

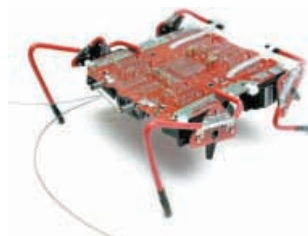
# **ROBOTS**

## **SPECIAL SUPPLEMENT**

**An Android's eye view of what's  
what and where and available  
to the Hobbyist Constructor**

**With a closer look at products  
from various suppliers**

**Plus internet contact details for  
many other robotics suppliers  
around the globe**



# JAYCAR – A SOURCE FOR ROBOTICS PERIPHERALS (AND OTHER PRODUCTS)



## YG-2730

### Low Cost Motor & Gearbox Set £5.20

This set comes with a 3VDC 12,000r.p.m. motor and a set of plastic gears that enable various ratios to be assembled. Output speeds vary depending on the gears selected.

Approx. output speeds  
3,000/750/187/46/12/9r.p.m.  
Shaft diameter 0.12in.



## YG-2734

### High Torque 12VDC Reversible Geared Motor £5.50

This powerful 12V motor features a hardened steel shaft and sintered bronze bearings for a long service life and will deliver plenty of torque. Great for driving wheels or other traction devices.

Torque	10-4lb/in.
Gearing ratio	244:1
Approximate length	2in.
Current at full load	1380mA
Output shaft speed	36r.p.m.
Output shaft dia.	0.16in.

Other models are also available that will deliver up to 43.3lb/in.



## YG-2796

### Robot Wheel Kit £27.50

Designed to simplify mechanical assembly and provide an easy solution for skid-steering systems.

Torque	3.2lb/in.
Wheel dia.	2.5in.
Gear ratio	30:1
No load speed	200r.p.m.
Operating voltage	4-5VDC to 12VDC

## YG-2783

### Spider Coupler Set £1.80

Allows connection of a motor and a shaft that may be slightly misaligned or short. Also provides torsional shock absorption.

Accepts a 1/4in. shaft  
1.2in. overall length



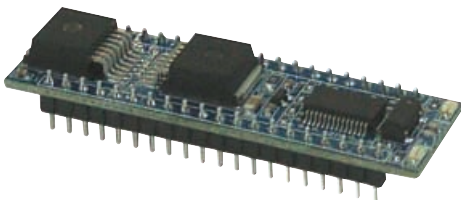
## YM-2776

### High Power 12VDC Motor £5.50

This un-geared motor has a hardened shaft, sintered bronze bearings and direct drive output.

Torque	0.37lb/in.
Approximate length	3.5in.
Current at full load	4.7A
Output shaft speed	9,800r.p.m.
Output shaft diameter	0.12in.

Other models are available that operate on voltages of 6V or 12VDC



## YG-2792

### Motor Mind DC Motor Controller £30.25

This module is ideal for small robotic applications and will control 2 x 10-24VDC brushless motors. The motor outputs can be paralleled to control a single, larger motor if desired. 4 amps max continuous current  
Over current and over temperature protected

## BT-1363

### Book – Combat Robots Complete

£16.00

Covers subjects such as electronics and wiring, R/F remote control, wheels, batteries, chassis, armour, weapons, and much more. Includes a CD with three robot plans.

Other titles include:

## BT-1370

### Robotics, Mechatronics and Artificial Intelligence £35.20

## BT-1365

### Robot Builder's Sourcebook £39.97

## BT-1367

### PIC Robotics – A Beginner's Guide to Robots £39.97





#### YG-2780

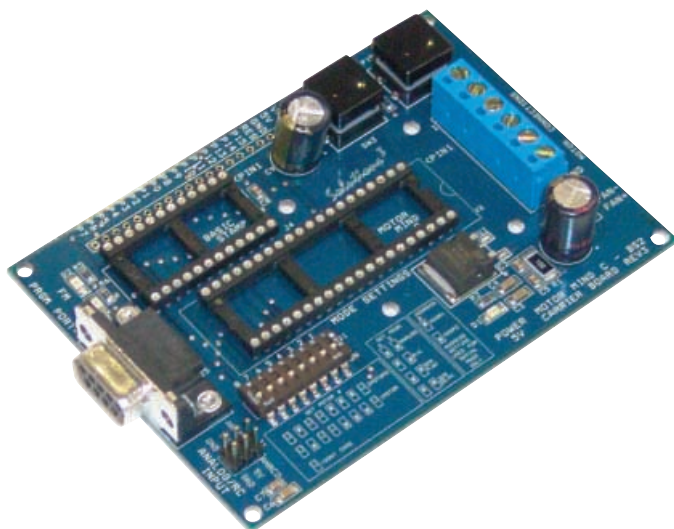
##### 12 Piece Gear Set (48 Pitch) £22.00

A versatile range of 12 gears ranging from 10 to 100 teeth. The set enables a vast range of ratios to be assembled and are made from industrial quality nylon. They do not require lubrication.

