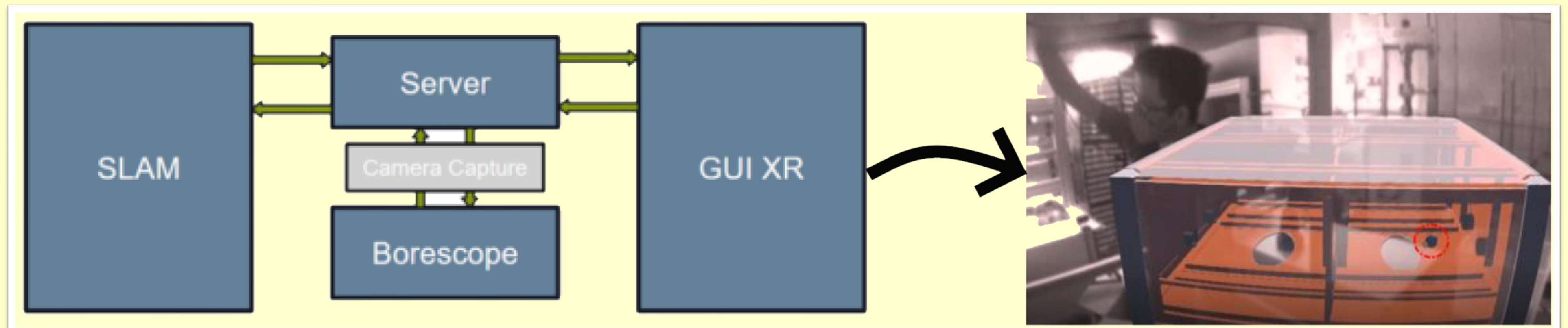


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**Borescope tracking and visualization of
internal aero-structure with VSLAM**
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System and AR GUI for borescope tracking



Overall System and Server setup to for visualization of borescope's 6D pose

The system is proposed to aid the Inspection services Repair and Overhaul (MRO) services as it being one of the most important and always hot sector in Aviation Maintenance and have even increased in demand due to the fast expansion in the aviation market in many parts of the world.

Aerostructures inspection when using of borescope to perform inspections in inaccessible areas always has a risk of ambiguity due to the reason that the position of borescope is not exactly known and as such it leads to many problems when during inspection especially in cases where there are anomalies (like cracks/fatigue) found which would lead to a tedious process of disassembling a huge structural surface area centered around the area of failure due to the absence of knowledge in the exact position of the borescope.

Hence, with an aim to ease the tedious procedure, this proposed system provides a spark in the creation of a XR (Extended Reality) based GUI to easily visualize real-time pose of the borescope to precisely determine the location of the failure, which could then be used to know & monitor the precise location of a point of failure hence easing the whole inspection process while tracking the condition of the internal structures in real-time.

Summary

The proposed system discussing on the possible solution for borescope pose estimation and visualization to increase the effectiveness for technician/engineer in performing inspection over an airplane's internal structure provides with a spart to use VSLAM for real-time monitoring of the borescope position and combine XR based GUI to visualize the position through a VR headset (Oculus quest 2) while running all the important tracking and communication functions within a linux system.