Robot Embodiment: TIAGo

SPECS

Height	110–145 cm
Footprint	ø 54 cm
Arm Payload	3 Kg (without end-effector)
Battery autonomy	4–5h (1 battery)/8–10h (2 batteries)
Mounting points	On head, laptop tray and mobile base
OS	Ubuntu LTS, Real Time OS

Sensors:

- Force-torque sensor on wrist.
- Customizable laser and sonar sensors
- inertial measurement unit (IMU)
- RGB-D camera
- two microphone arrays.

1

Prior Work: Robot Teleoperation

Understanding Whole-body Robot Teleoperation Strategies Under Diverse Task Objectives and Constraints


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2

Simulation Environment Development for TIAGo Robot For Human-Robot Collaboration

- **What Students Will Do:** Create the simulation environment (*simulated world and robot's presence in the environment*) to enable humans to tele-operate the robot inside the created environment. TIAGo is a dual-arm humanoid robot.
- **Deliverables:**
  - 3D Simulated Environment (choice of Unity, Issac Sim, etc.)
  - Account for human presence in the simulation through VR
  - Functional Robot Teleoperation in Simulated Environment
  - Demo (video or live) showcasing the combined creation
- **Size group:** 3
- **Skills:**
  - Required: 3D modeling, ROS, simulation, programming (python)
- **Mentors:** Kaitlynn Pineda (kpineda3@jhu.edu), Han Zhang (hzhan206@jhu.edu)