



## Oncilla

Oncilla is a compliant, quadruped robot developed during the FP7 European project AMARSi (Adaptive Modular Architectures for Rich Motor Skills, project start March 2010, project duration 48 months, 4 Oncilla copies build and distributed, 2 remain at BIOROB). The goal of the AMARSi project was to improve richness of robotic motor skills. Oncilla is a highly sensorized robot with pantographic legs (ASLP legs) as well as an abduction/adduction (AA) mechanism. The sensorization features encoders on each joint and motor, IMU as well as new ground contact sensors in the feet (3d force-sensors). The research done with the BIOROB team focuses around closed loop rough terrain locomotion and richer motor behaviors through a combination of CPG's and reflexes.

### Key Features

- Load sensors, IMU
- On-board power supply
- Closed-loop control with joint position and inverse kinematics
- Different actuator architecture using Brushless DC motors and custom electronics
- Possibility of up to 500g payload

### Possible Applications

- Exploring different neural networks inspired by animals
- Platform for sensor carrier, such as camera
- Animal gait exploration
- Researching different feet or legs designs
- Search and Rescue



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## Access information

<b>Corresponding infrastructure</b>	École Polytechnique Fédérale de Lausanne BioRobotics Lab
<b>Location</b>	Route Cantonale, 1015 Lausanne, Switzerland
<b>Unit of access</b>	Working day

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## Technical specifications

<b>dhip-shoulder</b>	0.223m
<b>dshoulder-shoulder</b>	0.138m
<b>lhip, standing height</b>	0.201m
<b>Mactuators+electr, sum</b>	2.845 kg
<b>Mrobot</b>	5.05 kg
<b>Active degrees of freedom</b>	12
<b>Gait type</b>	trot/ bound/ walk
<b>Body lengths per second</b>	2.7
<b>Froude number FR (<math>v^2/G/lhip</math>)</b>	0.18
<b>Maximum speed, v<sub>max</sub></b>	0.6 m/s
<b>RC servo motor</b>	Kondo KRS2350 ICS (4x), Maxon 90 BLDC (8x)
<b>Control board</b>	RoBoard RB110
<b>Power supply, tethered</b>	10V to 12V

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## Additional information

<https://biorob.epfl.ch/op/edit/amarsi>

Videos: <https://go.epfl.ch/ExperimentsOncilla>

3DPDF: <https://go.epfl.ch/3DPDFOncilla>