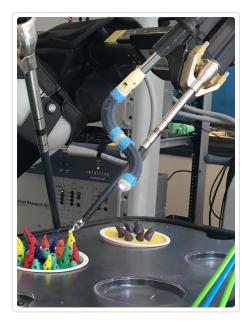
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### STIFF-FLOP soft manipulator

Modular soft manipulator with high dexterity and intrinsic safety. The manipulator is based on a modular approach and each module is 60 mm long and 14 mm in diameter. It is able to implement omnidirectional bending and elongation when pressurized (pressure range: 0 - 1.5 bar). The basic version of the manipulator is composed of two modules, completely based on elastomers (silicones) and some ABS parts for connection. On the tip, the system can lodge a micro camera, a gripper or an ablator (all tested)

Key Features

- Safe interaction with body parts or delicate objects
- Modular
- Contraction, elongation, omnidirectional bending
- Multipurpose platform

**Possible Applications** 

- Endoscopic/Surgical robotics
- Controllable overtube structure for inserting and guiding flexible tools
- Soft robotic platform for testing control algorithms



#### Access information

Corresponding infrastructure	School of Advanced Studies Sant'Anna The BioRobotics Institute
Location	Viale Rinaldo Piaggio, 34 56025 Pontedera PI, Italy
Unit of access	Working day

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### Technical specifications

Modules can be quickly connected/disconnected for a one/two modules manipulator.	
DoF	Infinite passive – 6 active (actuators)
Time response (pneumatic valves)	0.03 sec
Interface	USB
Power supply	220 V@ 50 Hz
Weight	9 g (per single module)
Operating pressure	0 – 1.5 bar (per single fluidic chamber)
Bending	Omnidirectional – max 90 deg
Elongation	50%

### Additional information

https://www.dropbox.com/s/c43uxr16xornzwo/Miniaturised%20STIFF-FLOP%20manipulator.wmv?dl=0

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