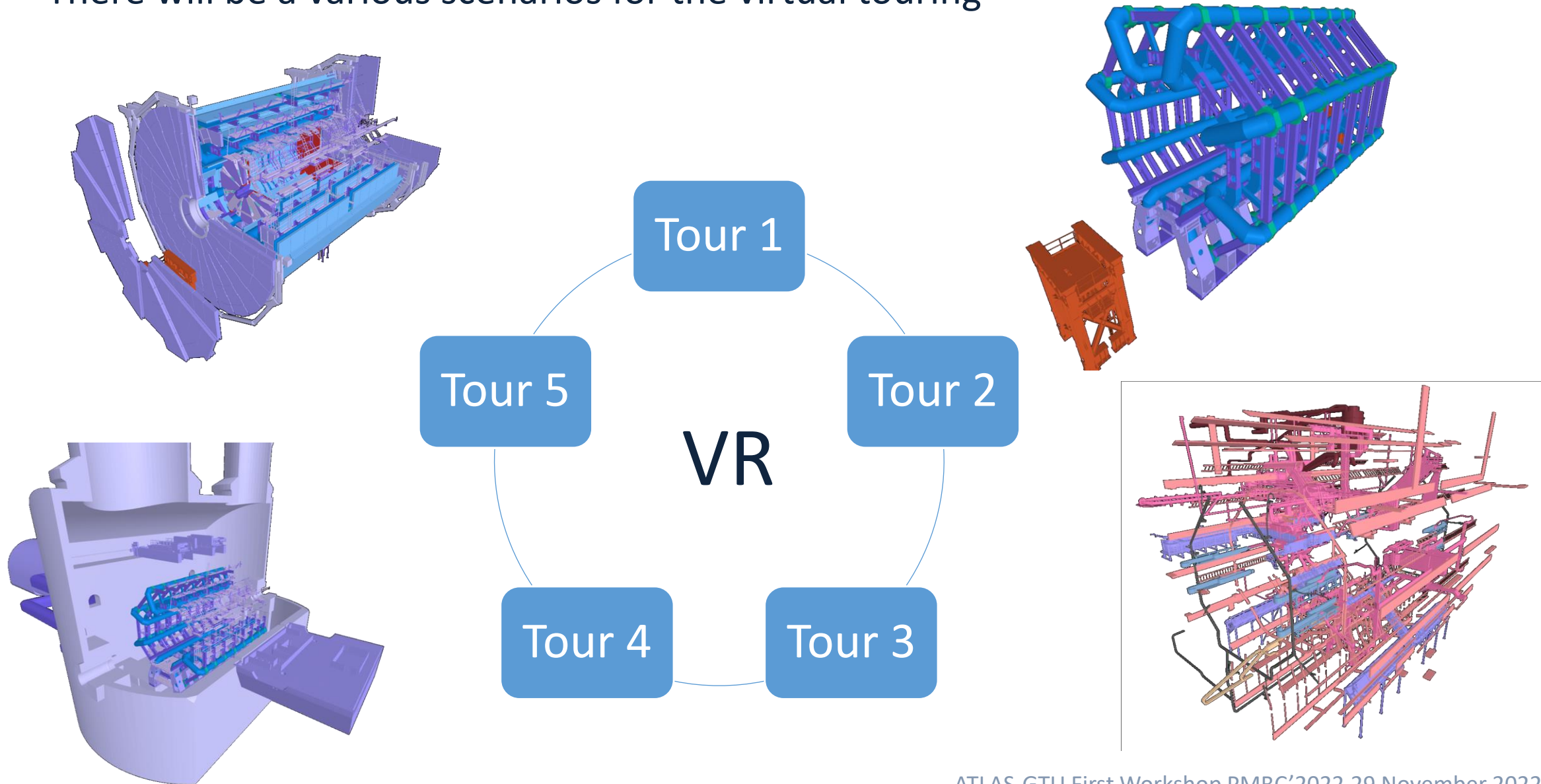
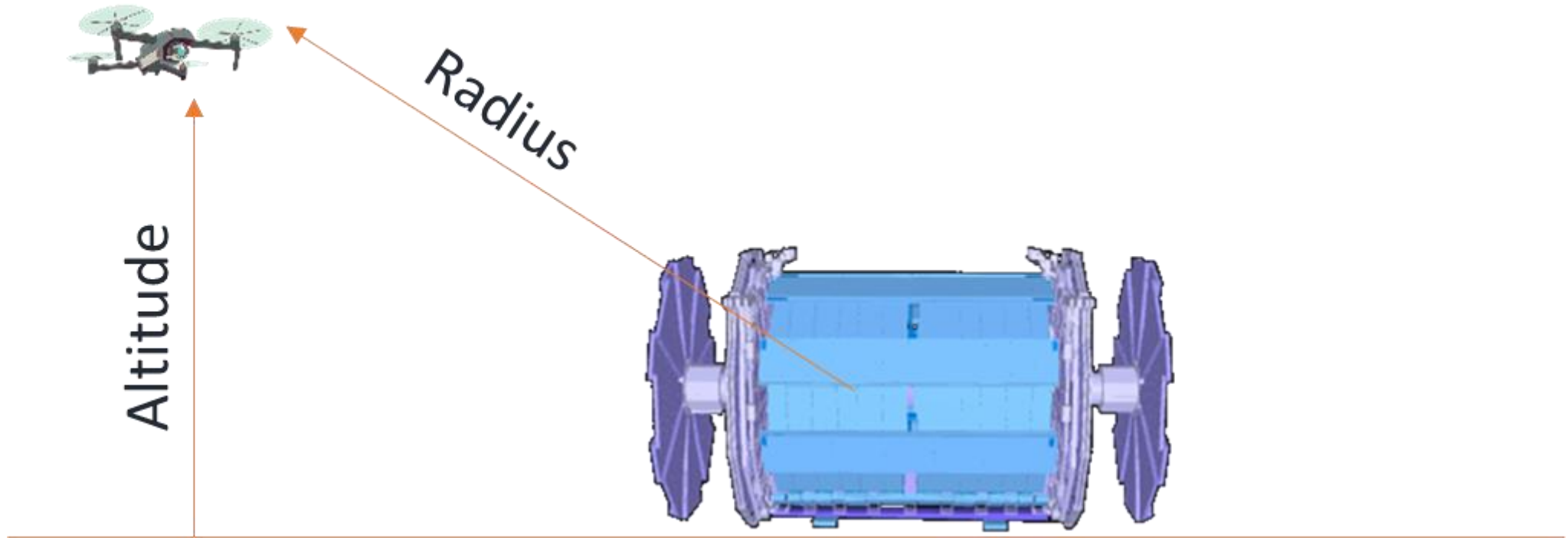- Application interface in the mobile phones

