API for Switching Between Vision-based Tracking Libraries

Category: Software Development and Standards

Most Relevant Research Agenda Topics:

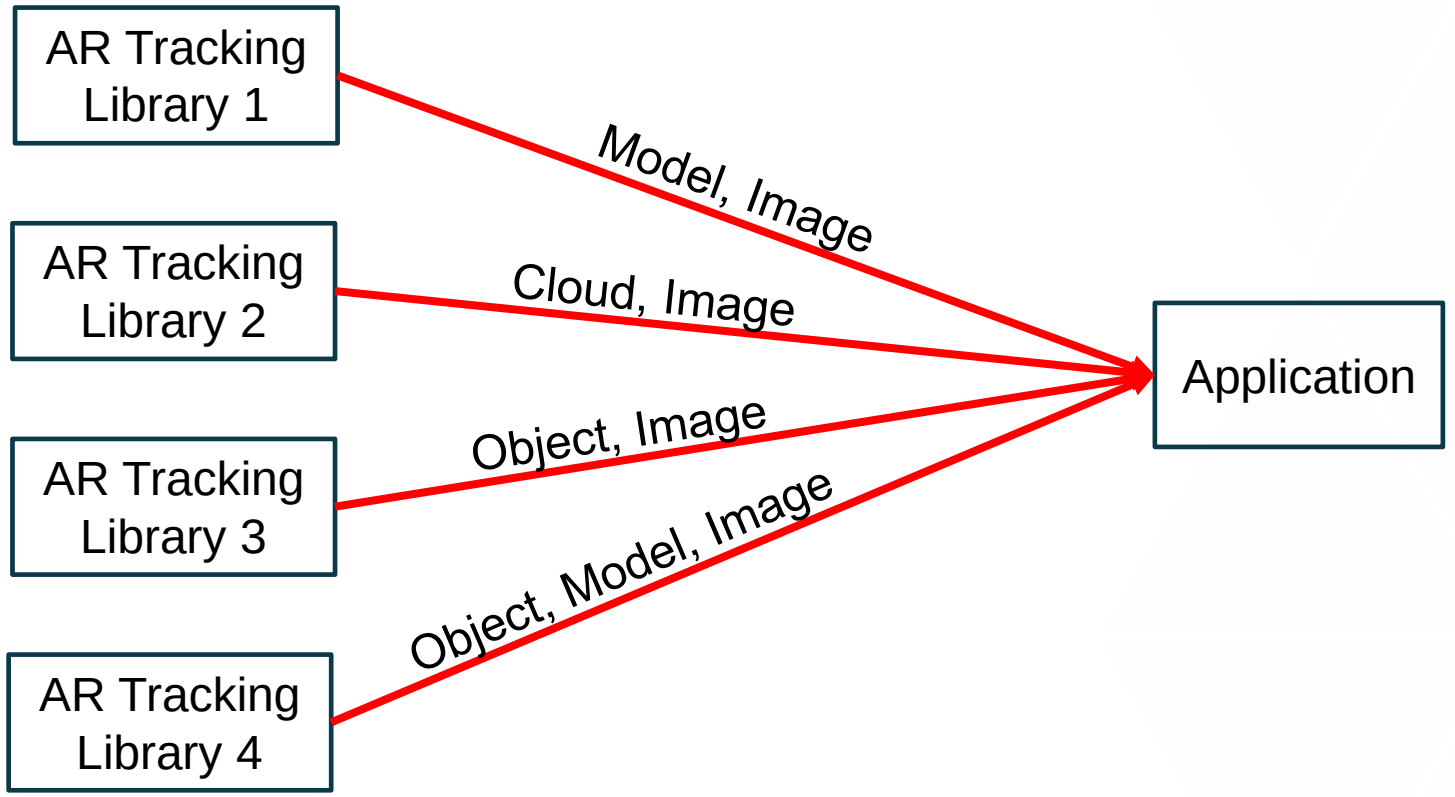
https://thearea.org/area-research-agenda/common-apis-for-tracking-libraries-for-vision-based-ar/

Video https://thearea.org/wp-content/uploads/2020/01/5-Common-interface-to-swap-out-AR-tracking-libraries.mp4

