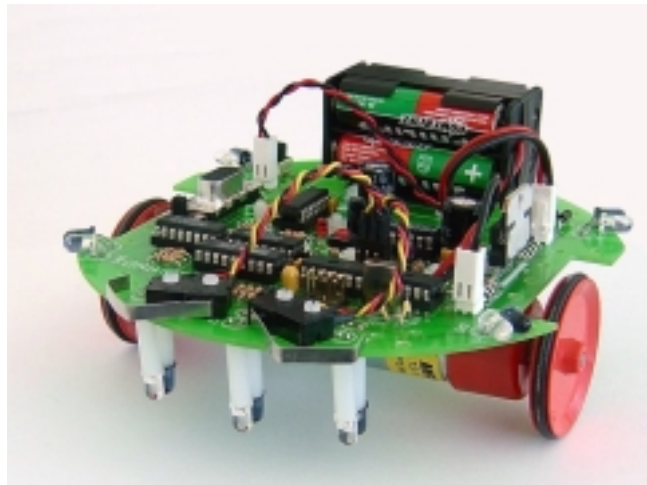




IdMind – Engenharia de Sistemas, Lda.  
<http://www.idmind.pt>

## Circular GT Robot



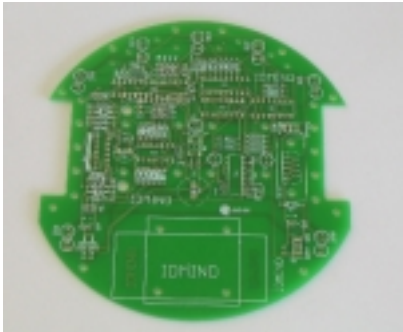
September 2005

## Description:

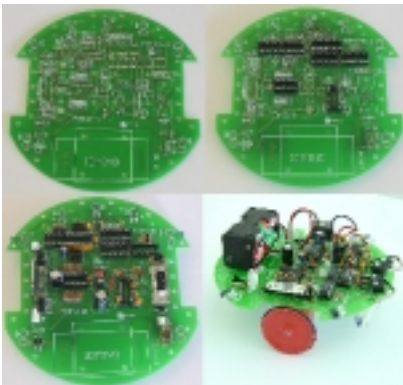
This programmable robot is supported on a circular platform with 15 cm of diameter. Being the principal feature its modularity, it allows the inclusion of different kinds of sensors. It is programmable on a PC using different kinds of languages. A graphical programmable interface is included with the kit.

This robotic kit includes:

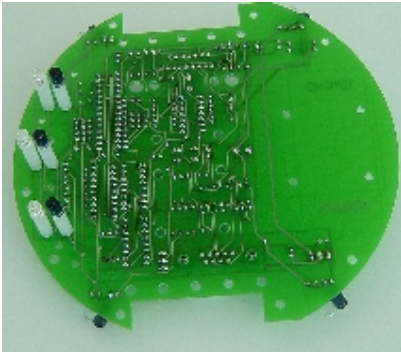
- Printed circuit board of the Circular GT Robot.
  - Microcontroller PIC 16F876A
  - H-bridge for DC motors
  - 7 analogue interface sensors
  - Serial PC interface
  - 3 additional digital interface inputs/outputs
  - 4 additional analogue interface inputs
- 2 DC motors with 15:1 reduction
- 7 infrared sensors (emitter and receiver)
- 2 touch sensors (micro-switches)
- 2 wheels
- 1 4 AA Battery Holder
- 1 Serial cable of 9 pins (RS-232)
- Small electronic components
- Programming Software
- Technical Manual



The kit is composed by a printed circuit board.



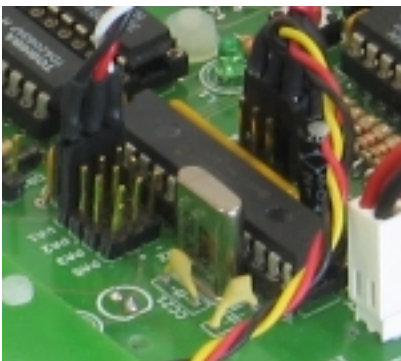
Includes a manual that teaches the basic principals for the construction of a generic robot, soldering process, component description, the kit step-by-step construction, and circuit schematic.



The robot contains 7 infrared sensors (emitter and receiver), to be used to avoid obstacles, wall following or line following.



2 Touch sensors are included to detect obstacle collisions.

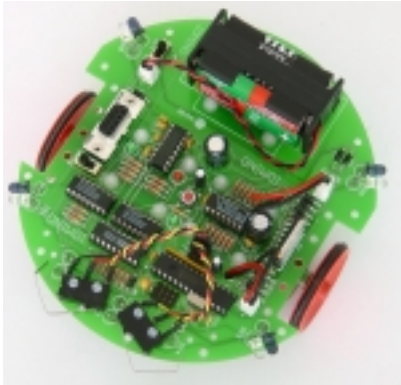


3 additional digital Input/output and 4 analogue inputs are available to allow the connection of new sensors.



The robot programming is made by a RS-232 Serial port. The microcontroller uses a bootloader, pre-programmed by us to manage the flash memory programming. This allows compiling the programs with a PIC microcontroller language and programming the robot without using a PIC programmer.

After assembling the kit the robot will look like this:



The basic version uses: 2 touch sensors; 3 Infrared sensors to detect a line on the floor and 4 infrared sensors to detect obstacles.

The user can include other sensors, being available additional inputs/outputs, and power connections for this purpose.

Based on this kit it is possible to create different kinds of robots. One example is a soccer robot.



This robot uses: 5 infrared sensors to detect a infrared emitter ball, 2 green leds and 2 Light dependable resistors to detect the position of the robot on the field and an analogue compass to determine the orientation of the robot in the field.

### Programming tools

This robot can be programmed by the MPLAB application being programmed with assembly, this software can be freely downloaded from [Microchip](http://www.microchip.com). But for less experience programmer we advise to use the graphical programming software, from IdMind. With this software the user just have to create a flow-chart of the program and download the compiled version to the robot. This software is included with our robotic kits.



For more information about the product don't hesitate to contact us [info@idmind.pt](mailto:info@idmind.pt).