

Title: Operate an open platform humanoid robot Hopalala through ROS

Context:

Hopalala Robot is an educational open platform humanoid robot suitable for research purposes, educational affairs, and even entertainment. It is designed to extend the field of robotics developers' community; Hopalala architecture is a multidisciplinary field of engineering that includes a combination of mechanical engineering, electrical engineering, telecommunication engineering, control engineering, and computer engineering

Objectives of the internship:

The main objective of the internship is to operate the Hopalala as a humanoid robot and apply robot balance algorithms via ROS2 to be tested and validated, realizing the mechatronics design with respect to the industrial constraints of many variants of an existing platform robot **Hopalala**. The study of the market (state of the art) should be updated to better define the functional requirements and to conclude their specifications. A research study should be done to enhance and add extra industrial options (accessories, drivers, etc.) to the existing products. To value the work done, the implementation of a selection of these variants will be manufactured and tested.

The tasks are the following:

- Checking the validity of technical specifications
- Operating the Hopalala Robot and test
- Establishing correlations between theoretical calculations and concrete implementation
- Create and update reports, documentation, and progress reports. Follow-up of platform tests for results



Required skills:

- Mechanical/ electrical engineering background.
- Knowledge about C++ language or Python
- Understanding the principles of the ROS2.
- Dealing with Servo Motors.
- Microsoft Office suite (Word/Excel/Power point)
- Ability to work in a multidisciplinary team
- English fluently spoken

Supervisor:

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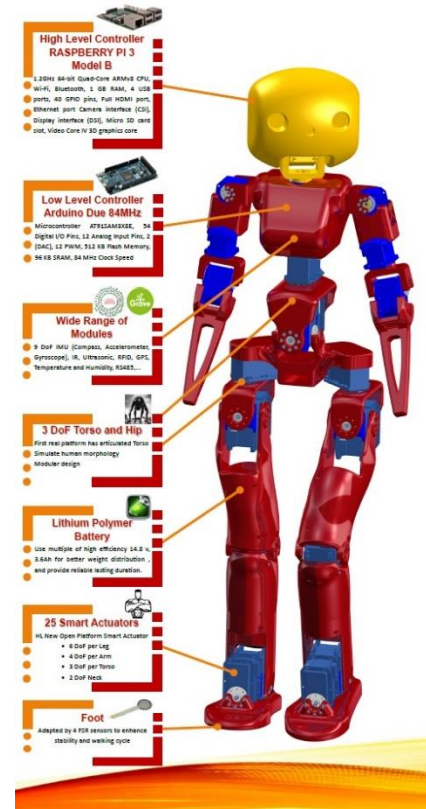


Figure 2: Hopalala Humanoid Robot parts