A Wrench-Sensitive Touchpad
Based on a Parallel Structure
R. Frigola, L. Ros, F. Roure, and F. Thomas

Technical specs.

Global specs:
- Frequency: 20 Hz
- Max. force in the center: 30 N
- Max. force in the perimeter: 10 N
- Platform: weight=2Kg, ∅=434 mm

Leg specs:
- Load cell model: UTILCELL 105, 2 Kg
- Load cell precision: +/- 0.4 g
- Leg load range: [-2.4, 13.6] N

Good distribution of leg forces

Computing the wrench line (simplest case)

If the wrench is a pure force (no pure torque acts on the platform), the first three components of the wrench give the direction of the line, the second three give a point on it:

$\mathbf{w} = \frac{\mathbf{F}}{\mathbf{M}}$

$\mathbf{M} = \mathbf{OO}' \times \mathbf{F}$

Poinset's central axis theorem is used in the general case.

A tensegrity structure to reduce the errors