https://tracer-vr.web.cern.ch/
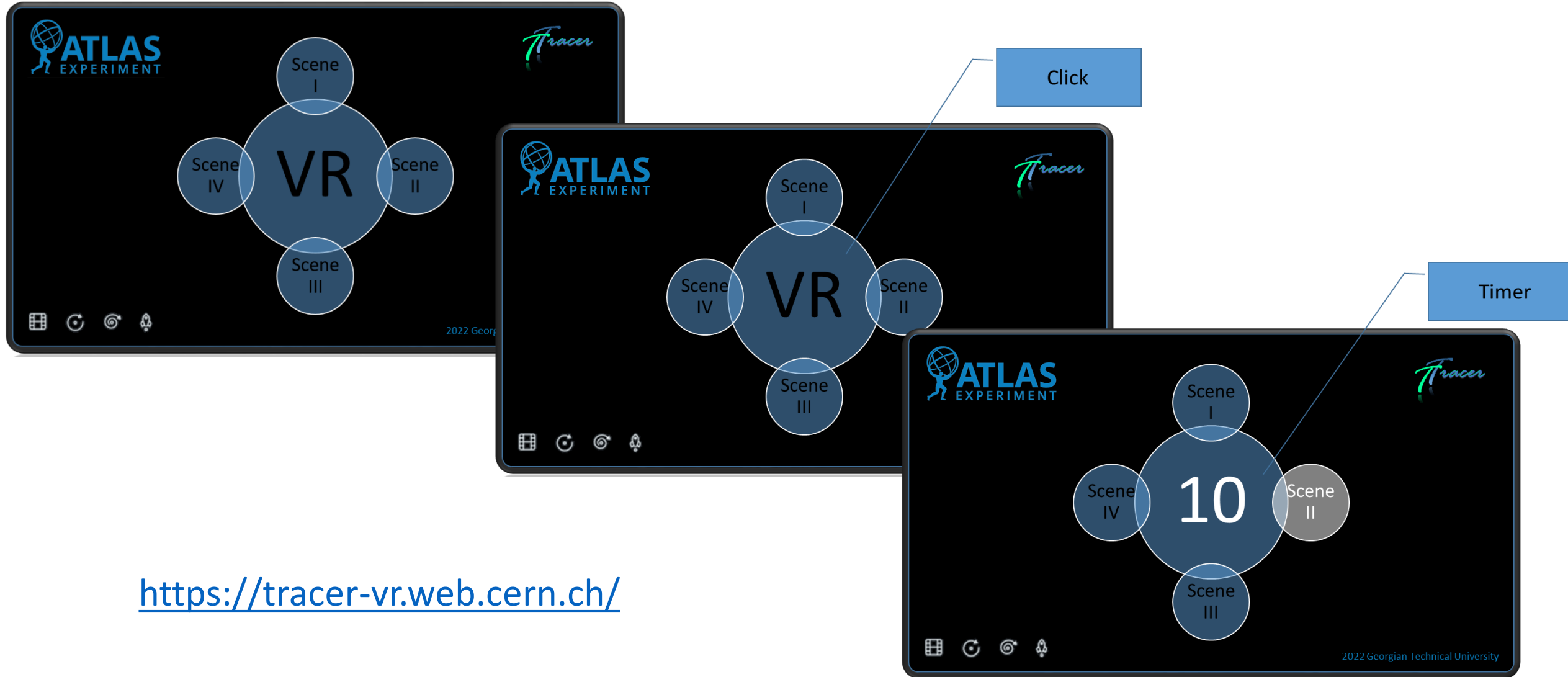
- Drone functionality enables the setup of the camera's automatic movement   according to preset algorithms:

