

Webots







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Robótica

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Webots

INSTITUTO SUPERIOR TÉCNICO

Objectivos Pedagógicos

Objectivos Gerais

 No final da acção os formandos deverão estar aptos a trabalhar com o software de simulação "Webots".

Objectivos Especificas



 Os formandos deverão ser capazes de simular um robot futebolista, utilizando o software "Webots" de forma a que este marque golos.

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"Webots – Software de Simulação" **Topics**

- Installation and Configuration
- Graphic Interface
- VRML Tree of the World
- Sensors Controllers
- Actuators Controllers
- Supervisor Controller



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"Webots – Software de Simulação" Installation and Configuration

1. Download the most recent version in: <u>www.cyberbotics.com</u>

- 2. Install "Webots"
- 3. In the resources/ directory of webots/ make a new file named "license.srv". The file must have only a line per server IP:PORT that you are going to connect. The default port is 10024.

Example: 10.0.2.27:10024



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"Webots – Software de Simulação" Installation and Configuration

- 1. The server is installed in floor 8 and in 6.15 lab.
- 2. Open a shell in the server and run launchServer that is in the Webots directory.
- 3. The servers are configured to receive connections from the IP ranges 10.0.*.* or 10.1.*.*, so make sure you have an IP in this range.



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"Webots – Software de Simulação" Graphic Interface - Preferences

Preferences 🔀					
General Rendering Files and paths					
Startup mode:		Run	-		
Basic simulation step:		32	ms		
Refresh d	isplay each	2	basic simulation step		
Run real time:					
<u>ОК</u>					

Preferences	×
General Rendering Files and paths	
Default world: default.wbt	
User path: C:\Program Files\Webots	
OK	

Preferences 🛛 🔀				
General Display av Display se Display lig Vertex siz	Rendering Files and paths xes:			
	OK			



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"Webots – Software de Simulação" VRML Tree of the World

😻 Webots: Scene Tree 📃 🗆 🔀					
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 WorldInfo Viewpoint Background PointLight DEF SOCCER_FIELD Solid DEF BALL Solid DEF B1 DifferentialWheels DEF B2 DifferentialWheels DEF Y1 DifferentialWheels DEF Y2 DifferentialWheels DEF Y3 DifferentialWheels Supervisor 	WorldInfo DEF				
	Close				

ØDifferential Wheels
ØDistance Sensor
ØCamera
ØTouch Sensor
ØGPS
ØGripper
ØJoint
ØLight Sensor
ØServo



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"Webots – Software de Simulação" Sensors Controllers

- The control is made by:
 - "Identified" Ex: robot_get_device
 - "Enable" Ex: distance_sensor_enable
 - "Run" Ex: robot_step
 - "Read" Ex: distance_sensor_get_value



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"Webots – Software de Simulação" Actuators Controllers

- Synchronous and Asynchronous
- The control is made by:
 - "Identified" Ex: robot_get_device
 - "Set" Ex: differential_wheels_set_speed
 - "Run" Ex: robot_run



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"Webots – Software de Simulação" Supervisor Controller

- Can send and receive messages, through the nodes "Receiver" e "Emitter"
- Can move any object in the world
- Knows the coordinates of all objects in the world





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"Webots – Software de Simulação" Questions?





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