#### YG-2786

##### 14 Piece Sprocket set £16.50

Made from industrial grade nylon, these sprockets are ideal for driving parallel shafts that are too far apart to be gear driven. size range from 8 to 48 teeth. Max chain load 2.4lb.



#### YG-2794

##### Carrier Board for Motor Mind and BASIC Stamp Controller £33.00

With the Motor Mind C carrier board your development shifts into overdrive as all connections are accounted for, a programming port for the BS2 is in place and all I/O pins are brought out to wiring points. Screw terminals for motor connection 7VDC to 30VDC

## JAYCAR ELECTRONICS

Log on to

[www.jaycarelectronics.co.uk/catalogue](http://www.jaycarelectronics.co.uk/catalogue)  
for your FREE catalogue!

TOLL FREE ORDERING 0800 032 7241

100 Silverwater Road, Silverwater, NSW 2128,  
Sydney, Australia

## WCN SUPPLIES

Specialists in bargain value  
offers

A selection of stepper motors  
currently on special offer at  
£1 each

The Old Grain Store  
Rear of 62 Rumbridge Street  
Totton, Southampton SO40 9DS  
Telephone or Fax on: Southampton 023 8066 0700  
Email: [info@wcnsupplies.fsnet.co.uk](mailto:info@wcnsupplies.fsnet.co.uk)  
[www.wcnsupplies.com](http://www.wcnsupplies.com)





# MILFORD INSTRUMENTS

## SPECIALISING IN ROBOTIC BASES



### BigFoot £76.38

BigFoot is a low cost walking biped model using only two servos and the Stamp1 derivative controller. The control board is supplied pre-assembled and tested and all the body parts are precision cut for simple mechanical assembly. BigFoot is supplied with a standard programme that may be modified by the user using the Parallax editor software.



### Alex-Animated Head £123.38

A simple but highly effective introduction to animatronics. The Alex head uses four servos and a pre-built control board with sound recording/playback facilities to generate unnervingly realistic head-like actions. No computer is required as the sequence is recorded action by action in real time from the controller board.

### Boe-Bot £217.38

A very popular roving robot using the Stamp2. Used extensively in education and well supported in terms of user code and add-on sensors and accessories. Incorporates a breadboard area for user experimentation.



### Toddler £276.13

Toddler is a Stamp2 biped based on the original BigFoot design. The body parts are from aluminium for durability and the kit comes complete with extensive documentation and code samples.