- 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

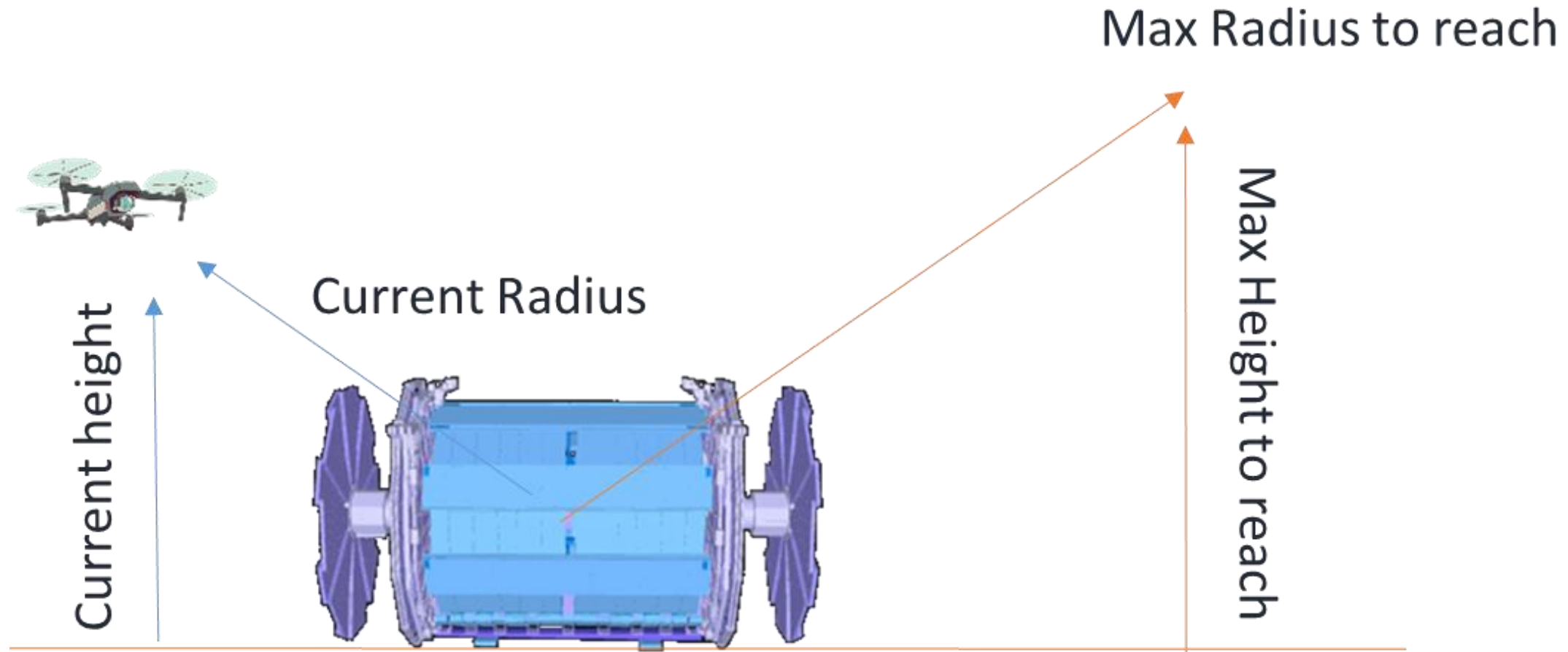