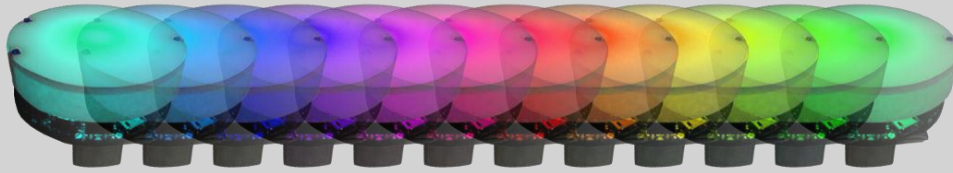


# ELISA-3

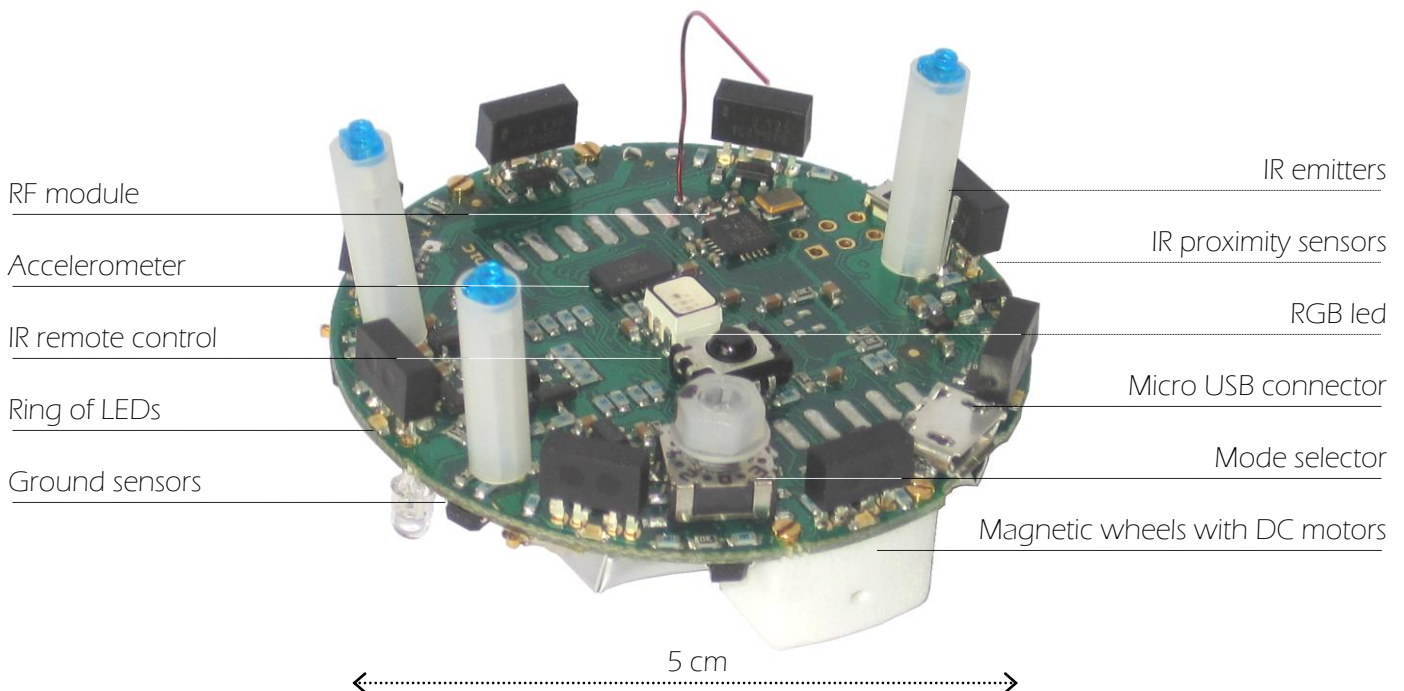
## EDUCATIONAL AND RESEARCH MINI MOBILE ROBOT

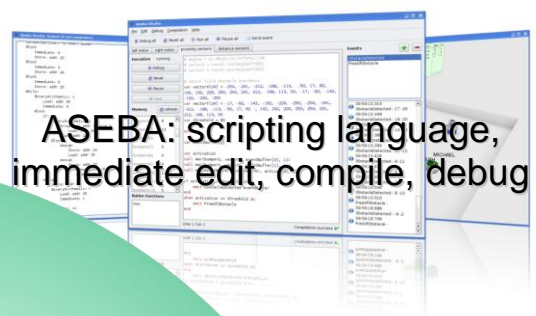


Swiss Made

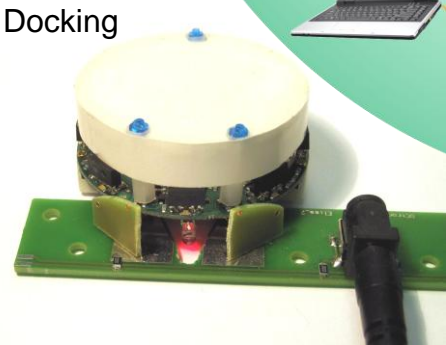
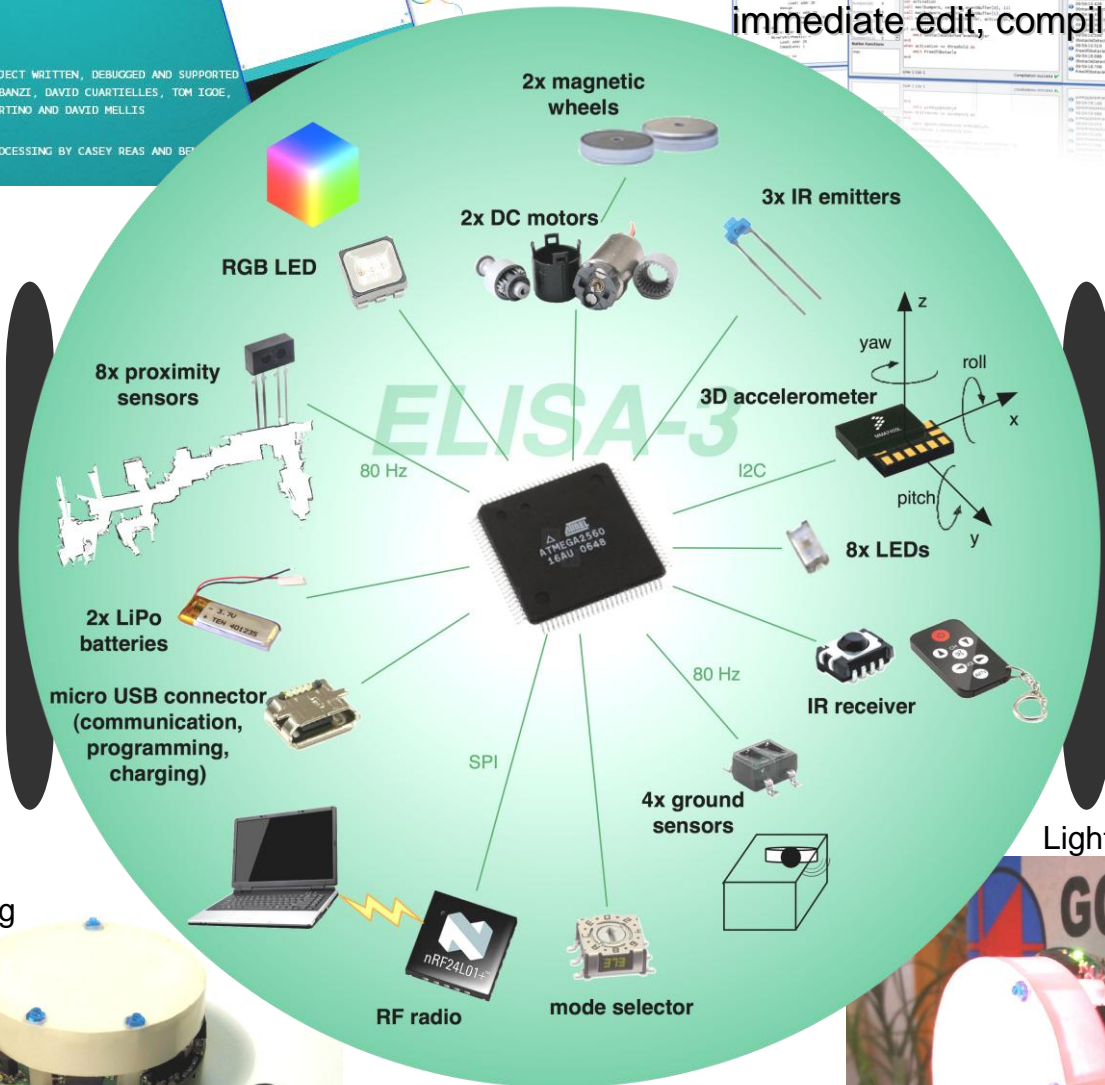
Elisa-3 is the latest mini mobile robot (5 cm of diameter and 3 cm height) designed at GCtronic for research and education, but also suitable for robotic hobbyists due to its low cost. The Elisa-3 robot is inspired by the e-puck robot that is already adopted in many research and educational institutes. The first version “Elisa-1” was successfully used in a multi-robot project developed at the Autonomous Systems Lab, ETH Zurich together with Disney Research Zurich.