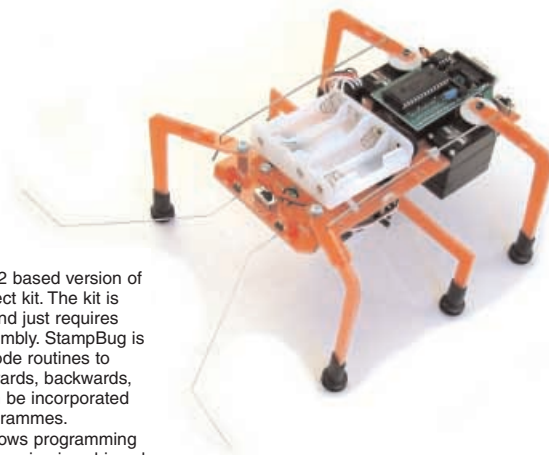
### Tec-Arm – Robotic Arm £299.63

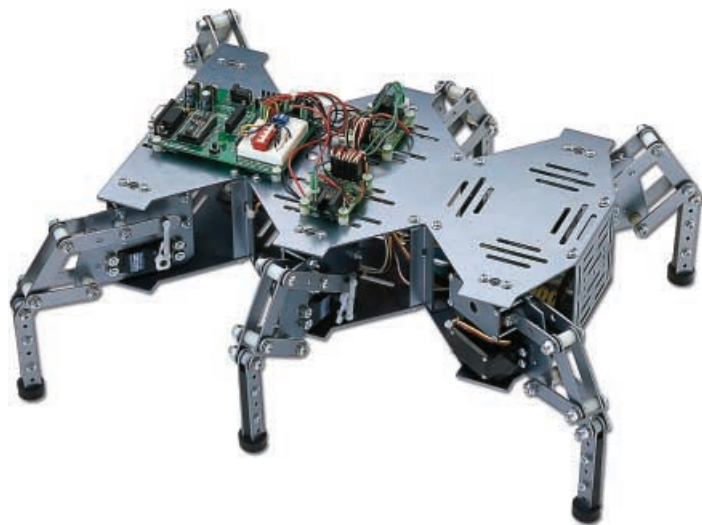
Tec-Arm uses powerful RC servos to provide 6 degrees of rotation in this robotic arm. The Tec-Arm runs under Windows with the supplied software and allows movements to be controlled and recorded in real time. The arm components are pre-cut for ease of assembly and the control board is supplied assembled and tested. The maximum working reach of the arm is approximately 250mm.



### StampBug2 £111.63

This is the latest Stamp2 based version of the popular walking insect kit. The kit is supplied pre-soldered and just requires simple mechanical assembly. StampBug is provided with sample code routines to make the Bug walk forwards, backwards, stop and turn which can be incorporated into the user's own programmes. StampBug uses a Windows programming environment and programming is achieved using a standard serial port or from a USB port with suitable adaptor.





#### HexCrawler £706.18

Stamp2 based walking robot for serious walking studies. Sturdy aluminium chassis and two servos per leg for complex walking patterns. Extensive documentation and code samples.

### MILFORD INSTRUMENTS LTD

Tel: 01977 683665 Fax 01977 681465

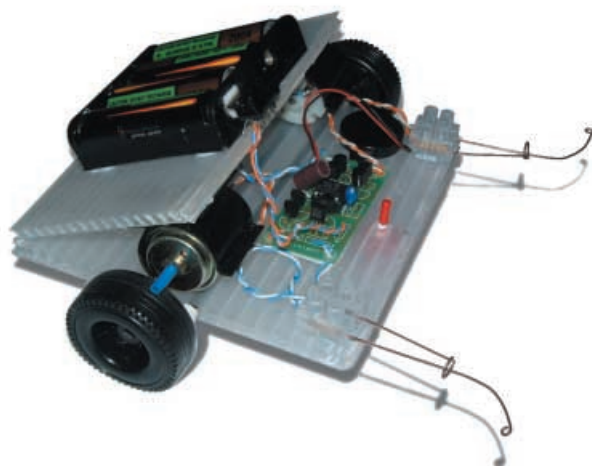
Sales@milinst.com

www.milinst.com

Prices include shipping and VAT

## TWO EPE ROBOTS

ADDING CYBERNETIC FUN TO YOUR  
HOBBYIST ELECTRONICS ACHIEVEMENTS!



### BRAINIBOT BUGGY

An easy-build design with a mind of its own!

By Mark Stuart and Peter Balch

Published in *EPE* February '03

Kit available from Magenta Electronics,  
price £16.99.

