Tracked ultrasound in Slicer for needle navigation

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Hardware design
Software design

3D Slicer
- Live Ultrasound
- Registration
- Visualization
- Segmentation
- Transform Recorder
- OpenIGTLink

PLUS (https://www.assembla.com/spaces/plus/)
- Synchronisation
- Ultrasonix SDK
- Ascension SDK
- Sonix Touch
- Ascension DriveBay
- OpenIGTLink
Dual 3D view navigation

Dual 3-D layout in 3D Slicer

Progress view

Bull's-eye view

Tracked needle

Entry point

Target phantom /patient

Bull's-eye view virtual camera

Progress view virtual camera
What is needed?

... much has been done already, but

- Tracker-model registration module (instead of the existing solution with multiple modules)
- Time support in Slicer, at least timestamps
- Recording / replay (in time) functions