

RoboThespian At a Glance

RoboThespian >> RoboThespian At a Glance [Download this page as printable .pdf](#)

Introduction[[edit](#)]

This page is aimed at potential customers and distributors who want an overview of RoboThespian, its application areas, example customers, and physical characteristics.

It explains what you receive in a typical RoboThespian package, gives an overview of the interface used to control RoboThespian, how the robot can be animated, interactive features and optional extras.

The page also covers mechanical and electrical features, venue requirements, technical support available to customers and useful export information.

Follow links in the page for more detailed information.

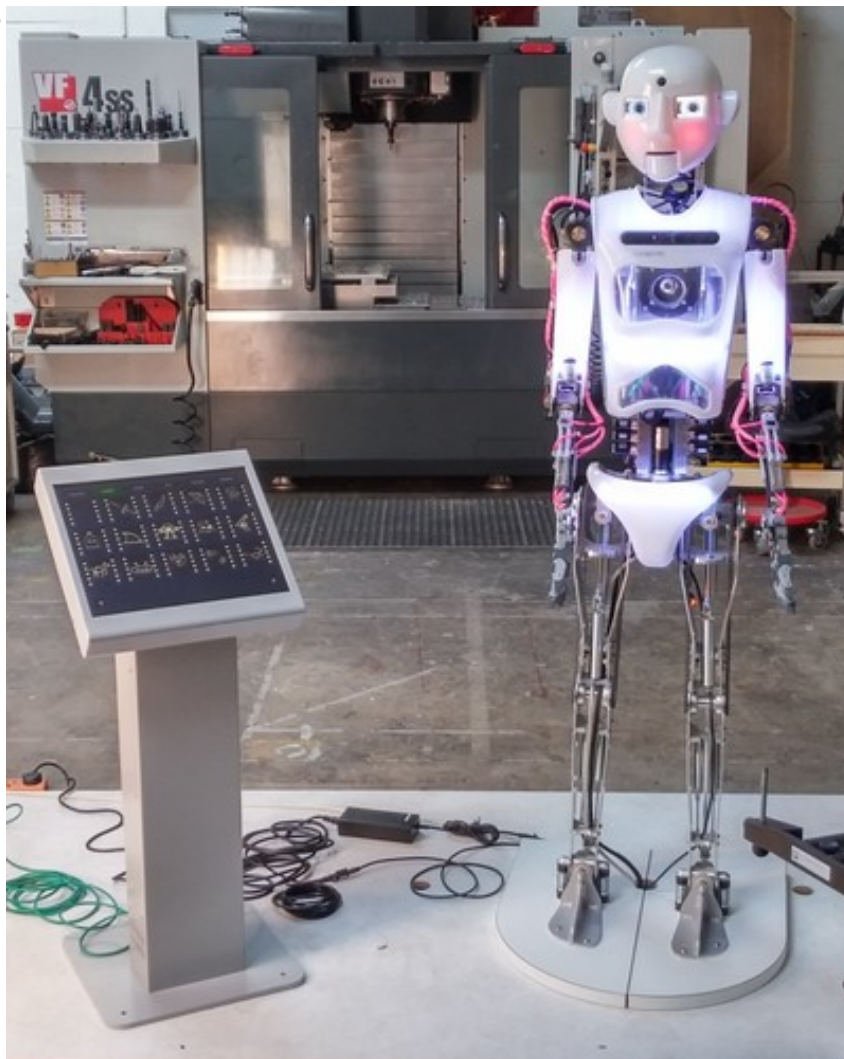
Description[[edit](#)]

RoboThespian? model RT4 is a life size, interactive, fully programmable humanoid robot exhibit suitable for public display, demonstration and academic research.

The robot features an actuated upper body, arms, fingers, head and jaw designed to mimic human expression and gestures.

RoboThespian? is supplied with a touchscreen kiosk and pre-configured with a multiple language software interface suitable for public use.

A compressed air supply is required to power the various arm movements. Engineered Arts can supply a suitable portable air compressor unit for this purpose.



