



Guidewires are often used in interventional procedures to navigate to the location of interest. For example, a coronary lesion can be identified using an IVUS (intravascular ultrasound) deployed over the guidewire. However, once the IVUS is exchanged for a device, the clinician cannot return to the same location without incurring several (or many) millimeters of average error; this error can be critical, especially for aorto-ostial, bifurcation, and other lesions.

The Frond platform patterns markers onto the guidewire at known locations; these barcodes can be read with a micro-optical sensor. When the sensor is attached to diagnostic (IVUS, OCT) or therapeutic (stent, balloon) devices, the location of the lesion can be noted precisely, and the therapeutic device can be placed at the exact same spot, in realtime, for precision therapy. In animal studies we have demonstrated submillimeter accuracy, in both coronary and peripheral arteries.