Mediated Reality for Aircraft Maintenance Procedures

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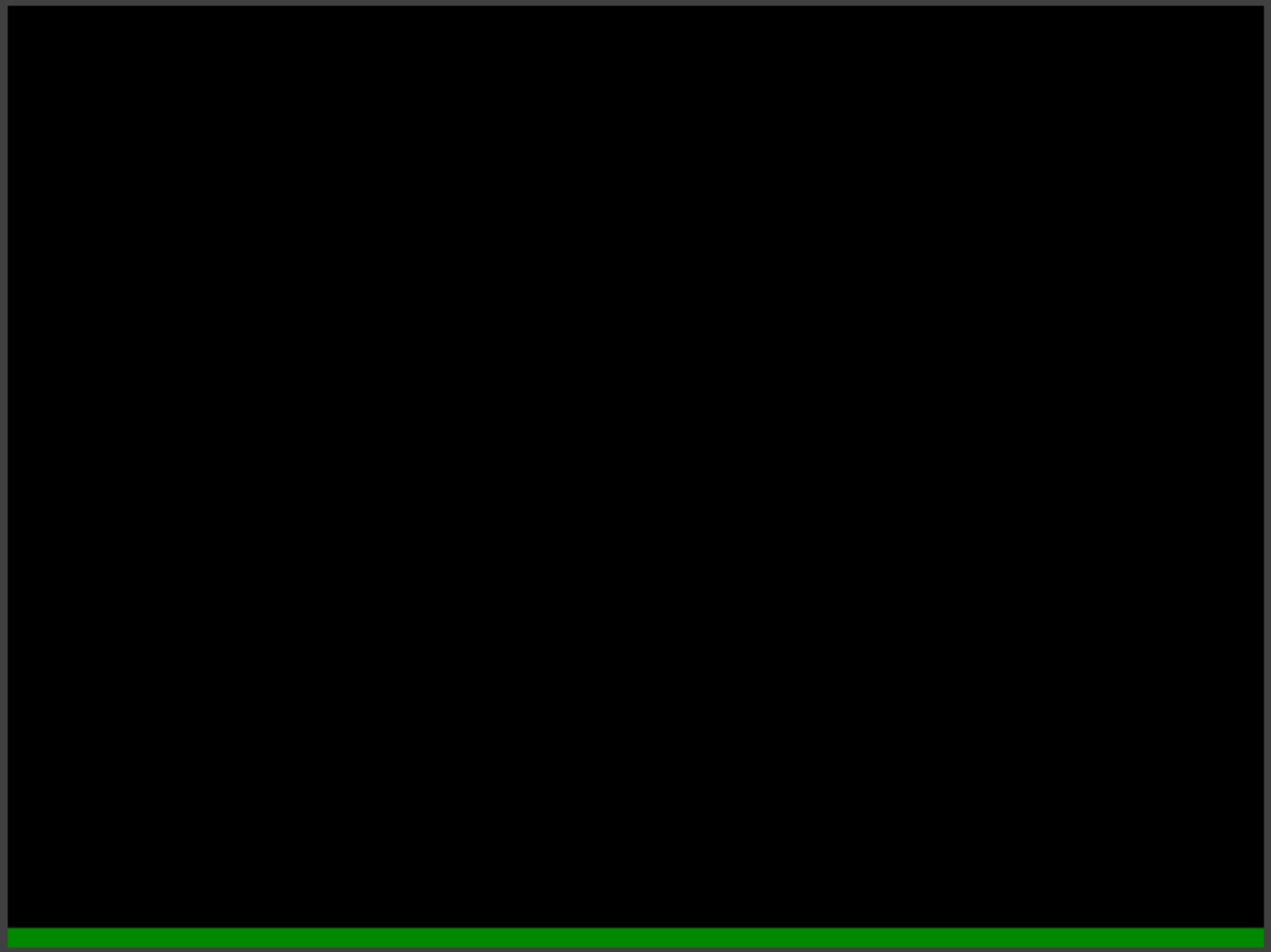
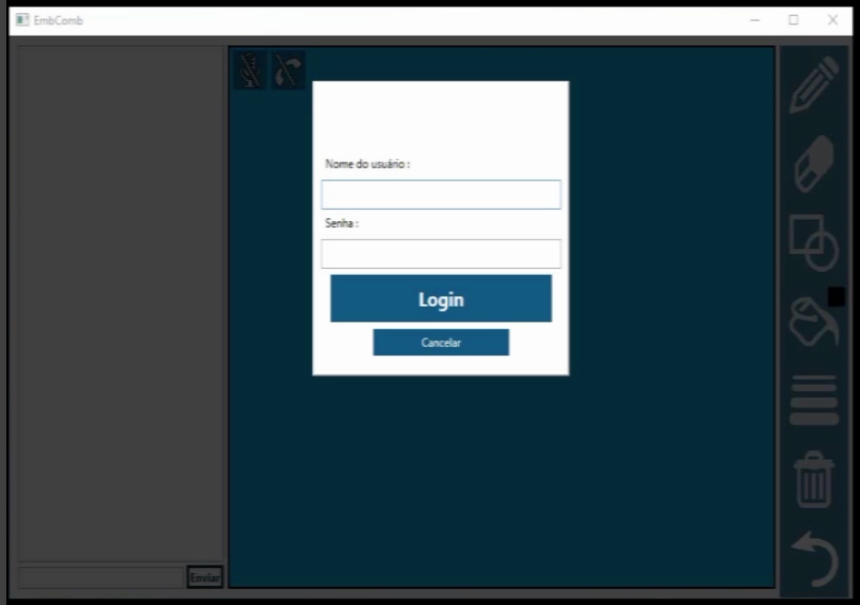
Team Expertise