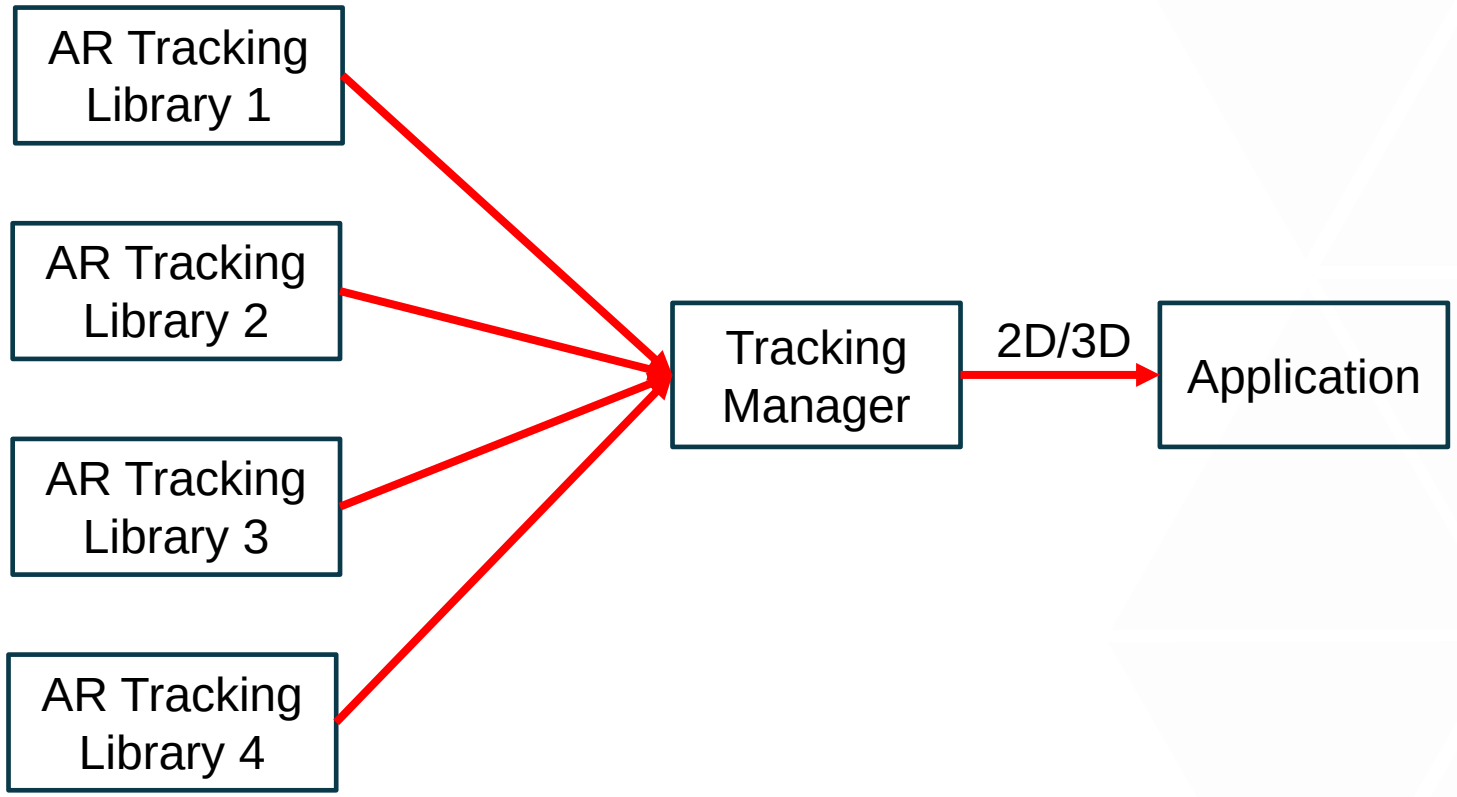
Problem this Research Would Address (1 of 3)

- A barrier to widespread adoption of AR is the risk of picking the wrong tracking library
- To be considered
  - Multiple AR tracking libraries
  - There is no standardization of a common AR tracking interface
- PROBLEM: Your AR tracking library no longer fits your need, how do you transition to a different library quickly and with confidence?

Problem this Research Would Address (2 of 3)



Problem this Research Would Address (3 of 3)



Whose problem would be addressed?

- *Providers of enterprise AR platforms* would be able to more quickly and reliably
  - Switch between AR tracking libraries
  - Validate the library used is the best one for the task
  - Ensure future compatibility of the application
- *Enterprise safety managers* would
  - Evaluate the various technologies going to be used
- *Regulatory agencies or groups would*
  - Have the ability to specify a set of rules for an AR tracking library and verify conformity to those rules

How would this research be conducted? (1 of 2)

1. Conduct a survey to determine AR libraries to evaluate
2. Determine if it is possible to simplify multiple AR libraries into a single interface for an application
3. Write a wrapper for each tracking library that interfaces with a single tracking manager
4. Determine methods to validate the transition
5. Determine if an AR tracking library can be certified to a common standard

Project Deliverables

- A report outlining the opportunity
- An Open Source API for vision library management
- Software documentation of the application
- A “tool” or framework for assessment or to help implementers
- A case study (public document 2-5 pages, demonstrates potential benefits of the research results)

Benefits to AREA Members

- AREA members will be able to more quickly evaluate and switch between vision-based AR tracking libraries
- Long term impacts of this research:
  - Develop a common AR tracking library standard that is adopted within the Enterprise community.
  - Similar to VR trackables in VRPN, VR trackables and displays in OSVR, and AR/VR hardware in OpenXR.