A High-Force Gripper with Embedded Multimodal Sensing for Powerful and Perception Driven Grasping

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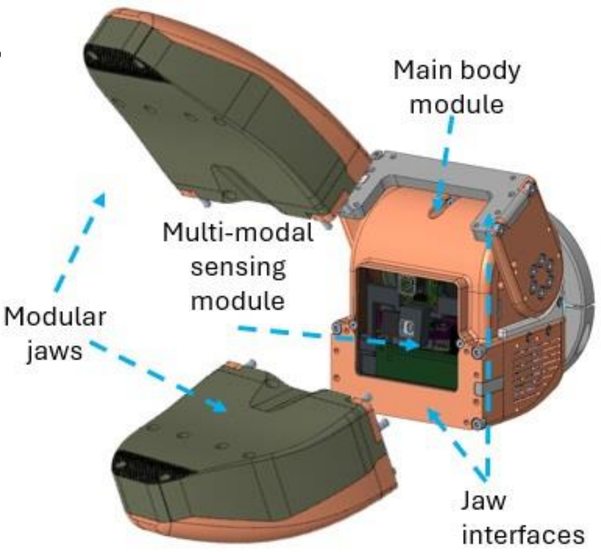
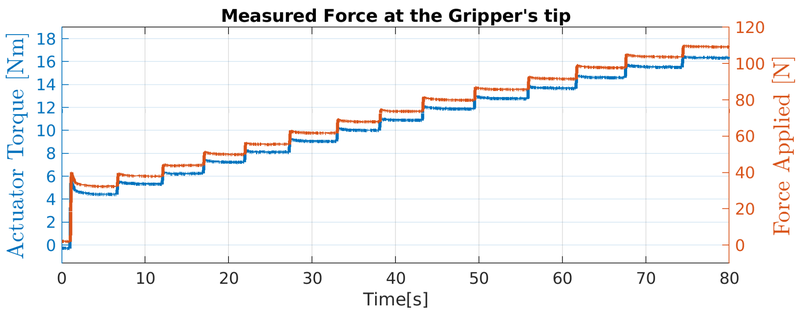
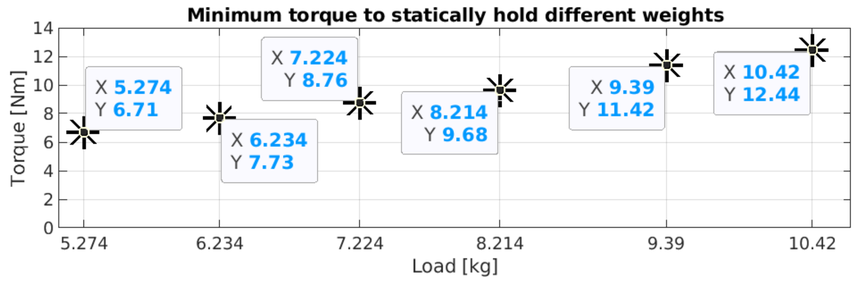
Gripper Characteristics

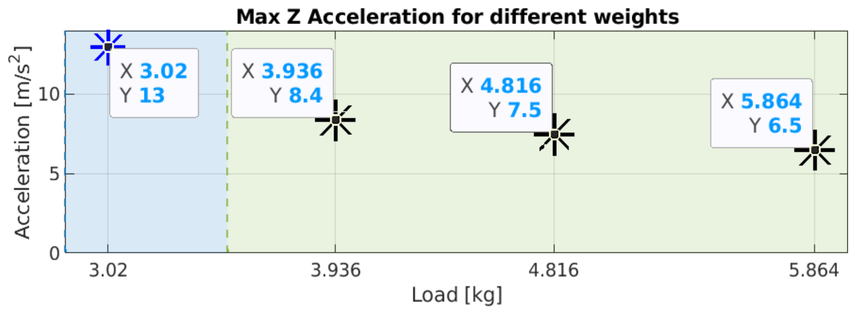
- A **modular** yet **powerful** gripper, suitable for high-power humanoid robots
- Single joint actuated by torque-controlled SEA, reaching torques up to **16.5Nm**
- **Smart sensing capabilities** with in-hand sensing module, enabling perception tasks without necessity of additional robot sensing