RoboThespian Setup

Application Areas[[edit](#)]

RoboThespian Application Areas

**Application
Area**

Capabilities

Application Area	Capabilities
Content Delivery	The robot can perform any script thus making the robot an ideal interactive content delivery tool. For use at exhibitions, events, science and technology museums and visitor attractions.
Demonstration	Demonstrate AND explain cutting edge technological advances For example, motion capture and live audience interaction via telepresence.
Interaction	Users can get ?hands on? and control the robot themselves, primarily via the touchscreen interface. The robot's onboard sensors allow for additional interaction possibilities, from making eye contact with passers by, responding to gestures (ie a wave of the hand), facial expression recognition and reading/responding to QR codes.
STEM Education	Inspire users to learn about STEM subjects like Computer Science and Engineering. Create inspiring content to make RoboThespian? your favourite teacher. Students can animate their own performances using Virtual RoboThespian and have the real robot make their presentations.
Entertainment	Create awe inspiring stage performances with multiple RoboThespians? Integrate video projection, lighting, multi channel sound, for a unique, futuristic theatre experience.
Academic Research	The robot is also used as a platform for research into Human-Robot interaction by academic institutions. In this area, researchers have so far used the robot in the following ways: Avatar/Remote operation, Brain Controlled Interface, Stage/theatre based social interaction research.

Example Installations worldwide[[edit](#)]

Over 50 RoboThespian? currently permanently installed worldwide, including:

- NASA Kennedy Space Center, USA.
- Questacon, National Science Museum of Australia
- MUNCYT, National Science and Technology Museum of Spain
- Parc Futuroscope, France.
- Copernicus Science Centre, Poland (complete Theatre of Robots stage production, comprising 3 RoboThespians, integrated lighting, video projection, multi channel sound).
- Parque de las Ciencias, Granada Spain. Early adopter of RT 2, and upgraded RT 3 later.

Academic instutions, including:

- University of North Carolina at Chapel Hill, USA.
- University Central Florida, USA
- Bristol Robotics Laboratory, UK
- University College London, UK
- University of Barcelona, Spain

Typical Standard Package for public venues[[edit](#)]

Includes:

- RoboThespian? Humanoid Robot with 27 x Powered Head, Arm and Body Axis
- Interactive touchscreen kiosk suitable for public use
- Standard web browser based public user interface
- 1 x "Graham" British English Male Text to Speech (TTS) voice installed on public user interface (option to add more)
- Standard range of content - film impressions, songs, etc.
- 10 minutes of custom content prepared by our animator in accordance with customer's script and audio voiceover.
- Virtual RoboThespian ? web browser application for customers to create their own content ? includes 40+ Acapela TTS voices (non-public licence)
- Robot Management Software Suite ? web browser application (comprising content management, sensor data and Python IDE screens)
- Standard head option with LCD eye screens, RGB LED cheek lighting and auto jaw/speech movements
- Gaze tracking
- Built in Head Camera
- Basic spares kit
- Remote support and diagnostics
- One year warranty on parts

Public User Interface[[edit](#)]

- Simple graphical based user interface suitable for public use with the following Screen tabs.
- Interface is pre-installed on the touchscreen kiosk but may also be accessed via a web browser on a remote PC/laptop (robot must be on and network connected)
- Individual screens can be enabled/disabled from public view as required.

Language Selection[[edit](#)]



Languages

Multiple language options may be included.

Customer may be asked for assistance with translations.

Library[edit]



Library
Users can quickly trigger pre-programmed performances at the touch of a button.

A selection of entertaining English demo content (film impressions, songs, etc) is included as standard along with customer specific content.
Icons and content fully customisable.

Live[edit]



Live
A selection of independent robot controls at the touch of a button.

Move the arms, head, torso, eyes, change eye expression and LED colours, prompt a range of short pre-set phrases.

Compose[edit]



Compose
Create your own unique robot performance quickly and easily with simplified timeline editor.

Drag and drop gestures, expressions, LED colours into the timeline section.
Type in the Text box what the robot should say (English Male text to speech voice included - option to add more)
Then press Play to see RoboThespian? perform your work.

Designed for public use and quick, basic custom sequences - for detailed content creation see Virtual RoboThespian.

Sensors[edit]



Sensors
See the ?Robot's Eye View? and tracking information from it's onboard sensors.

Command the robot to copy a persons arm movements.

Tricks[edit]



Tricks
A library of robot behaviours available at the touch of a button. For example:

- Sing a random pre-programmed song,
- Play a random pre-programmed film impression,
- Ask robot to estimate your age, gender, expression (SHORE option required)

Icons and behaviours fully customisable.

Admin (Hidden from public view)[edit]



Admin
Restricted Access Back End Robot Management.

Volume control, diagnostic tools including robot self test routine, content management tools. (English language only)

Virtual RoboThespian[edit]

All customers receive access to a Virtual 3D model of RoboThespian to animate their own detailed robot performances.



Virtual RoboThespian

Three usage tiers are available. Multiple user options provide a great introduction for visitors or students to experience robot programming and animation techniques with a real humanoid robot platform to demonstrate their learning.

