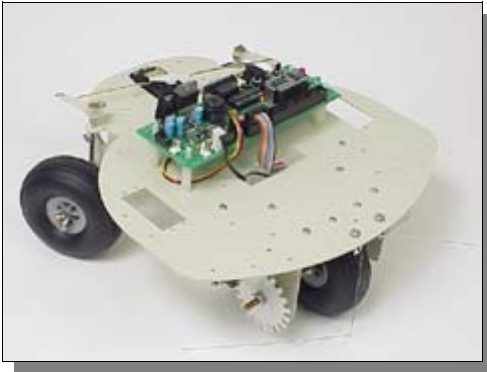


AROBOT **Mobile Robot**

For Experimenters and Educators



ARobot (pronounced "A robot") is a computer controlled mobile robot designed for Experimenters and Educators. Ages 14 and up (younger with help) can enjoy unlimited experimentation by programming the on-board Basic Stamp II control computer.

Learn about computer programming, motion control, sensors, path planning, object avoidance, and more. Easily assembled in a few hours using common hand tools (no soldering required). Connect ARobot to your personal computer for programming and begin your adventure.

You won't find a more powerful, expandable robot for the money!

Features

The most feature-packed robot in its class!

- Rugged aluminum frame (no plastic or wood)
- Dual front whisker sensors
- Rear wheel steering servo motor
- Front wheel industrial DC gear drive motor
- Real optical wheel encoder
- On-board coprocessor handles all motor control
- Controllable red and green LED's
- Sound output transducer
- Two user defined push button switches
- 3 User-defined RC servo control ports
- Serial communications port
- Expansion connector
- Socket to accept a Basic Stamp II controller chip
- Dimensions: 10" x 10", 5" tall, 2-1/4 lbs.
- Runs on 8 AA-cell batteries for 5 hours or more

Uses

Don't let yourself be limited by a list like this!

- Robotics education
- Artificial life experiments
- Science projects
- Navigation research
- Maze solving
- Security
- Robot contests
- Publicity
- Fun! Fun! Fun!

ARobot's Programmable Brain – The Basic Stamp II

The Basic Stamp II is a small, self-contained computer chip made by Parallax Inc. This easy-to-use chip is programmed using a Basic-like language called PBasic. Programs are written on your PC then downloaded to the robot for execution. Large libraries of programs can be created, saved and downloaded as needed.

ARobot's controller board accepts the Stamp (sold separately) and allows it to control the motors, LED's, sound, and other devices on the robot. Other Stamp-compatible chips can be used which offer more speed, memory and features.



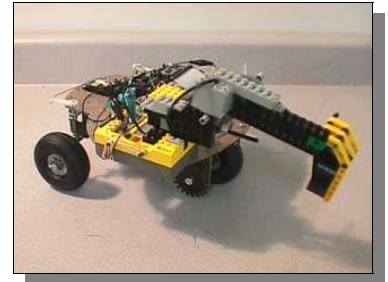
WWW.ROBOTICS.COM

AROBOT Mobile Robot

What You Get

Add a Basic Stamp and batteries and you're in business!

- Quality aluminum robot body and frame components
- Controller circuit board - completely assembled
- Programming tools and example programs
- Wheels, drive motors, steering motors, encoder, cables
- Construction and user guide
- Technical support via web site and email



What You Need

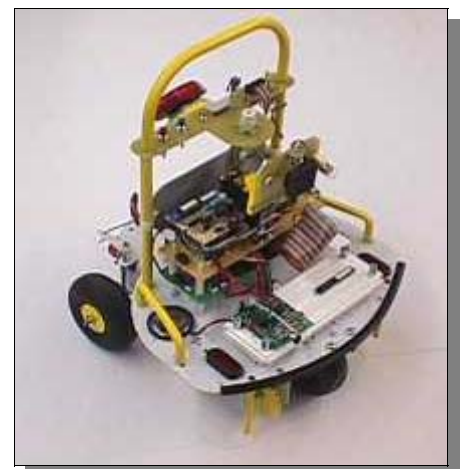
ARobot can be built and programmed in less than 3 hours – longer for fancy paint jobs!

