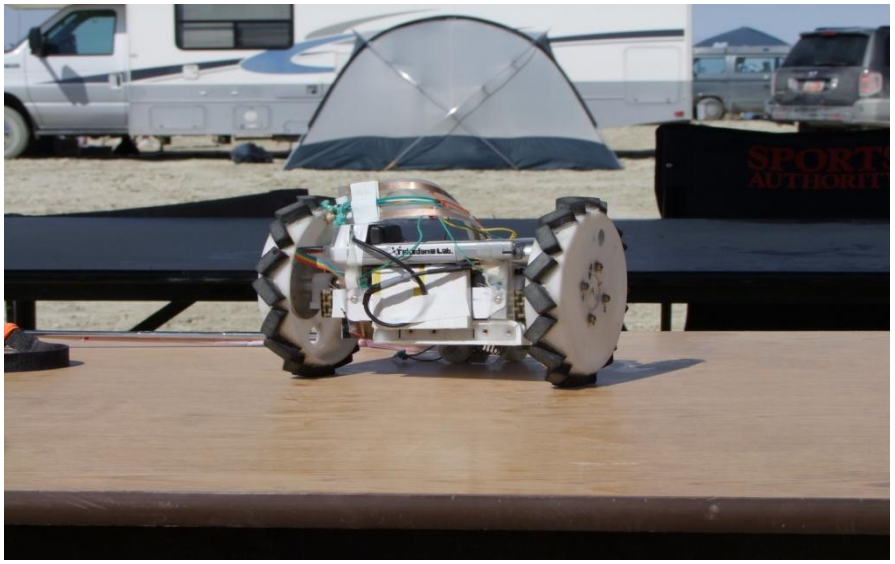
ARLISS 2008

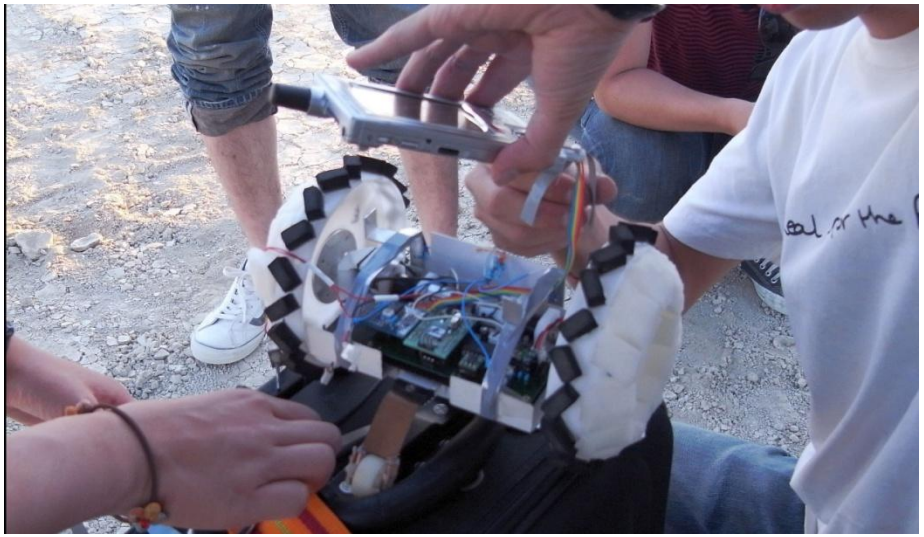


The Univ. of Electro-Communications

Takadama Lab.