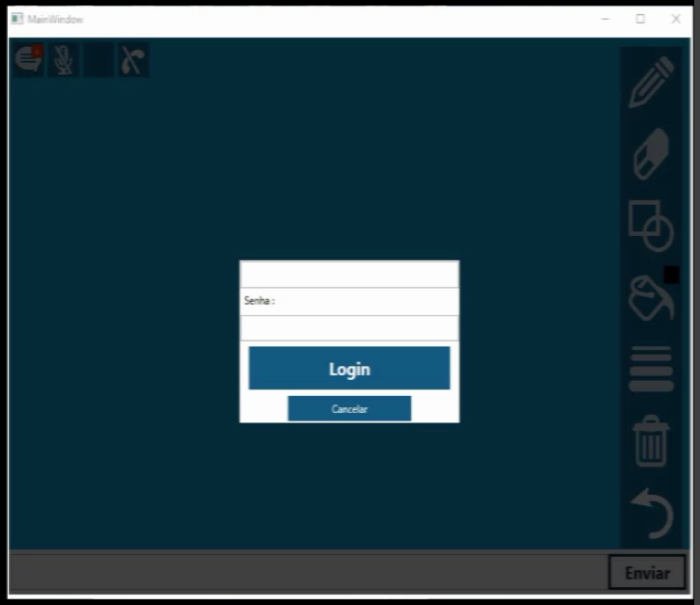
Team Expertise

Team Expertise

Server



Client



Mediated Reality

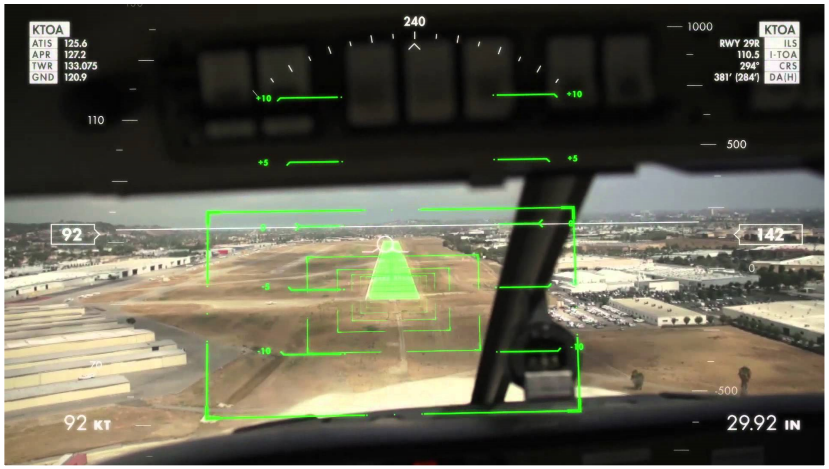
Motivation

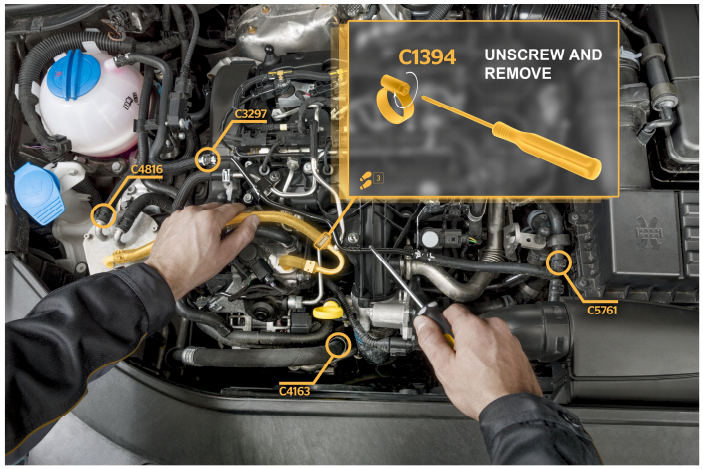
- Maintenance procedures can contain several steps
- Each step may be related to a different component
- The risk associated with aircraft maintenance is stressful for the technicians

Goals

- Explore mediated reality for aircraft's maintenance and repair activities
- Evaluate state-of-the-art techniques regarding adequacy to aerospace scenarios

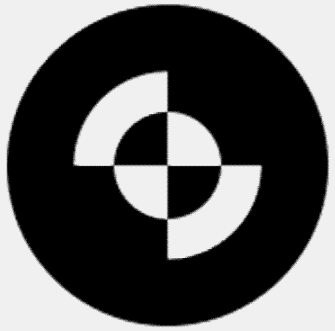
Aircrafts and Mediated Reality



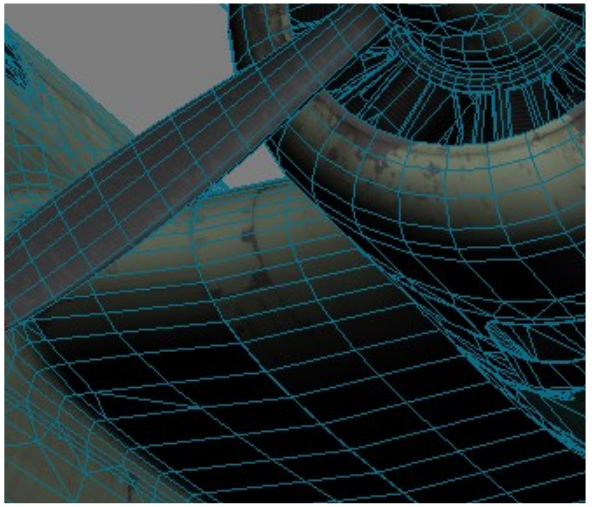


Detection Techniques

- Fiducials
  - ↳ Very reliable, but intrusive



- Natural Features
  - ↳ Points
    - → Great for visually distinctive objects
  - ↳ Edges
    - → Invariant under lighting changes



Tracking Techniques

- Optical Flow
  - ↳ Great for non-reflexive objects
- Template Matching
  - ↳ Great if the viewpoint is restricted

Challenges

- Which are the side effects of using mediated reality on each of these tasks?
  - ↳ Investigate both short and long usage periods
- How to guarantee that mediated information won't put the user at risk?
  - ↳ It depends on the particularities of each scenario
  - ↳ Deep understanding of the activity combined with systematic planning of the mediated information

Thank you!

Judith Kelner

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GRVM