Elisa-3 is powered by an Atmel microprocessor compatible with Arduino and features a large number of sensors (IR proximity, accelerometer, ground sensors). Elisa-3 is able to move also vertically thanks to its magnetic wheels and has the possibility to dock and self charge. The RF communication is designed to control in real time up to 100 robots simultaneously and it is suitable for swarm robotics. The Elisa-3 hardware and software is fully open source giving low-level access to every electronic device and offering unlimited extension possibilities. An extensive wiki is available on the GCtronic website ([www.gctronic.com](http://www.gctronic.com)).

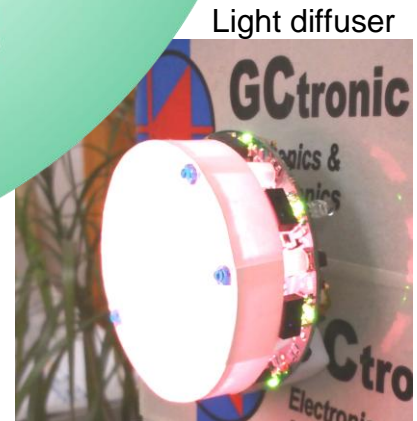




ASEBA: scripting language, immediate edit, compile, debug



Docking



Light diffuser

Vertical motion

Feature	Technical information	Feature	Technical information
<b>Size, weight</b>	50 mm diameter, 30 mm height, 39 g	<b>Mechanical structure</b>	PCB, motors holder, top white plastic to diffuse light
<b>Battery, autonomy</b>	LiPo rechargeable battery (2 x 130 mAh, 3.7 V). About 3 hours autonomy. Recharging time about 1h e 30.	<b>Charging</b>	2 charging contacts for docking or via micro USB from a PC or wallplug
<b>Processor</b>	Atmel ATmega2560 @ 8MHz (~ 8 MIPS); 8 bit microcontroller	<b>Memory</b>	RAM: 8 KB; Flash: 256 KB; EEPROM: 4 KB
<b>Motors</b>	2 DC motors with a 25:1 reduction gear; speed controlled with back-EMF	<b>Magnetic wheels</b>	Adhesion force of about 1 N (100 g) depending on surface material and painting. Wheels diameter = 9 mm. Distance between wheels = 40.8 mm.
<b>Speed</b>	Max: 60 cm/s	<b>Selector</b>	16 position rotating switch and 1 button
<b>IR proximity sensors</b>	8 infra-red sensors measuring ambient light and proximity of objects up to 6 cm; each sensor is 45° away from each other	<b>IR ground sensors</b>	4 ground sensors detecting the end of the viable surface (placed on the front-side of the robot)
<b>LEDs</b>	1 RGB LED in the center of the robot; 8 green LEDs around the robot	<b>IR emitters</b>	3 IR emitters (2 on front-side, 1 on back-side of the robot)
<b>Remote Control</b>	Infra-red receiver for standard remote control commands	<b>Accelerometer</b>	3D accelerometer along the X, Y and Z axis
<b>Wired communication</b>	Standard Serial Port (up to 38kbps) through micro USB cable (USB to serial)	<b>Wireless communication</b>	RF 2.4 GHz; the throughput depends on number of robot: e.g. 250Hz for 4 robots, 10Hz for 100 robots; up to 10 m
<b>Expansion bus</b>	Optional connectors: 2 x UART, I2C, 2 x PWM, battery, ground, analog and digital voltage	<b>Programming</b>	C/C++ programming with AVR-GCC compiler (WinAVR for Windows). Free compiler and IDE (AVR Studio / Arduino)



Cheapest robot for research, education and hobby

**PRICE:**  
 Elisa-3 robot: 325 CHF (~ 270 €),  
 3 x Elisa-3 robots / charger / radio: 1130 CHF