Virtual RoboThespian Features and License Tiers

Feature	Tier 1 (single user)	Tier 2 (multiple users)	Tier 3 (website integration)
Cloud hosted application - works in a web browser (like Google Chrome)	✓Y	✓Y	✓Y
Written in HTML5, WebGL and JavaScript.	✓Y	✓Y	✓Y
Enables timeline based editing of robot sequences and audio.	✓Y	✓Y	✓Y
Access to 70+ text to speech voices in multiple languages	✓Y	✓Y	✓Y
Easy to create and transfer content to your RoboThespian or SociBot.	✓Y	✓Y	✓Y
Licensed to venue to create their own content.	✓Y	✓Y	✓Y
Included with each purchase as standard.	✓Y	✓Y	✓Y
Multi user licence for public visitors to create their own animations at PC terminals within a venue and see them performed by the real robot.	✗N	✓Y	✓Y
Integration into a venue's public facing website.	✗N	✗N	✓Y
Encourages visitors to create animations at home or school then visit the venue to see their work performed by the real robot.	✗N	✗N	✓Y

Advanced Interaction included in standard package[edit]

Look At People - in standby mode, the robot will automatically track passers by and attempt to make eye contact by moving its head to follow the person.

If you want the robot to **behave** in a certain way, you can use **Control Functions** to achieve this. For example automatically say something when a person is standing in view or waves a hand.

Python programmers can write their own control functions using the robot's [web based control panel](#)

Open API - Fully documented Application Programming interface for advanced developers.

Optional Extras[\[edit\]](#)

QR Code Read and Respond[\[edit\]](#)

Your robot can read [QR Codes](#) and respond in way you choose.

For example, a QR code printed on a visitor ticket or membership pass could prompt the robot to deliver a special message. The visitor simply holds up the QR code in front of the robot's face to prompt the response.

Age, gender,expression recognition[\[edit\]](#)

Your robot will attempt to estimate a person's age, gender and expression using [SHORE](#) object recognition.

It can be programmed to respond accordingly to the data received, ie. Simply relate its findings ?hello you look like a 36 year old man, your face is happy?, prompt a piece of age or gender specific content, and so on. No personal data is collected or retained.

TinMan Telepresence[\[edit\]](#)

Your robot becomes your avatar for live 2 way communication with an audience using our [TinMan Telepresence](#) system

The user wears a wireless headset to listen and speak to the audience and control robot gestures and expressions on a pre-configured tablet PC.

You are able to select a person from a group that you want the robot to maintain eye contact with whilst speaking.

The audience hears user's actual voice projected from the robot. Voice can be modified in software for different effects.

Text-to-Speech (TTS) Voices[\[edit\]](#)

[Text-to-Speech](#) converts text into sound and voices can be installed on your robot for use offline and in real time.

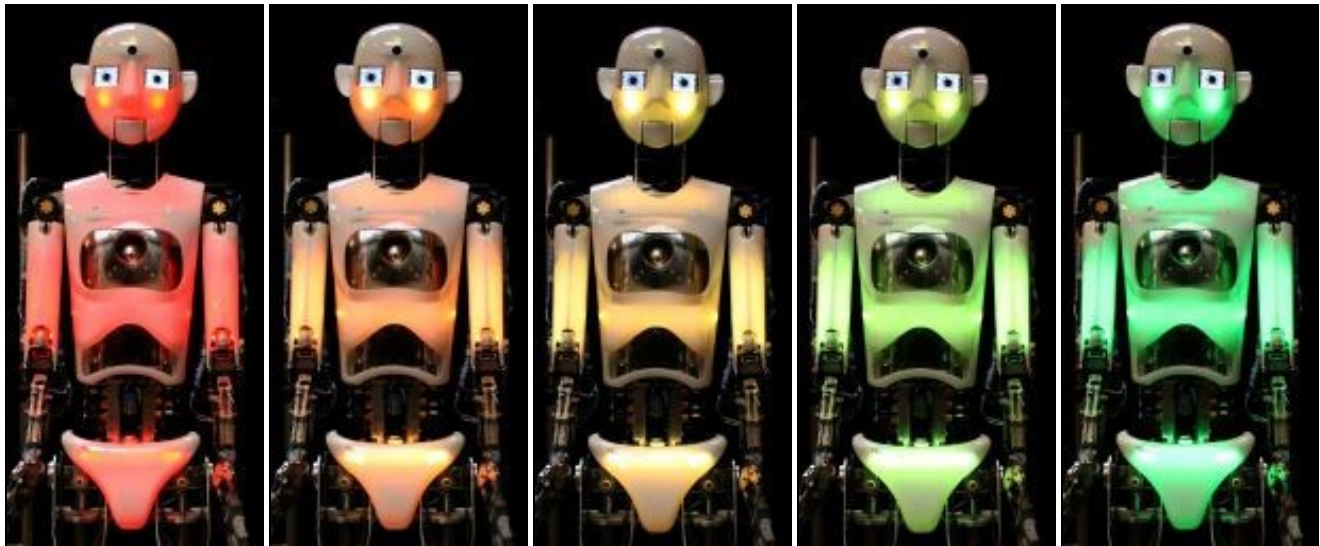
This allows content to be created on the robot directly, by yourself or for fun by your customers and visitors using the [Compose screen of the kiosk](#)

