

## Uterine Manipulator – Developed Fall 2012

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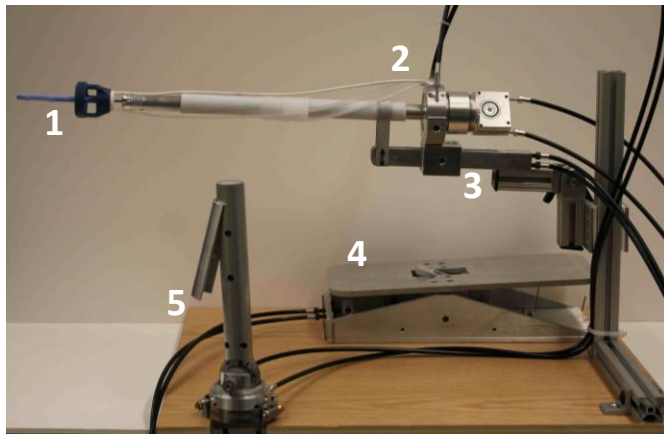
### Clinical Challenge

Develop an easy-to-use uterine manipulator that enhances physician control during trans-vaginal procedures, ensuring patient safety and improved quality of care.

Currently, anteversion and retroversion of the uterus is possible with commercial uterine manipulators, but lateral movement can only be achieved by forcing and twisting these manipulators against the vagina wall. These devices are also all handheld, requiring a second physician to stand near the patient's vagina to secure the device throughout the entire procedure.

### Solution

1. End effector (1) moves vertically and laterally with positive-drive pulley system.
2. Control terminal (2) transmits motion from non-local controls (5) to device through flexible cable conduits.
3. In/Out slide (3) transmits motion from foot pedal (4) to device through flexible cable conduits.
4. Non-local controls can be mounted near doctor for easy control requiring only one hand.
5. Passive locking systems prevents unwanted motion (squeeze handle and depress pedal flap to unlock).



Four Main Modules: (1) End Effector, (2) Control Terminal, (3) In/Out slide, (4) Foot Pedal, and (5) Non-Local Controls



Passive locking system in a compact form factor

### Product Benefits

- Vertical *and* lateral motion
- Eliminates need for assistant
- Operate at bedside within sterile zone
- Single handle controls two degrees of freedom
- Foot pedal control to improve visualization
- Tip orientation directly mirrors handle orientation
- Passive locking system ensures patient safety



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