Our Rover

- PDA-based rover



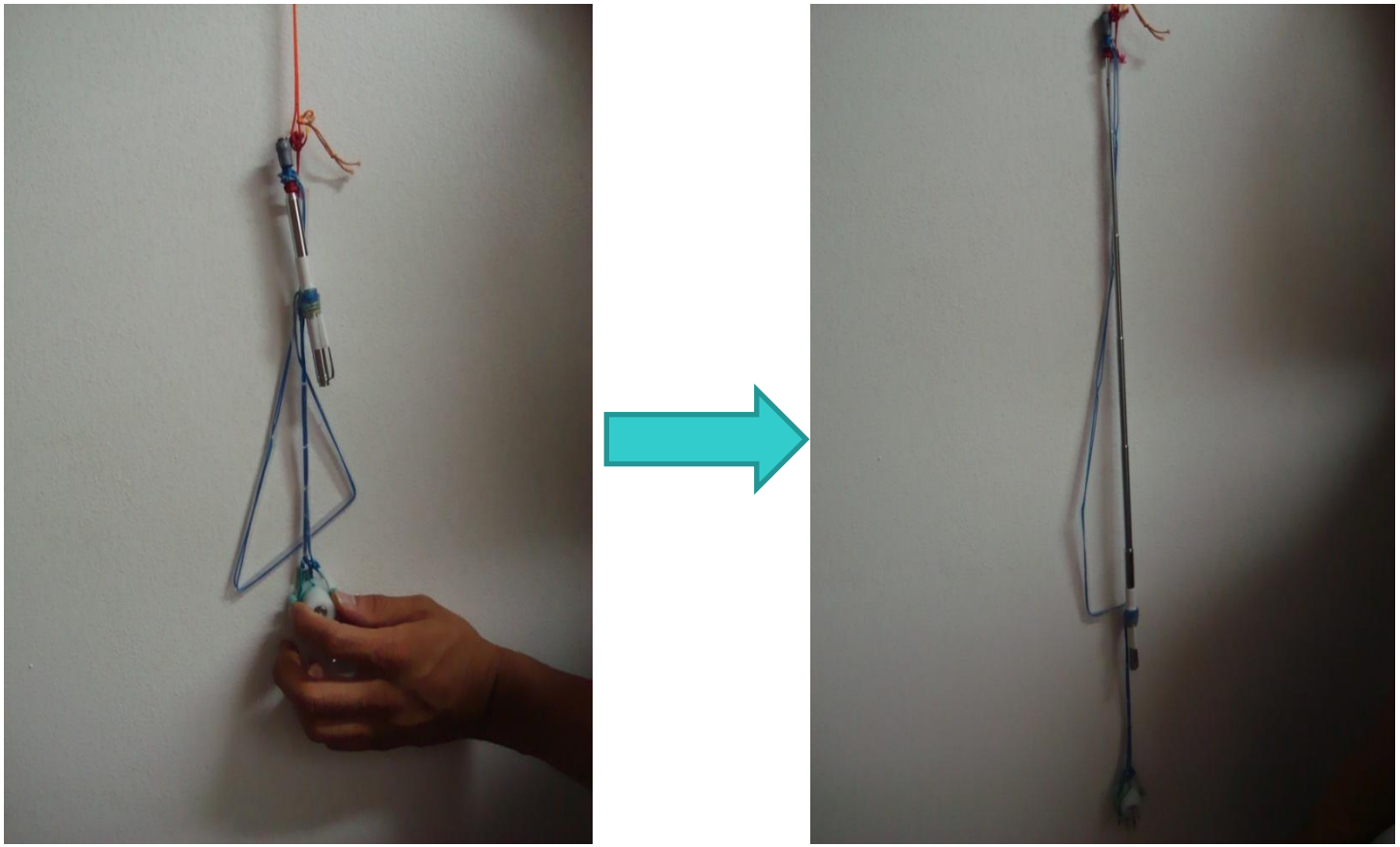
- First year(2006)
  - No control:

    Parachute cut failure & Wheel broken
- Second year(2007)
  - No control: Parachute strings tangled

The third challenge!!

