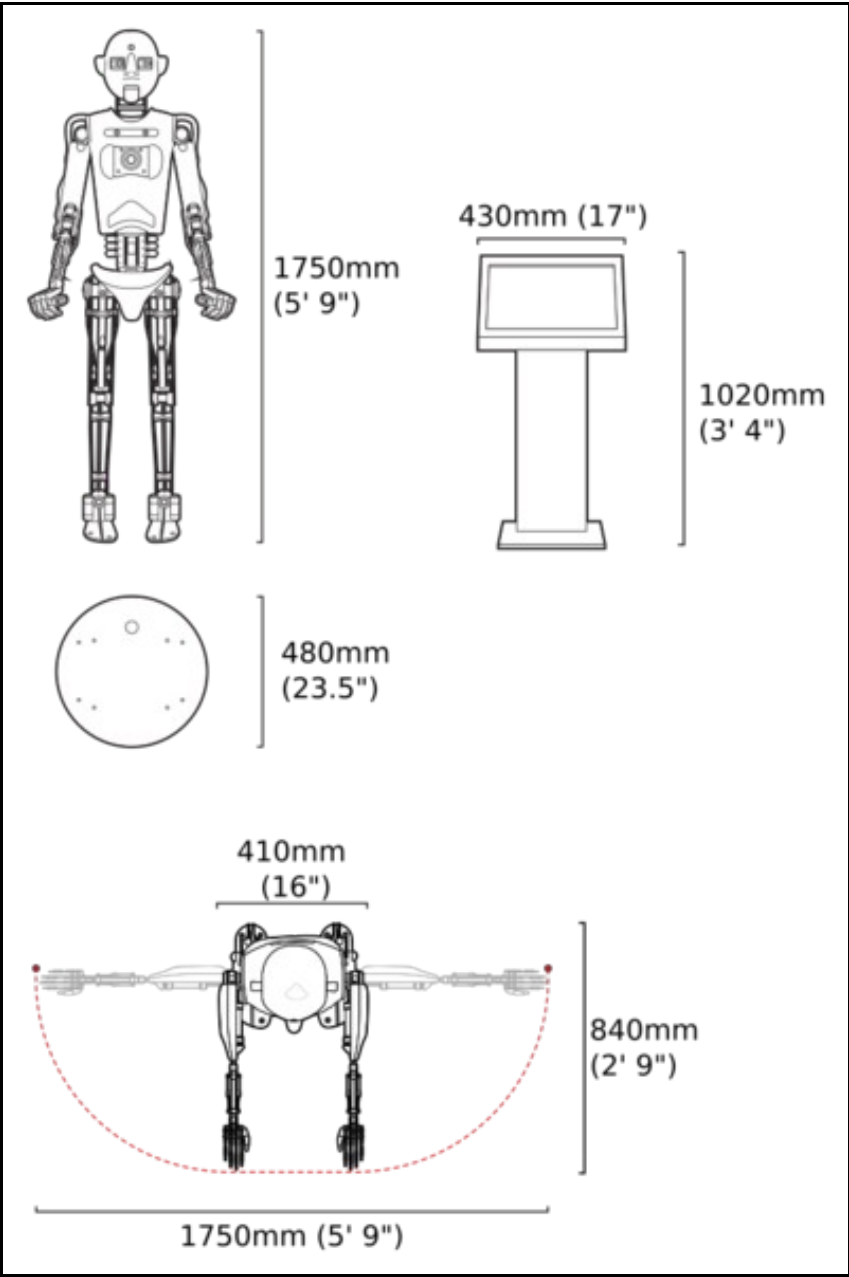


RoboThespian Technical Spec

RoboThespian >> RoboThespian At a Glance >> Technical Spec

Dimensions and weight[edit]



RoboThespian with base and kiosk dimensions

Robot Dimensions (Excluding floor base)		Metric	Imperial
Robot Weight		33 kg	72 lbs
Robot Height		1750 mm	5' 9"
Robot Width (shoulder to shoulder)		410 mm	16"
Robot Width (arms fully to side)		1750 mm	5' 9"
Robot Reach (back to fingertips - arms fully forwards)		840 mm	2' 9"
Robot Dimensions (Including floor base)		Metric	Imperial
Robot Weight		44 kg	97 lbs
Robot Height		1775 mm	5' 10"
Floor Base Width		480 mm	23.5"
Robot Width (arms fully to side)		1750 mm	5' 9"
Robot Reach (back to fingertips - arms fully forwards)		840 mm	2' 9"
Metal Touch Screen Kiosk Dimensions		Metric	Imperial
Weight		22 kg	49 lbs
Height		1020 mm	3' 4"
Width		430 mm	16.3"

Metal Touch Screen Kiosk Dimensions		Metric	Imperial
Depth		400 mm	15.7"
Floor Base Dimensions		Metric	Imperial
Base Diameter		480 mm	19"
Base Depth		30 mm	1.25"
Base Weight		11.5 kg	25 lbs

Mechanical Features[\[edit\]](#)

Mechanical Features

Hybrid design with pneumatic and DC servo motor actuators for upper body, upper limbs and head

10 x Pneumatic 'Air Muscle' Actuators (Festo) with full proportional control and inherent compliance

8 x DC servo motors (Maxon) tuned for natural human motion profiles

8 x Pneumatic cylinder actuators for hands

1 x High speed servo motor for jaw actuation

Angular range details here for developers: [RoboThespian Kinematics](#)

Passive lower limb design will maintain centre of mass over support as legs fold

Actuation for legs available as optional extra

Chassis fabrication: 6082 Grade Aluminium

Wear parts hard anodised for longer life

DC motors with induction hardened output gears

Electrical Features[\[edit\]](#)

Electrical Features

12 bit absolute angular hall encoders on Air Muscle and DC servo axis

2 motion control boards for DC Servo, Pneumatic Air Muscle control

Closed loop control on 18 proportional axis

3 pneumatic valve controllers (4 channels per board) for closed loop pressure and flow control to 'Air Muscle' actuators.

Eyes with 240 x 320 QVGA 2.2" LCD displays, independently driven by embedded Linux module.

Interactive touchscreen kiosk with 19" touchscreen panel.

Onboard mini-PC (NUC)

RGB webcam in head

Power usage[\[edit\]](#)

Note RoboThespian connects to a standard domestic mains outlet in the range 100v - 250v AC

Description	Max current	Max power consumption
RoboThespian robot	Maximum 8.3amp at 24v	Approx 200watts
Kiosk monitor	Maximum 3amp at 12v	Approx 50watts
Kiosk mini PC (NUC)	Maximum 3.42amp at 19v	Approx 65watts
Kiosk Router	Maximum 1amp at 12v	Approx 12watts
Jun-Air Model OF302-25B / OF302-25M Portable Air Compressor	3.4amp 230v (50Hz) model	Approx 782watts
Jun-Air Model OF302-25B / OF302-25M Portable Air Compressor	6.6amp 120v (60Hz) model	Approx 792watts

Kinematics[\[edit\]](#)

Degrees of freedom and angular range of movement: [RoboThespian Kinematics](#)