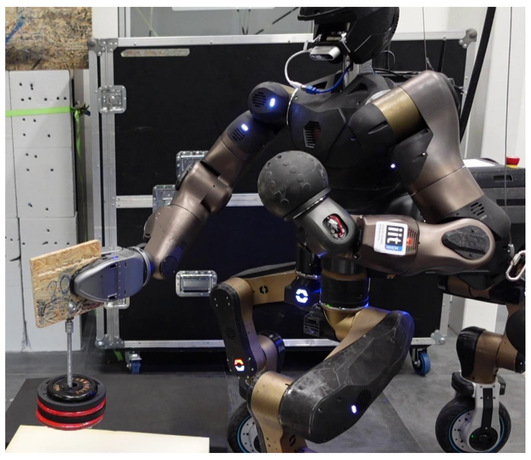


Grasping Force Experiments

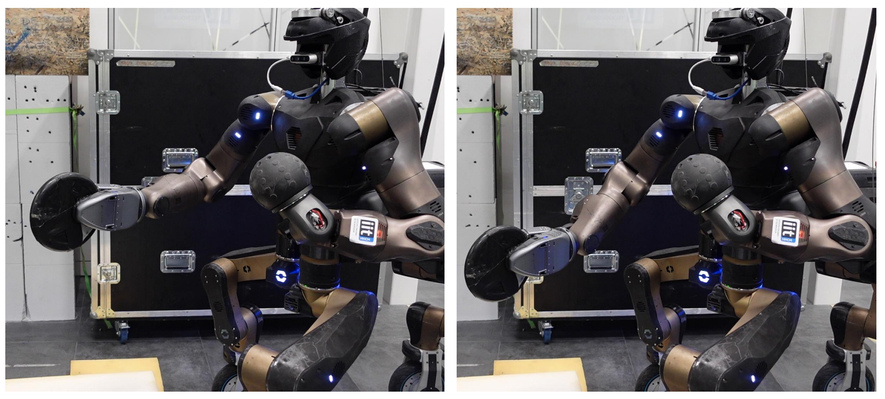






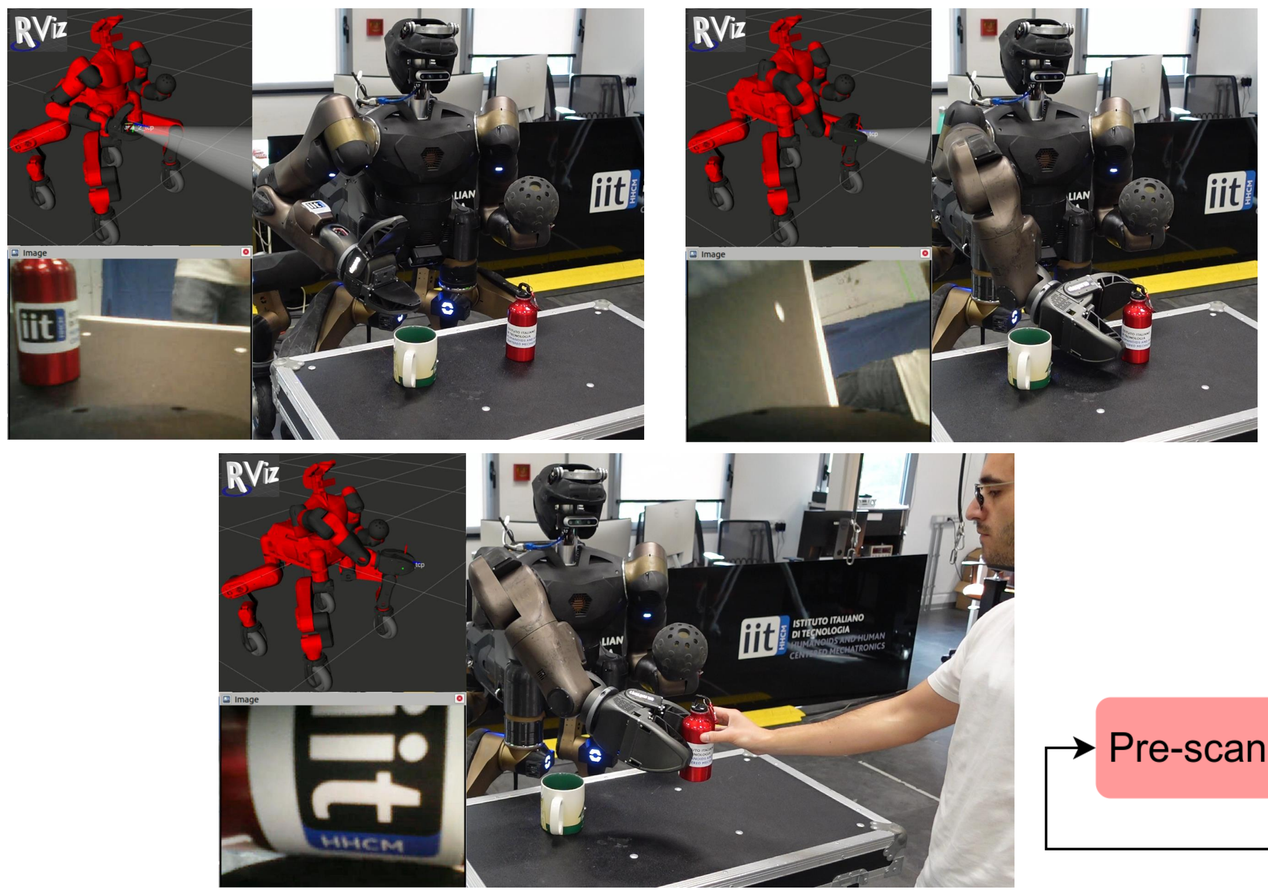


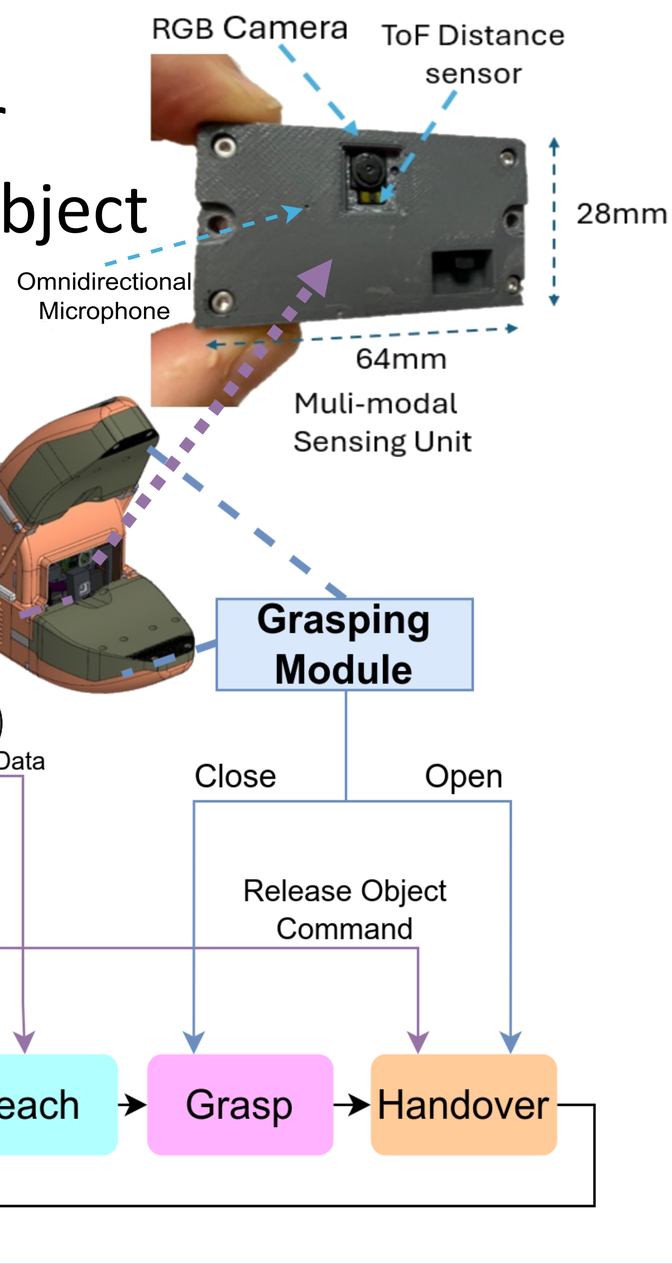
- **110N** peak force at the jaws' tip
- **12.4kg** static payload with **10.4N/m** torque w/o overheating
- **5.8kg** dynamic payload up to an acceleration of **6.5m/s²**



Perception Driven Grasping

- **Autonomous grasping** leveraging on the embedded sensor
- RGB and TOF for **detecting** and **aligning** to the requested object
- Microphone for user interactions with **vocal commands**





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