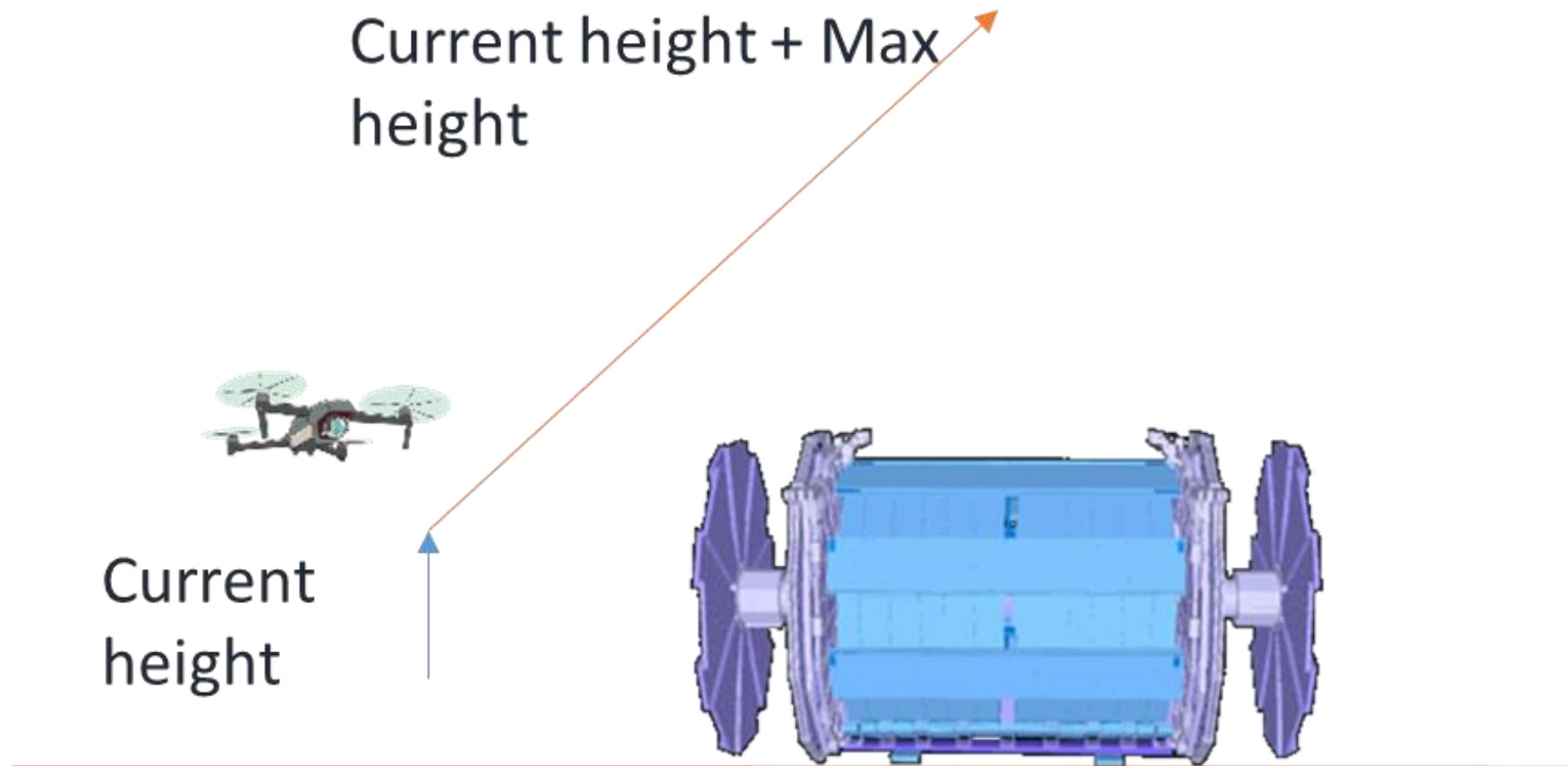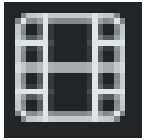- Circular Movement

