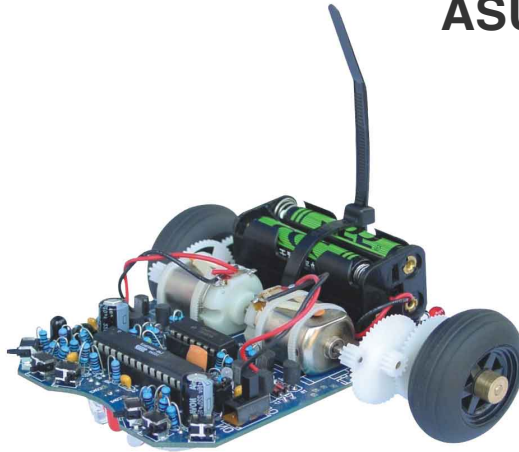# ASURO

ASURO Robot

ASURO Capabilities:

Cruise around wirelessly with PC control via USB transceiver

Follow a black or white line

Detect collisions

Measure and control rotational speed of motors via encoders

Move given distance

Rotate specific angles

Measure driven distance

Move in geometric paths: circles, polygons, and others

Read and transfer data wirelessly to and from PC via USB transceiver

Expandable via expansion pins

With optional

Bluetooth:

Read and transfer data to and from a PC or Android phone via optional Bluetooth

Cruise around via Android phone control

Features:

- ATmega8L, 8-bit AVR-RISC processor
- Fully programmable in C language
- Comes unassembled. Soldering required
- CD with software, training manual, and supporting materials
- Excellent AVR-GCC freeware for use with Windows or Linux
- Unique and safe USB IR transceiver with simple to operate flash software
- Remote control and PC-programming possible via USB transceiver
- Wireless control possible with optional Bluetooth and 433 MHz RF
- Extensions kits available
- 6 collision-detector sensors
- Optical line-tracker unit
- 2 independently controlled 3V-DC motors
- On-board odometer sensor on both wheels
- Preprogrammed firmware for easy hardware testing
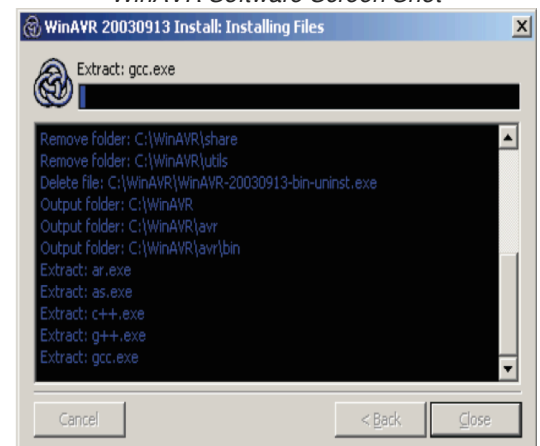- 3 LED indicators

Overview:

The ASURO is a small autonomous multi-sensored robot developed for educational purposes by the DLR, the German Aerospace Center (like NASA).

Highly versatile, the ASURO is completely programmable in C. Assembly is easy for experienced electronic technicians and feasible for a novice.

Except for the printed circuit boards (PCB), only standard parts are utilized and freeware tools can be used for programming. The ASURO comes unassembled and includes a soldering guide making it exceptionally suitable as an introduction into processor-controlled hobby electronics for projects in schools, universities, and technical education. Special tools, which are freeware for private users, have been used for all electronic development phases and software design, proving that robots can be designed without expensive tools or machines.

WinAVR Software Screen Shot

Innovative Training Solutions

Global Specialties®

globalspecialties.com

ASURO

Specifications

ASURO Robot	
Processor memory	8 kb in-system programmable flash
Supply voltage	4 x AAA batteries (Not Included)
Supply current	Min 10mA Max 600mA
Dimension (L x W x H)	117 x 122 x 45 mm
Weight	165 g
Technical data subject to change without notice	

Training & Support Manual on CD

Chapter 1: Mechanics
　　Necessary tools
　　Mechanical preparations

Chapter 2: Electronics
　　Soldering instructions

Chapter 4: Electronic Assembly

Chapter 5: Preparation for Operation

Chapter 6: Trouble Shooting

Chapter 7: Final Adjustments

Chapter 8: Software

Chapter 9: C for ASURO

Appendix:
　　Part List
　　Diagram ASURO
　　USB IR Transceiver
　　Block Diagram ASURO
　　Block Diagram PIC Processor
　　Contents ASURO Kit
　　Electronic part assembly
　　Information about glue
　　Resistor code tool

Global Specialties ®

Innovative Training Solutions　　　　**globalspecialties.com**