Tel: 01283 565435 Fax 546932

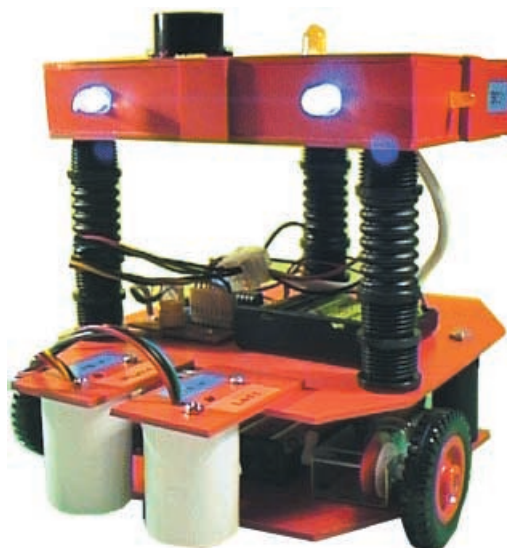
sales@magenta2000.co.uk

www.magenta2000.co.uk

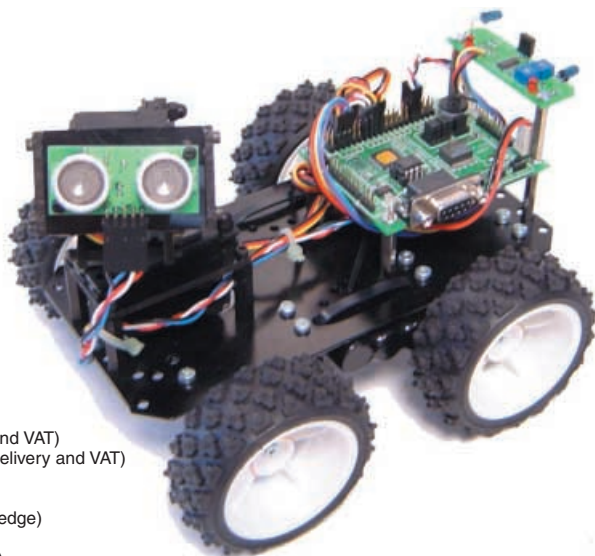
### SMART KART

By Owen Bishop

Educational and programmable mobile  
robot with "bells and whistles" and more!  
Series commencing in *EPE* October '04



# TOTAL ROBOTS ROBOTICS, CONTROL AND ELECTRONICS TECHNOLOGY SPECIALISTS



## X4e

Kit Price: £259.00 (ex delivery and VAT)  
Assembled Price: £289.00 (ex delivery and VAT)  
Spec (approx.):  
Height: 135mm  
Width: 160mm (wheel to wheel-edge)  
Length: 240mm  
Weight: 815g (with battery pack)  
View more details here:  
[http://www.totalrobots.com/program\\_files/x4e\\_rover.htm](http://www.totalrobots.com/program_files/x4e_rover.htm)



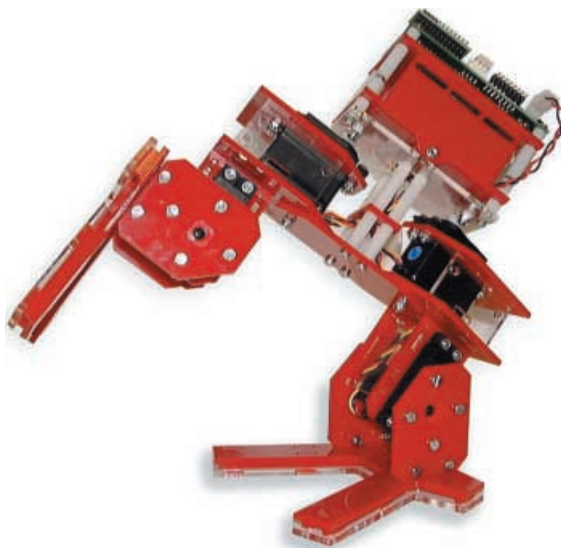
## Lynx 6 Arm

Lynx 6 Arm Combo Kit: £240.00 (ex delivery and VAT)  
Lynx 6 Arm Assembled: £300.00 (ex delivery and VAT)  
Spec:  
No. of axis: 5 + Gripper  
Servo motion control: local closed loop  
Height (arm parked): 140mm  
Height (reaching up): 458mm  
Reach (forward): 368mm  
Gripper opening: 51mm  
Lift weight (arm extended): approx. 85-05g  
Range of motion per axis: 180°  
Accuracy of motion per axis: Servo controller dependant (SSC 0-72°)  
Servo voltage: 6 VDC  
View more details here:  
[http://www.totalrobots.com/program\\_files/robot\\_arm.htm](http://www.totalrobots.com/program_files/robot_arm.htm)



## Sumovore

Single price: £56.00  
Pair Price: £106.00  
(Prices exclude delivery and VAT)  
The Solarbotics Sumovore is a strong, modular design with over 500 man-hours of development and 21 prototypes behind it.  
View more details here:  
<http://www.totalrobots.com/beam.htm#minisumo>



## Sted-E-man

Prices:  
Sted-E-Man Kit (without OOPic-R microcontroller):  
£155.00 (ex delivery and VAT)  
Sted-E-Man Kit (with OOPic-R): £224.00 (ex delivery and VAT)  
Sted-E-Man Kit (24-pin micro version – no micro):  
£185.00 (ex delivery and VAT)  
Spec (approx):  
Height: 230mm; Width: 200mm; Length: 150mm; Weight: 860g  
View more details here:  
[http://www.totalrobots.com/stedeman\\_files/stedeman.htm](http://www.totalrobots.com/stedeman_files/stedeman.htm)