Radius

Altitude

 - Helix Movement

Max Radius to reach

Current Radius

Current height

Max Height to reach

- Vertical Movement

Current height + Max
height

Current
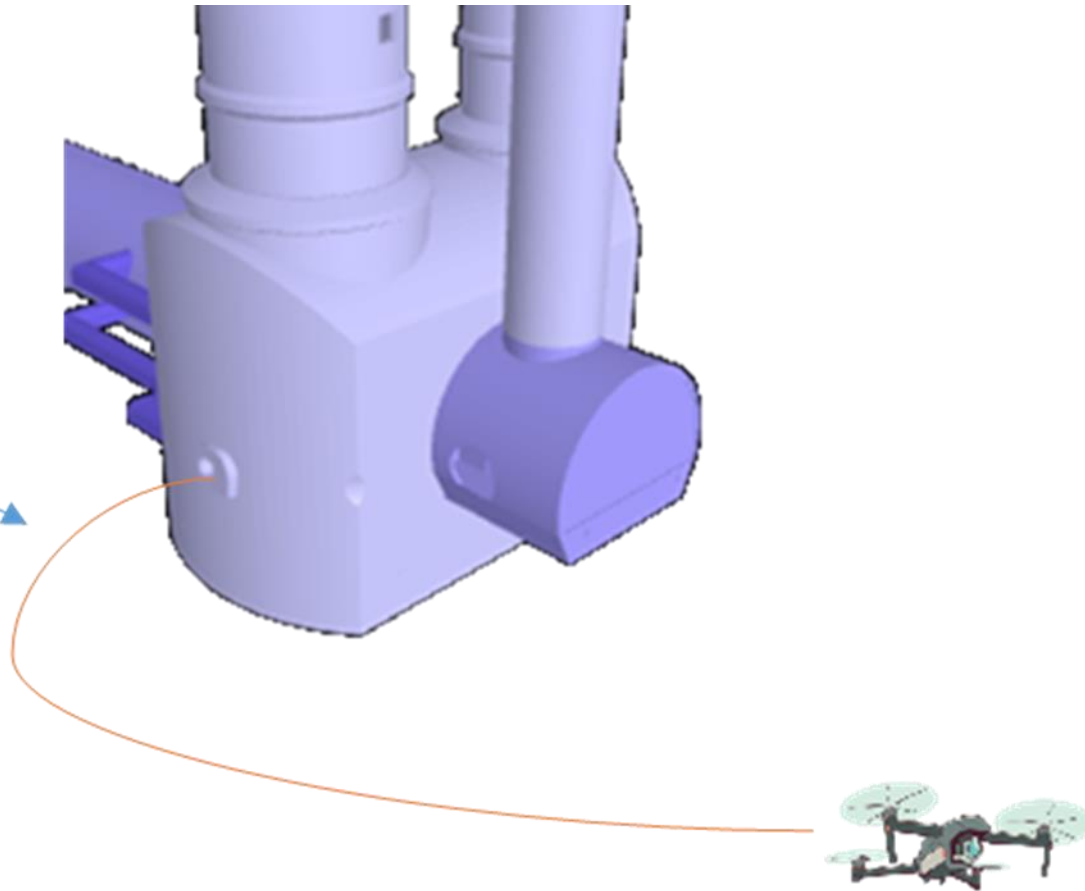