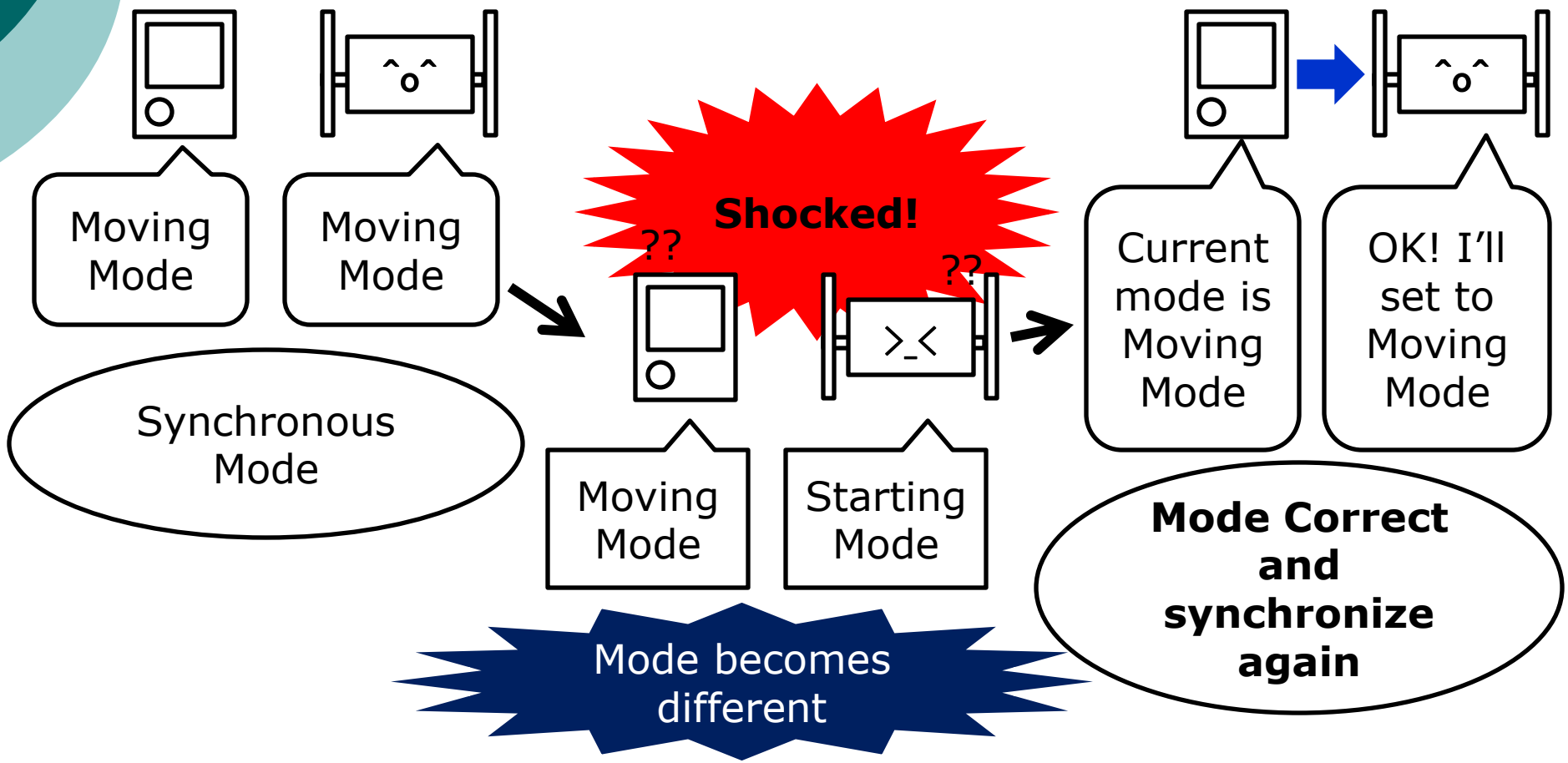
Improvement of Our Rover

① Parachute-avoidance system



Improvement of Our Rover

② Fault tolerant system



1st flight

Jonathan‘s rocket carried up our rover!!

Thank you Jonathan!!!!

Result of 1st flight

- The wire between parachute and carrier was cut by accident…

Free Fall !!

