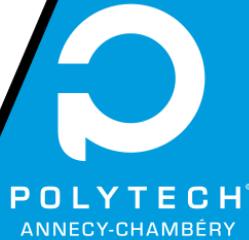




メカトロニクスの日フランス週間  
**JFWM 2022** 2022.09.8<sup>TH</sup> - 16<sup>FR</sup>  
@ ANNECY, FRANCE  
JAPANESE FRENCH WEEK ON MECHATRONICS

Supports:

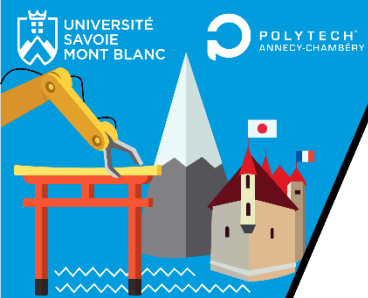


# Challenge

Fabien Formosa – Professor, Polytech Anancy Chambéry

Hugues Favrelière – Assistant Professor, Polytech Anancy Chambéry

Luc Marechal – Assistant Professor, Polytech Anancy Chambéry

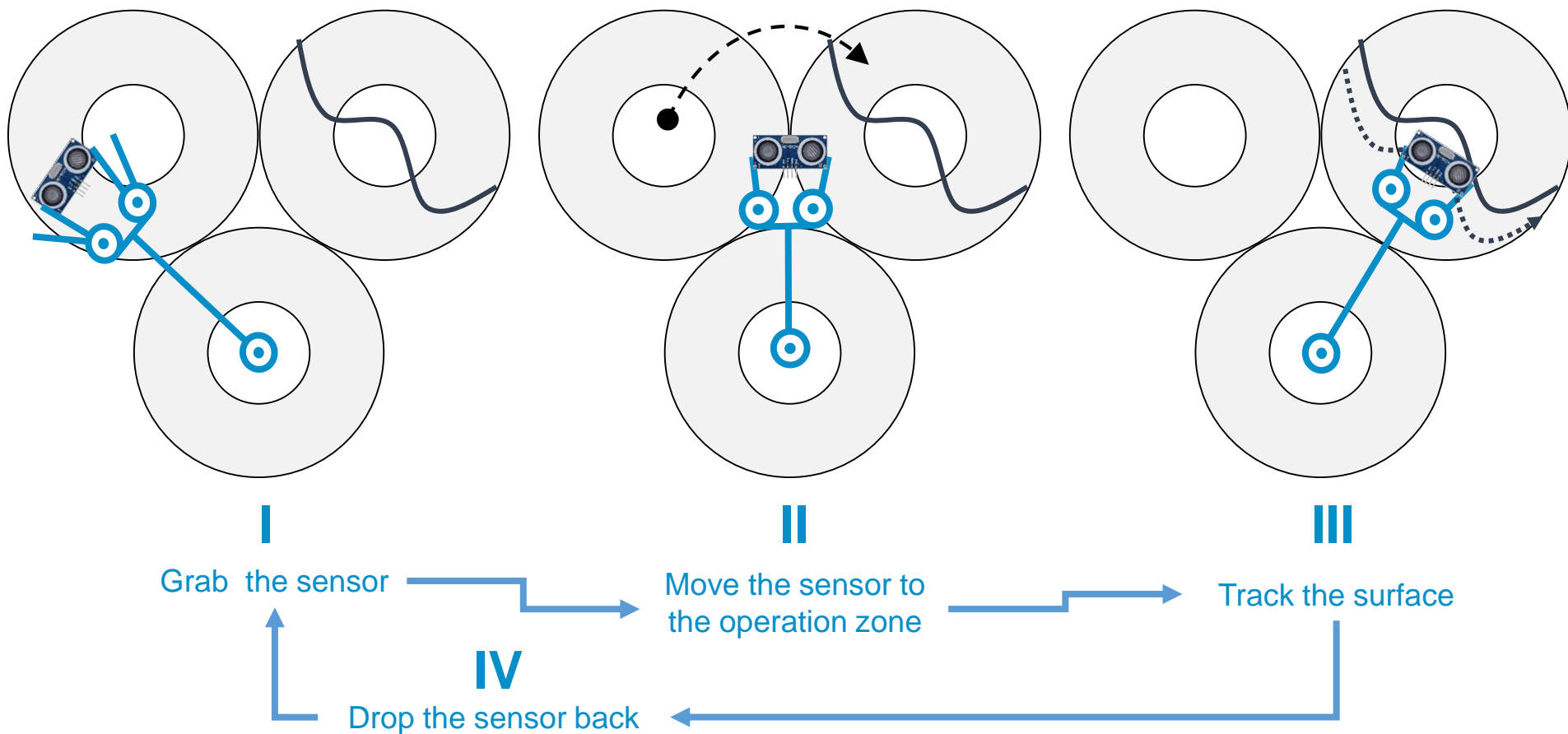


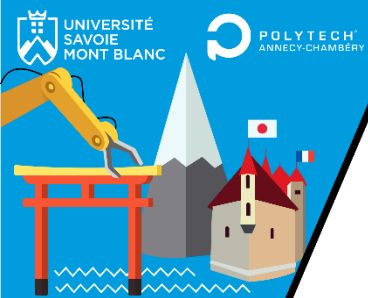
メカトロニクスの日フランス週間  
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JAPANESE FRENCH WEEK ON MECHATRONICS  
Supports: La Région Auvergne-Rhône-Alpes, Erasmus+



## Challenge brief

**DEMONSTRATE** a functional 4DOF robotic arm using  achieving a specific “surface tracking” motion





メカトロニクスの日本フランス週間  
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Supports: La Région Auvergne-Rhône-Alpes Erasmus+



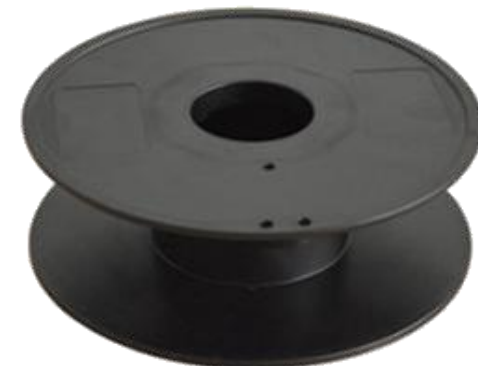
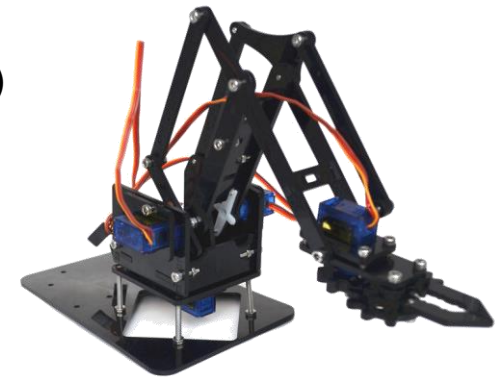
## Challenge performance criteria

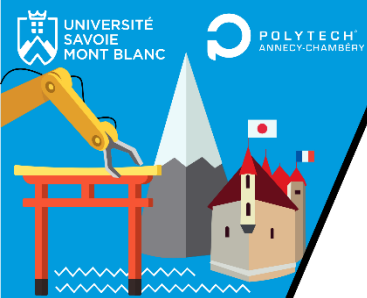
→ mechanical interface (arm with frame & gripper with sensor)