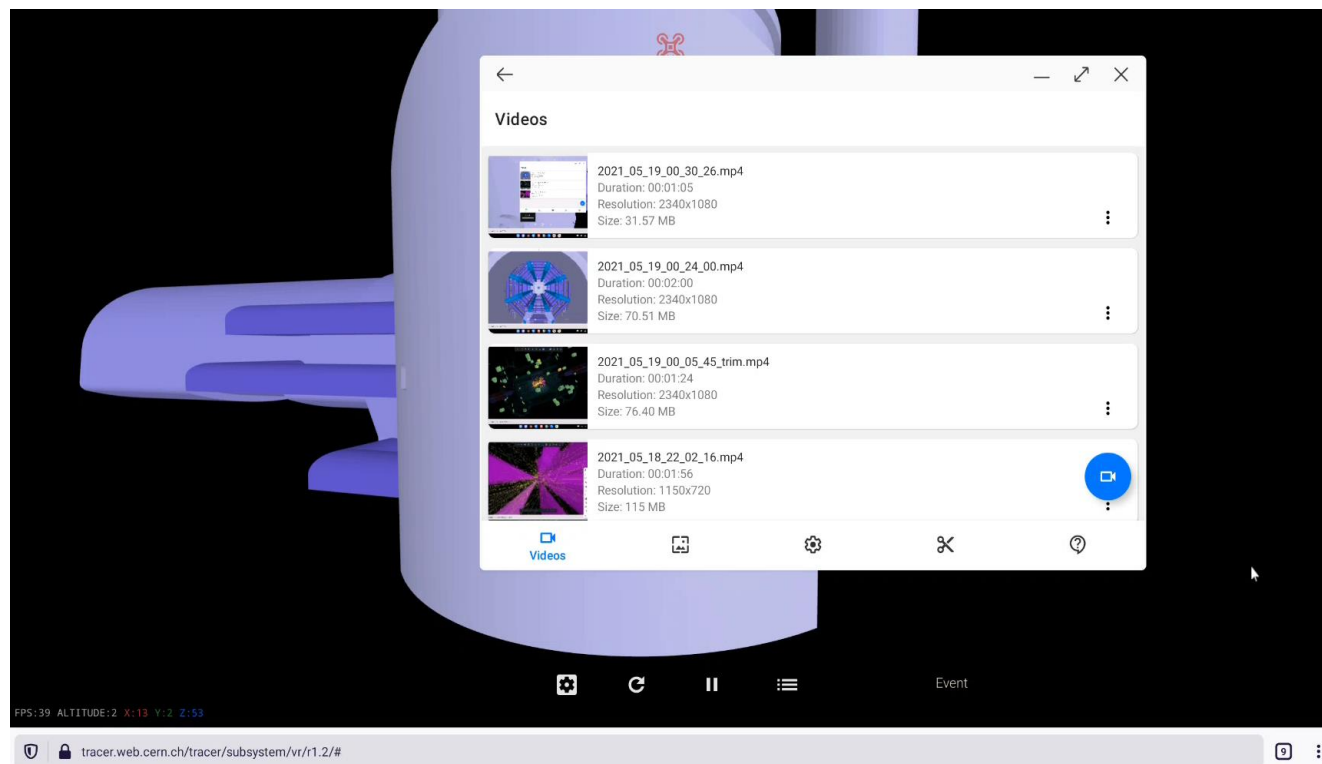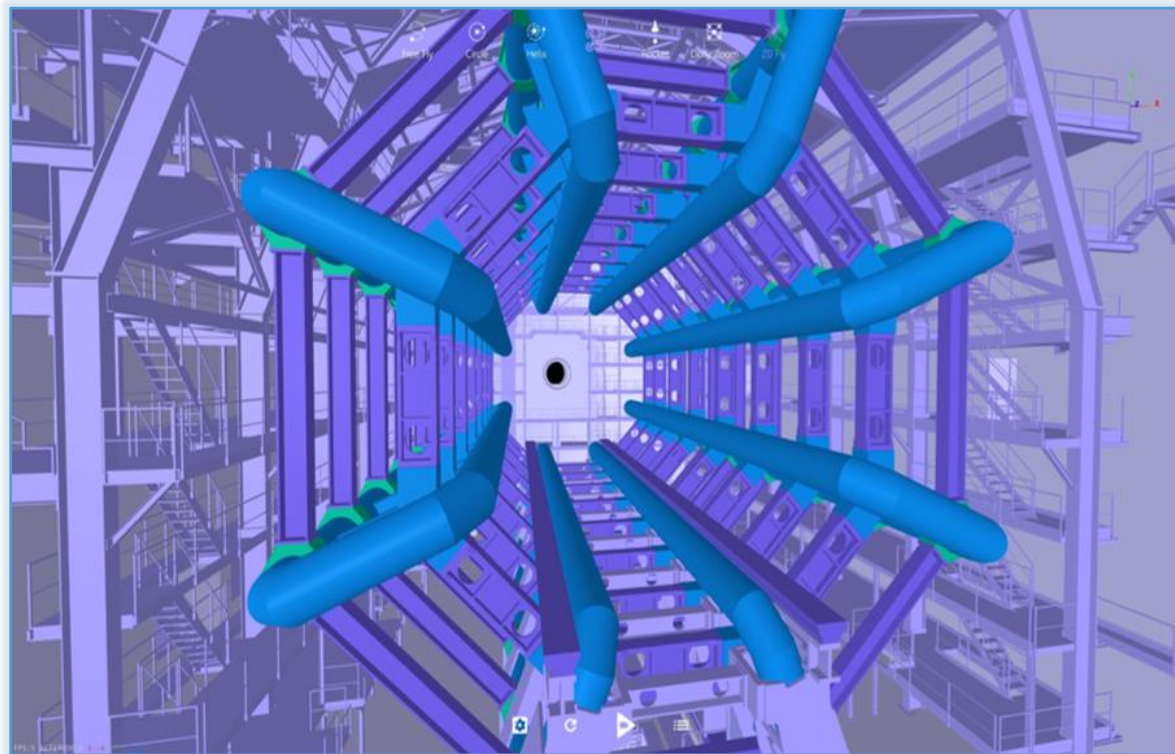height

- Movement on the beam line

A drone will start flying on this path

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

Thanks!