## H2

View video clips here:

[http://www.totalrobots.com/program\\_files/hexapod.htm](http://www.totalrobots.com/program_files/hexapod.htm)

Price: £310.50 (ex delivery and VAT)

Spec:

Servo motion control: local closed loop

Motion speed: more than 12in. per second

Height: 140mm

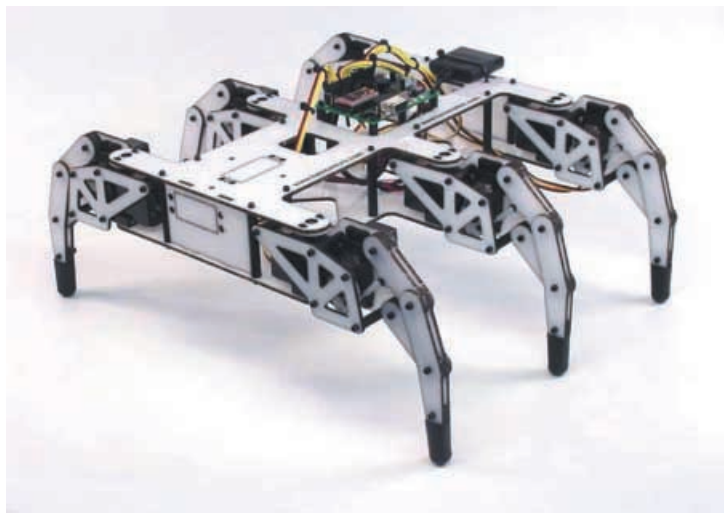
Width: 432mm (leg to leg)

Length: 343mm

Ground clearance: 89mm

Weight (without batteries): 1247.4g

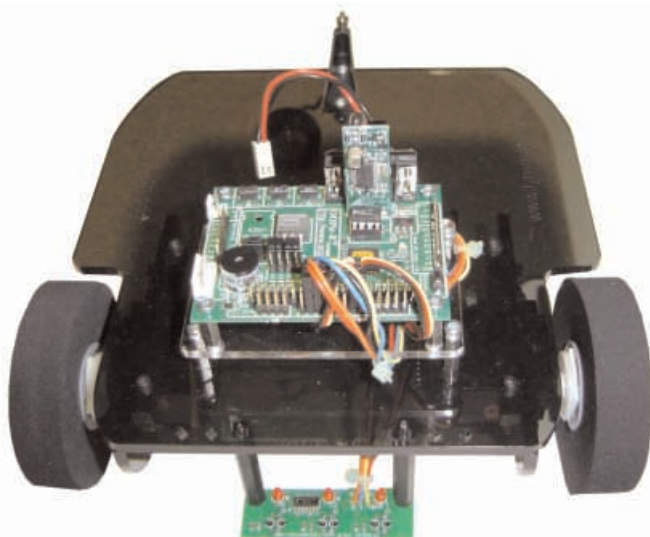
Servo voltage: 6 VDC (Std servos used at 7.2 VDC)



## TR Rover

If you're looking for a programmable mobile robot suitable for a beginner, with the potential to add increasingly sophisticated features, the TR Rover is the product for you. [http://www.totalrobots.com/program\\_files/tr\\_rover.htm](http://www.totalrobots.com/program_files/tr_rover.htm)  
Dimensions (approx.): Height: 125mm, Width: 220mm, Length: 220mm.

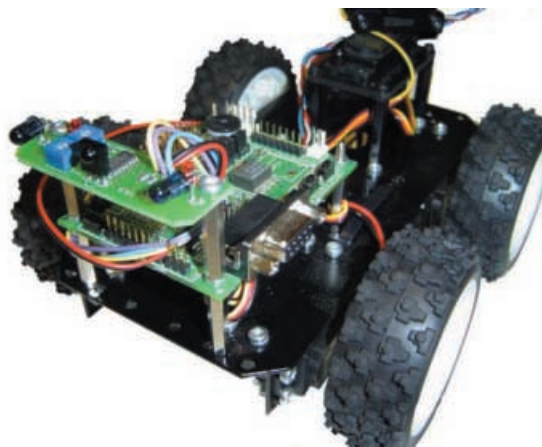
The TR Rover comes with an OOPic-C microcontroller mounted to the Robotics Control Board Version2 (RCBV2). In the image, a Linetracker sensor and Infra Red Control Module have been added, enabling the TR Rover to be controlled by a TV remote control in manual mode, or follow a black on white line in autonomous mode.  
Kit Price: £140.00 (ex delivery and VAT)