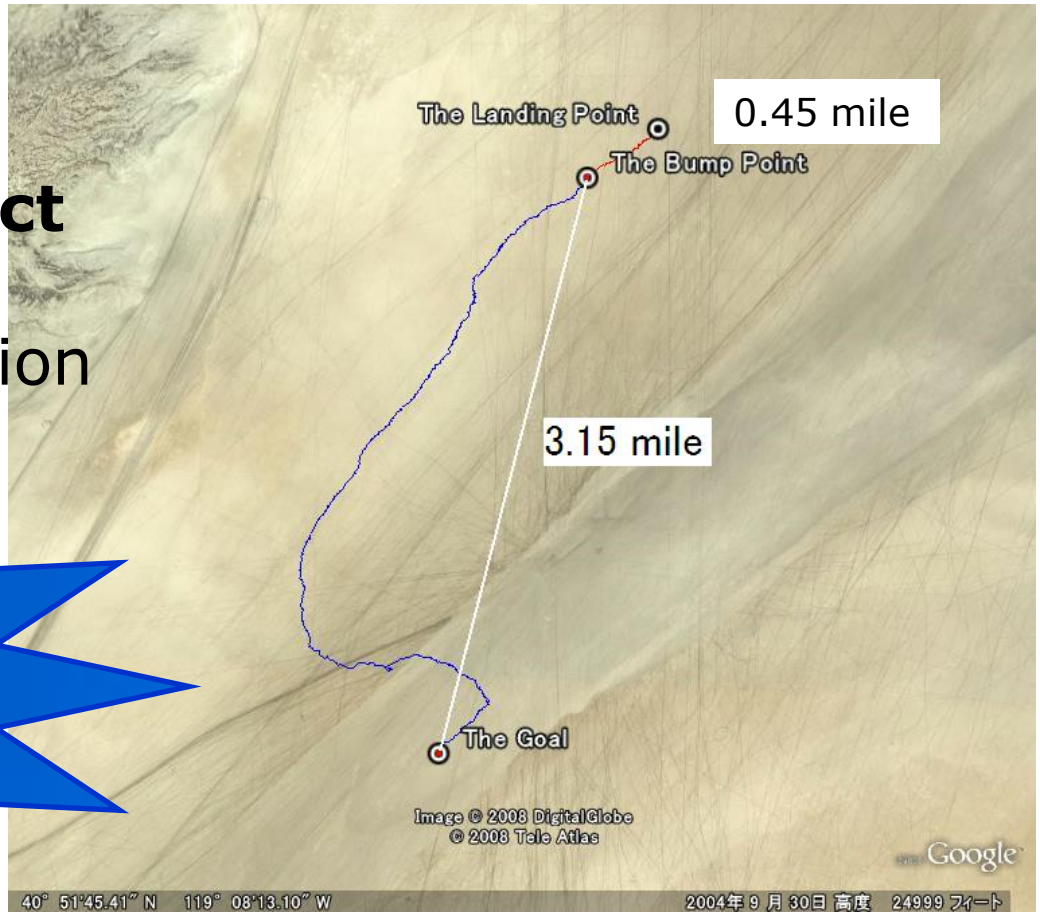
2nd flight

Gary promised us to 100% success

He is a great specialist!!