- Common hand-tools - screwdriver and pliers
- Your choice of spray paint (if desired)
- Personal computer running Windows and a serial port
- Common understanding of computer usage
- Moderate understanding of Basic programming or a willingness to learn
- 8 AA batteries. (over 5 hours of continuous run time)
- Basic Stamp II programming information -available free on the net, or purchase the book
- Internet connection for getting the latest information
- A never-ending desire to experiment and play with robots!

Technical Specifications

The details you've been looking for....

- Frame: .062 aluminum - cut, punched, and formed
- Configuration: 3-wheel, front wheel drive, rear wheel steering
- Dimensions: 10" x 10", 5" tall, 2-1/4 lbs.
- Payload capacity: 3 lbs.
- Wheel size: 3.25" diameter
- Drive Motor: 12 volt DC gear motor, 74 RPM, 1.6 amp max.
- Quality machined wheel coupling and bearings
- Optical wheel encoder for distance measurement
- Optical Encoder: 2 counts per inch of travel
- Motor driver: H bridge - 1 amp max
- Speed control: Pulse Width Modulation
- Controller PCB size: 2.1" x 6"
- Steering Motor: Standard size RC servo motor
- Power source: 8-AA cells in removable pack
- Longevity: 5 hours or more on fresh batteries
- Current draw: 50ma at standstill, 200ma with motor running
- Coprocessor: PIC16F84 for motor, servo control
- Expansion connector - 40 pin (2x20) IDC .1 centers



AROBOT Mobile Robot

Expansion

ARobot can be expanded beyond belief!

ARobot's controller board has the ability to control 3 additional RC (Remote Control) servo motors which are commonly available at hobby stores for less than \$20 each. These motors can be used to create a small robot arm or a moving head. The body contains openings to mount 2 of these RC servo motors.

The controller board also provides a connector to power a small DC motor like the one used as the drive motor. This connector can also be used to control other high-power devices such as a light or horn.

An expansion connector is provided to allow the user to add many special devices. Access to all of the Basic Stamp's I/O signals is provided and unused pins can be wired as needed.

Additional circuit boards can be stacked on top of ARobot's main controller board. Mounting holes and dimensions are the same as the prototype boards (RS Catalog #276-170) and breadboards (RS Catalog #276-174) found at Radio Shack. This makes expansion easier and cheaper.

See our project page for ideas such as using a sonar range finder and interfacing to a smoke alarm.

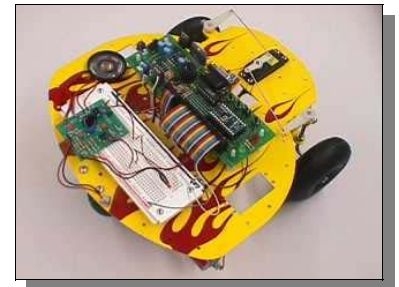
Endless possibilities prevent boredom!

The expansion port offers:

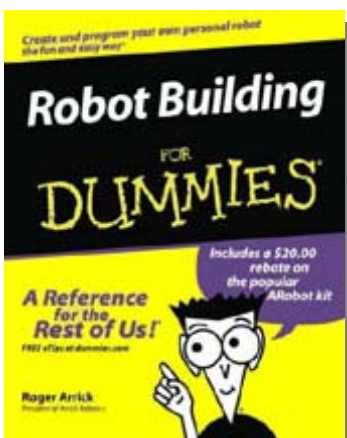
- All Basic Stamp I/O signals
- Coprocessor network signal
- 3 standard RC servo motor signals
- Access to coprocessor network bus
- User defined signals
- Standard 40 pin flat ribbon cable
- Other signals can be wired by user

Possible devices include:

- Additional whiskers
- Sonar range finder
- Smoke detector
- Light sensors
- Digital compass
- Tilt sensors
- IR communications



Robot Building for Dummies



Add Video, Speech, and Sensors to your ARobot!