## SRF04 Mount

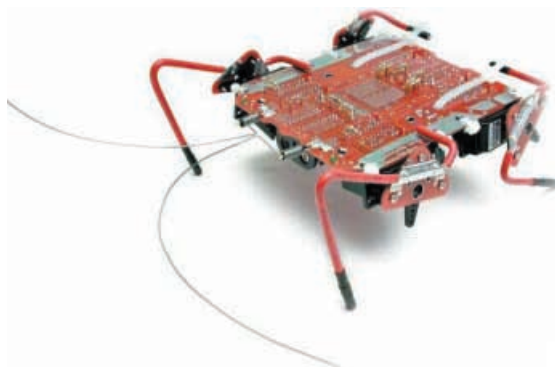
(This is part of the X4e Kit but is also available separately)  
View more details here:

[http://totalrobots.com/access\\_files/sensors.htm#srf04\\_ultra](http://totalrobots.com/access_files/sensors.htm#srf04_ultra)  
The SRF04 Ultrasonic Range Module is a high quality ultrasonic range finder which can easily be connected to the OOPic (or other) microcontroller to measure/detect the presence of obstacles. Price: £14.50  
(Price excludes delivery and VAT)



## IRPD Mount

(This is part of the X4e Kit but is available separately)  
[http://www.totalrobots.com/access\\_files/sensors.htm#irproxdetect](http://www.totalrobots.com/access_files/sensors.htm#irproxdetect)  
When you have perfected the use of snap switches as whiskers on your small mobile robot, then it's time to move up to a no contact method of obstacle detection. The IRPD coupled with a microcontroller is the next step in obstacle detection and avoidance  
Price: £25.00  
(Price excludes delivery and VAT)



## KIT-KSW2001

### The Scoutwalker 2

This kit produces a very capable four motor battery-powered walking robot with forward/backward/left/right capabilities controlled by a pair of tactile sensors – all without a microprocessor!

Kit Price: £80.00

Assembled Price: £230.00

(Prices exclude delivery and VAT)

View more details here:

<http://www.totalrobots.com/beam.htm#scoutwalker2>

# USEFUL ROBOTICS WEB LINKS

Active-Robots. [www.active-robots.com](http://www.active-robots.com)  
Robot kits, controllers and accessories

Android World. [www.androidworld.com](http://www.androidworld.com)  
Site devoted to androids, with links

Arrick Robotics. [www.robotics.com](http://www.robotics.com)  
Masses of robotics information and links

Channel4 Robots.  
[www.channel4.com/science/microsites/R/robots](http://www.channel4.com/science/microsites/R/robots)  
Channel 4 TV's robotics site

Chaoskids. <http://chaoskids.com>  
Photographs and other images of toy robots

Commotion. [www.commotiongroup.com](http://www.commotiongroup.com)  
Motors, gearboxes, wheels, gears, construction materials, etc

Cybermarket. [www.cybermarket.co.uk](http://www.cybermarket.co.uk)  
Robot kits, etc

Dangerous Machines. [www.dmachine.tv](http://www.dmachine.tv)  
Radio control interfaces, mainly for Robot Wars robots, etc

Devantech Ltd. [www.robot-electronics.co.uk](http://www.robot-electronics.co.uk)  
H-bridge drivers, servos, etc

Dr Gavin Miller's Snake Robots. [www.snakerobots.com](http://www.snakerobots.com)  
Descriptions and photos of snake robots, with links

Fischertechnik. [www.sciencekits.com](http://www.sciencekits.com)  
Construction kits, motors, sensors, controllers, etc

GoRobotics. [www.gorobotics.net](http://www.gorobotics.net)  
Robot links and more

Greenweld. [www.greenweld.co.uk](http://www.greenweld.co.uk)  
Robot components, motors, gears, caterpillar tracks, pneumatics, etc

GT Electronics. [www.gt-electronics.freemove.co.uk](http://www.gt-electronics.freemove.co.uk)  
Motor speed and servo controllers, etc

Hitec. [www.hitecrd.com](http://www.hitecrd.com)  
RC systems, servos, etc

Instruments Direct. [www.instrumentsdirect.co.uk](http://www.instrumentsdirect.co.uk)  
Importers and distributors of robot kits, etc

