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ASURO

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

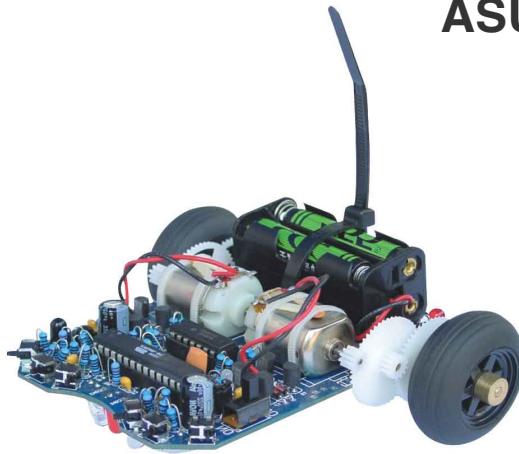
Expandable via expansion pins

With optional

Bluetooth:

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

Cruise around via Android phone control



ASURO Robot

Overview:

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

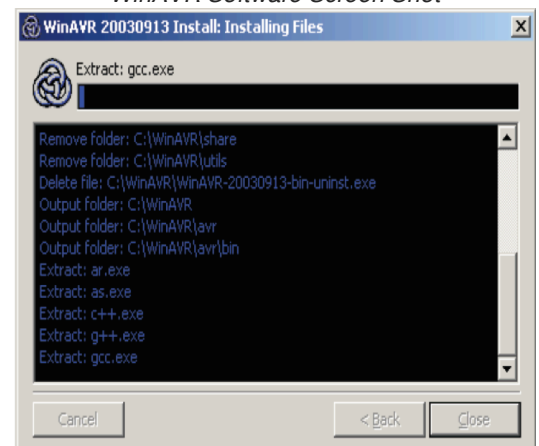
Highly versatile, the ASURO is completely programmable in C. Assembly is easy for experienced electronic technicians and feasible for a novice.

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.

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

WinAVR Software Screen Shot



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

ASURO comes with the following items:

ASURO Vehicle (unassembled)

CD

USB Cable

USB IR Transceiver

Available Accessories

ARX-MSP

ARX-WRL

ARX-BT3

ARX-SNK

ARX-ULT

ARX-DSP

ARX-EXP

ARX-BOOK



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