For the tinkerer in all of us - **Robot Building for Dummies** gives you a solid understanding of robotics with a decidedly hands-on method. The book takes you through building ARobot then expanding it by adding speech, video, motion sensor, temperature sensor, and remote control.

AROBOT Mobile Robot

Basic Stamp Programming Book



Learn how to program the Basic Stamp II

Learn all about programming the Basic Stamp II controller using the PBasic Language. Easy to read and understand with plenty of examples and experiments. Get this book if you're new to Stamp programming.

Expansion Kit

Components for use with Robot Building for Dummies

This expansion kit provides parts needed to build some of the expansion projects for ARobot described in 'Robot Building for Dummies' including the temperature sensor, light sensor, motion detector, and a movable head.

List of Parts included:

- 1) Expansion cable & Connector
- 1) Head perf board
- 1) RC servo motor for head
- 1) PIR motion sensor
- 1) Expansion perf board
- 1) Light sensor
- 1) Temperature sensor
- 2) Capacitor, .1uf
- 2) Resistor, 220 ohm
- 2) Spacers and screws for mounting servo motor
- 4) Spacers for mounting expansion perf board



Projects, Sensors, Programs

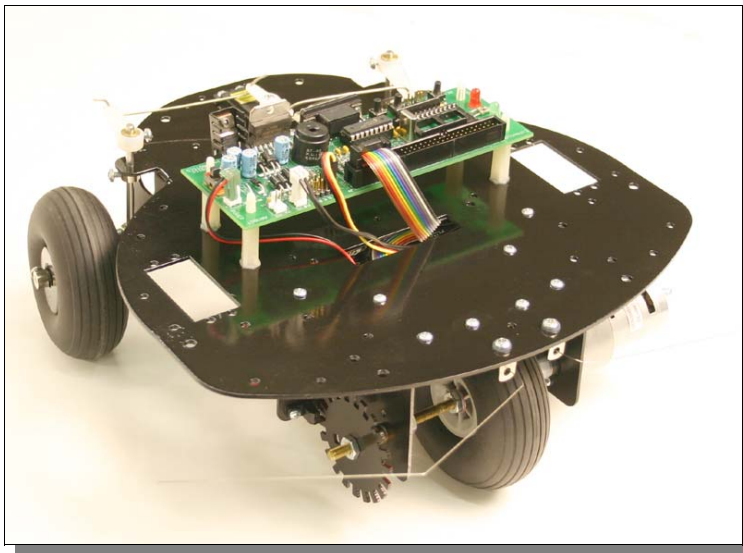
View our [Projects](#) page at [Robotics.com](#) to get details on adding these devices to ARobot

- Digital Compass
- Light Sensor
- Sonar Range Finder
- Speech
- Additional Battery Packs
- Rear Whiskers
- DIRRS - Digital Infra-Red Range-Finding System
- Lego Mindstorm Interfacing
- Headlight
- Emergency Stop Button
- Additional Coprocessors
- Custom Paint Jobs

And More!

AROBOT Mobile Robot

Pricing



Part #	Description	Price
AROBOT-P	ARobot, Basic Stamp II, Stamp Programming Book	\$318.00
AROBOT-P1	ARobot, Basic Stamp II, Stamp Programming Book, Dummies Book	\$339.00
AROBOT	ARobot Mobile Robot (No Basic Stamp or books)	\$235.00
BSII	Basic Stamp II Controller	\$49.00
BSIIE	Basic Stamp II Controller (8 times the memory as the BSII)	\$53.00
RBFD	Book - Robot Building For Dummies	\$21.00
BSIIBOOK	Book - Basic Stamp Programming	\$34.00
AROBOT-E	Expansion Kit with Sensors, Parts	\$55.00
998	USB to serial converter (if you don't have a serial port)	\$19.00