Jaycar Electronics. [www.jaycarelectronics.co.uk](http://www.jaycarelectronics.co.uk)  
Motors, gear boxes, gears etc

Lego. <http://shop.lego.com>  
The renowned construction system site

LeToy. [www.letoy.co.uk](http://www.letoy.co.uk)  
Robot kits, science and educational toys, etc

Lynxmotion. [www.lynxmotion.com](http://www.lynxmotion.com)  
Robot kits, components and boards, etc

Magenta Electronics Ltd. [www.magenta2000.co.uk](http://www.magenta2000.co.uk)  
Robot kits, motors, components, etc

Mark III Robot Store. [www.junun.org](http://www.junun.org)  
Autonomous robot components, sensors, wheels, motors, drivers, servos, etc

Mekatronix. [www.mekatronics.com](http://www.mekatronics.com)  
Autonomous mobile robots and robot kits

Mike's Models. [www.mikes-models.co.uk](http://www.mikes-models.co.uk)  
RC systems, servos, components

Milford Instruments. [www.milinst.com](http://www.milinst.com)  
Robot arms, animated heads, biped and six-legged walkers, motor driver boards, ultrasonic modules, etc

Mobile Robotics Research Group.  
[www.dai.ed.ac.uk/groups/mrg/MRG.html](http://www.dai.ed.ac.uk/groups/mrg/MRG.html)  
A group of people who share a broad approach to AI and robotics

Mondo-tronics Robot Store. [www.robotstore.com](http://www.robotstore.com)  
Robot kits, circuits, motors, RC models, accessories, etc

Parallax Inc. [www.parallax.com](http://www.parallax.com)  
Robot kits, components, servos, etc

Real Robots. [www.realrobots.co.uk](http://www.realrobots.co.uk)  
Roboteers club, magazine, links, shop

Retrofire Rockets and Robots. [www.retrofire.com](http://www.retrofire.com)  
An interesting browsing site, with links

Ripmax Plc. [www.ripmax.com](http://www.ripmax.com)  
UK wholesale importers and distributors of RC models and systems, etc

Robot Store. [www.robotstore.com](http://www.robotstore.com)  
Robot kits, parts and ideas

Robotic Research Group. [www.robots.ox.ac.uk](http://www.robots.ox.ac.uk)  
A group of like-minded engineers working in robotics research and AI

Rumble Robots UK. <http://rumblorobots.fateback.com/home.htm>  
"The ultimate Rumble Robots Fansite!"

Squires Model & Craft Tools. [www.squirestools.com](http://www.squirestools.com)  
Motors, gears, pulleys, materials, tools, etc

SuperDroid Robots. [www.superdroidrobots.com](http://www.superdroidrobots.com)  
Autonomous robot projects, sensors, etc

Team Delta. [www.teamdelta.com](http://www.teamdelta.com)  
Motors, RC interfaces, controllers, bearings, etc, mainly for combat robots

Teaching Resources. [www.mutr.co.uk](http://www.mutr.co.uk)  
Motors, components, pneumatics, books, etc

Technobots Ltd. [www.technobots.co.uk](http://www.technobots.co.uk)  
Motors, speed controllers, RC systems, etc

Total Robots Ltd. [www.totalrobots.com](http://www.totalrobots.com)  
Robot kits, components, etc

Victorian Robots. [www.bigredhair.com/robots](http://www.bigredhair.com/robots)  
Images and information on Victorian-era robots

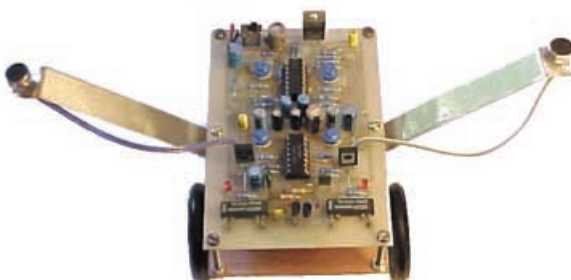
W.Hobby Ltd. [www.hobby.uk.com](http://www.hobby.uk.com)  
Kits, tools, materials, books, etc

WCN Supplies. [www.wcnsupplies.com](http://www.wcnsupplies.com)  
Stepper motors, components

4QD. [www.4qd.co.uk](http://www.4qd.co.uk)  
Speed controllers, joystick interfaces, RC interfaces, motors, etc

## BIG-EARS BUGGY

Published in *EPE* August '02  
By Thomas Scarborough



A mobile "pet" that follows your voice!