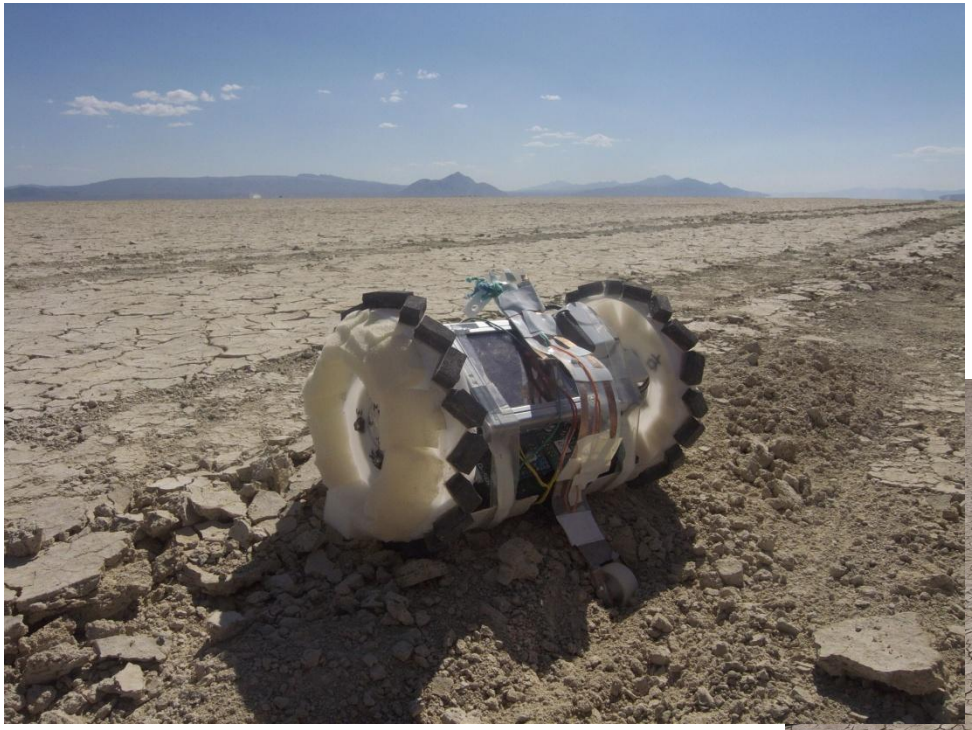
Result of 2nd flight

- **Landing safely**
- **Cut and avoid parachute perfect**
- **Control** :
  0.45 mile Navigation



Succeeded!!!

Result of 2nd flight(Movie)

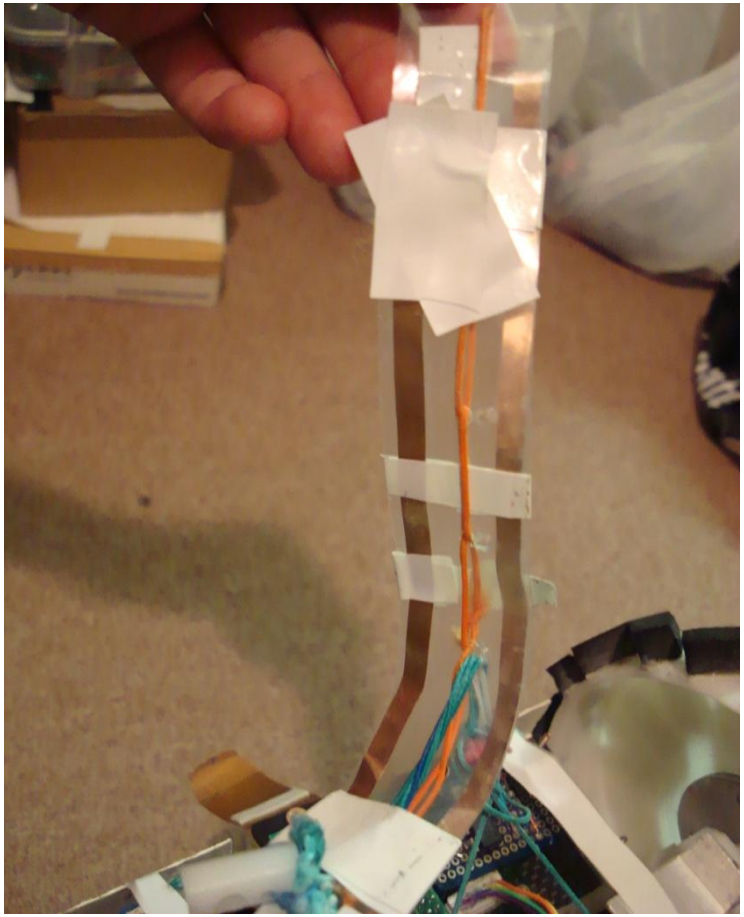


Thank you for all ARLISS staffs and Aero-pack members!!