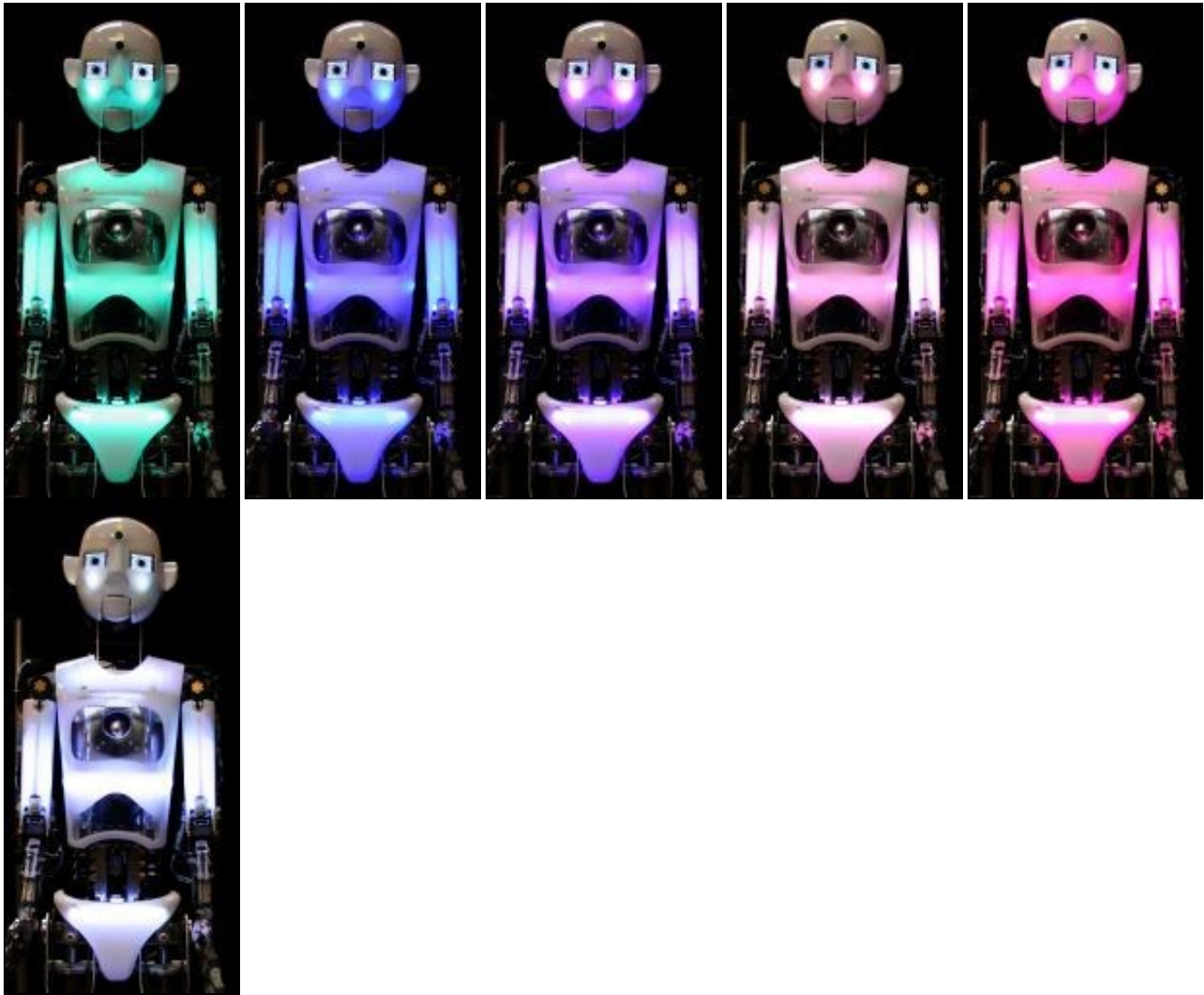
1 English Male voice is included for public use on Compose Screen - additional voices can be ordered if desired.