- **MINIMIZING** the material mass
- **MINIMIZING** the number of mechanical parts
- **MAXIMIZING** the stiffness

→ Control

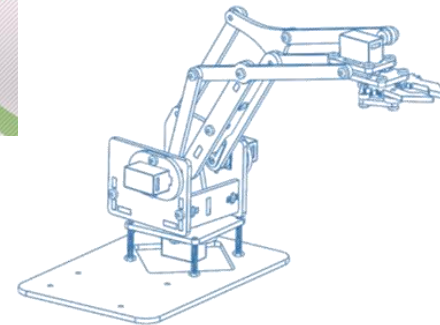
- **MINIMIZING** the distance between sensor and tracked surface
- **AVOIDING** any contact with the surface
- **MAXIMIZING** the speed





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## Challenge rules

- SIX to SEVEN students mixed teams
- OPERATING a functional 4DOF robotic arm using
- USING an ultrasonic distance sensor



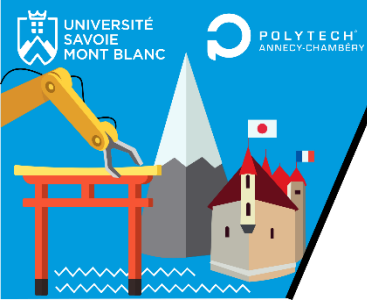
- DESIGNING mechanical interfaces

Robotic arm with frame  
Sensor with arm gripper



- FABRICATING using rapid prototyping





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## Timeline

- Thursday September, 8  
2 x 90' min (all groups)
- Monday September, 12  
3 x 90' min (all groups)
- Tuesday September 13  
1 x 90' min (all groups)
- Wednesday September, 14  
180' min (all groups)
- Thursday September, 15  
3 x 90' min (all groups)
- Friday September, 16      Final demonstration  
→ **Professors will discuss and define which is the best accomplishment (achievement of goals + demonstration + teamwork)**