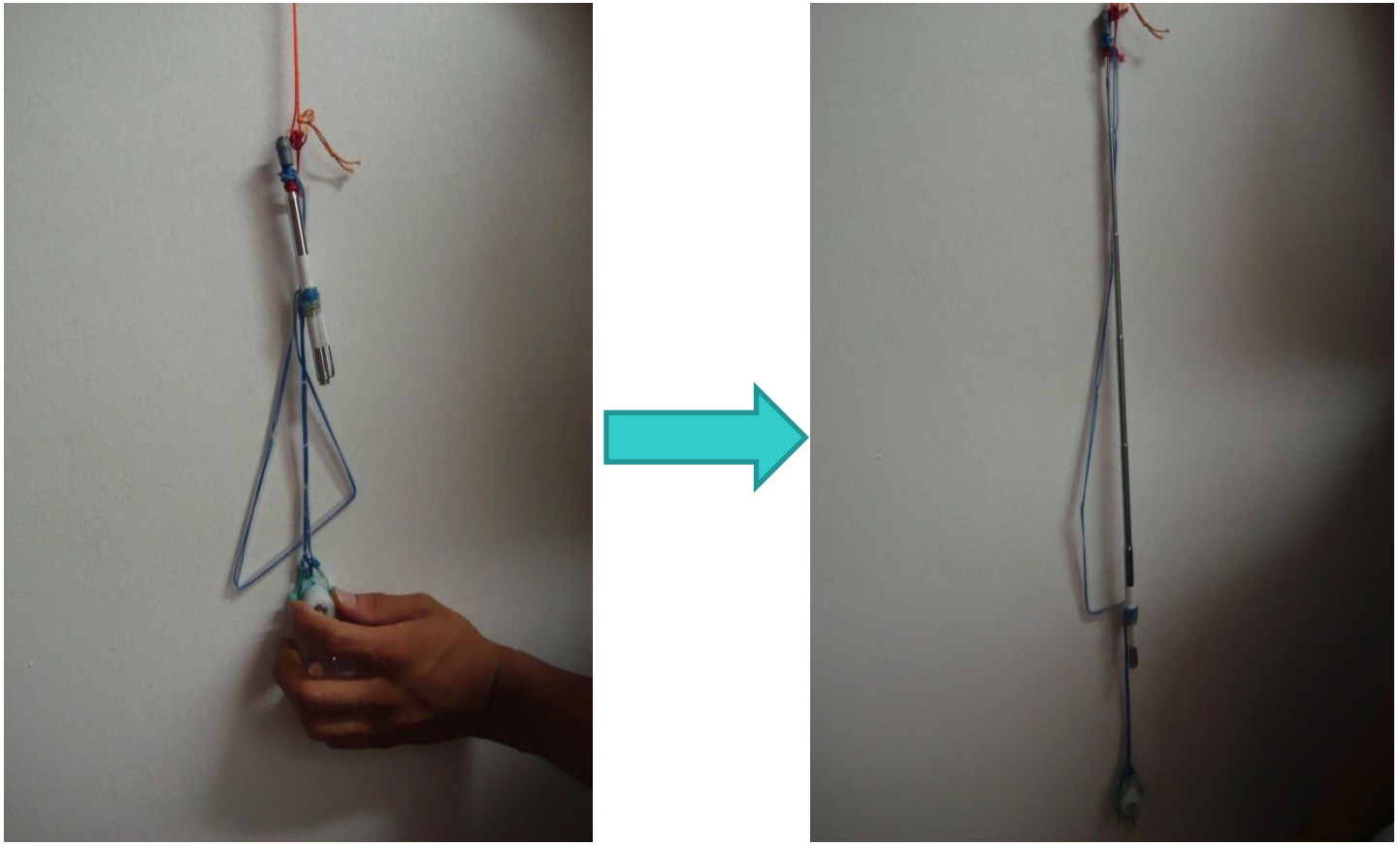
Thanks for your kind attentions!

Appendix

① Parachute-avoidance system “Rail film”

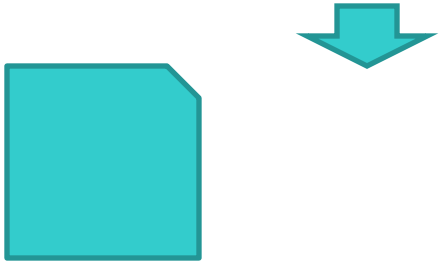


① Parachute-avoidance system "Flexible stick"



① Parachute-avoidance system

- "Rail film"
  - Constructed from clear film and phosphorus bronze
  - Avoid the stuck on parachute cutting parts
- "Flexible stick"
  - Stretched by the weight of the rover
  - Avoid the strings twisted



② Fault tolerant system

- The rover rebooted by the landing shock.
  - The temporary drop-off of battery
  - The Rover lost the state before the reboot
- PDA resets the state of the rover
  - The PDA and rover functions must to be matched

② Fault tolerant system