Note: [Virtual Robot](#) includes free access to a wide range of TTS voices for customers creating robot content online. The text is converted to sound files for transfer to the robot. Customers only need to pay for extra voices that they want made available on the [Compose screen of the kiosk](#)

Body LED lighting[\[edit\]](#)

- RGB LED lighting in 5 zones
- Face, Upper Torso, Lower Torso, Left Arm, Right Arm.
- Each zone independently controllable with 8 bit colour resolution





Minimum venue requirements for installation[edit]

- Suitable for indoor use only. Recommended room temperature: 10°C - 30°C, relative humidity: 45% - 60%
- Standard domestic mains power in the range 100v - 250v AC
- A barrier to prevent contact between visitors and RoboThespian.
- Wired internet network connection with good bandwidth - required for [TinMan Telepresence](#) , [remote administration](#) and support, and the application of updates and new software/content features. See [Network Setup](#)
- Un-oiled, compressed air at 6bar (87psi), filtered to 10µm. Peak air consumption 30L/min (7.9 US gpm) at 6bar (87psi) maximum, on average consumption is much less (Engineered Arts can supply a suitable portable air compressor unit if no fixed supply available)

Compressed air[edit]

For customers that do not have a fixed supply of compressed air, we recommend the following portable air compressors for use with RoboThespian. These can be supplied by Engineered Arts with your robot.

Jun-Air Model OF302-25B Portable Air Compressor

- Suitable for installations where the compressor can be located in a separate room to the robot due to noise level.
- Noise level is 65-66 dB(A) ? comparable to a hairdryer.
- Technical Spec: http://www.jun-air.com/product_detail.aspx?ProductID=572&ProductTypeID=49

Jun-Air Model OF302-25M Portable Air Compressor

- Compressor is contained in an acoustic housing to reduce noise level.
- Noise level 47-48 dB(A) ? quiet enough to be located very close to robot without causing distraction.
- Technical Spec: http://www.jun-air.com/product_detail.aspx?ProductID=574&ProductTypeID=49

Always check and familiarise yourself with the operating instructions for the compressor.

Technical Support Framework[edit]

Technical Support Framework

Fully documented online wiki for customers with image based instructions on installation, operation and maintenance procedures.

Robot equipped with onboard self diagnostic tools to quickly pinpoint any issues.

Mechanical design continually improved with each iteration to eliminate recurring problems and simplify the maintenance process.

A basic kit of spare parts shipped with each robot

Technical Support Framework

Our engineers can login remotely (you need to provide a wired network connection) to carry out diagnostic checks and fix software issues.

Most spare parts are held in stock and can often be shipped same day by express courier.

One year parts warranty as standard (option to extend available)

Please also see the Engineered Arts [Support Policy](#)

Export Information[[edit](#)]

RoboThespian?[[edit](#)]

- Binding HS Tariff Code: 9023.00.0000
- Country of origin: United Kingdom.

Jun-Air Portable Air Compressor (optional)[[edit](#)]

- HS Tariff Code: 8414 80 2200
- Country of origin: USA

Certification[[edit](#)]

RoboThespian? is CE certified.

Maintenance[[edit](#)]

Regular maintenance will help extend the life of your RoboThespian.

Maintenance requirements are minimal, please see [RoboThespian Maintenance](#)

Technical Specification[[edit](#)]

For dimensions, weight, mechanical and electrical features, and power consumption please refer to [RoboThespian Technical Spec](#)

Shipping[[edit](#)]

RoboThespian is supplied in sturdy cardboard boxes, securely strapped to a pallet.

Optionally the robot can be supplied in flight cases, ideal if you plan to be transporting the robot between locations

Boxes[[edit](#)]



RoboThespian card boxes as shipped on pallet



RoboThespian Torso and Legs boxes opened

Typical dimensions and weight: RoboThespian and Kiosk, no compressor

- L120 x W100 x H106cm
- 80kgs

Typical dimensions and weight: RoboThespian and Kiosk including small compressor used for rentals

- L120 x W100 x H135cm
- 124kgs

Flightcases[\[edit\]](#)

Optional extra - the flightcases are designed to stack, with quick release castors supplied for the bottom case. Recommended for travelling exhibitions.



RoboThespian Torso Legs and Kiosk flightcases



Legs flight case open



Flight cases stacked



Torso flight case open

Typical dimensions and weight: RoboThespian and kiosk in 3 flight cases strapped to pallet

- L120 x W107 x H90cm
- 162kgs

2nd pallet with OF302-25M Air Compressor in wooden crate strapped to pallet

- L75 x W57 x H113cm
- 104kgs