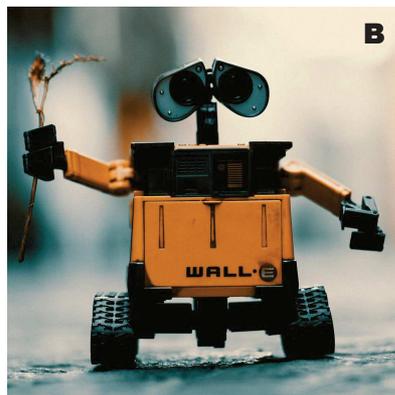




# micro:bit ...a robotika!



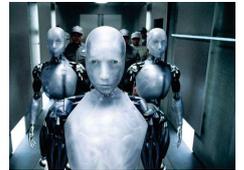
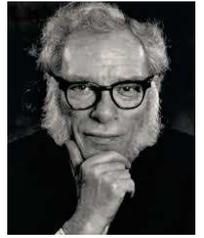


**Karel Čapek**



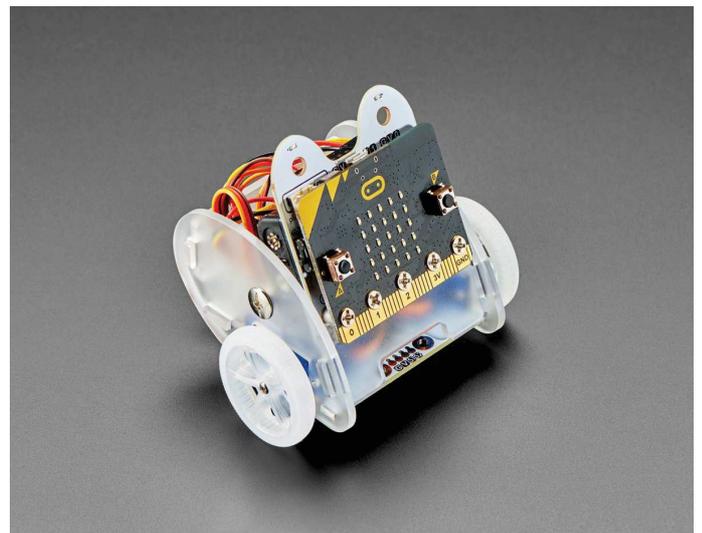
Slovo ROBOT – R.U.R

**Isaac Asimov**

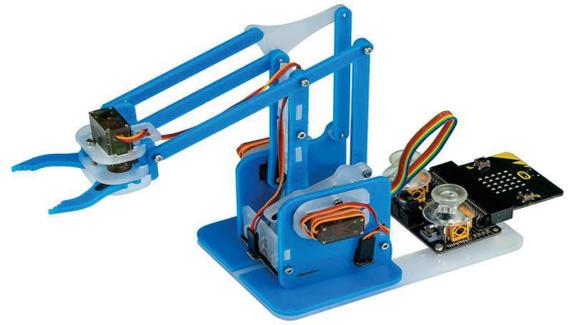


Tri zákony robotiky

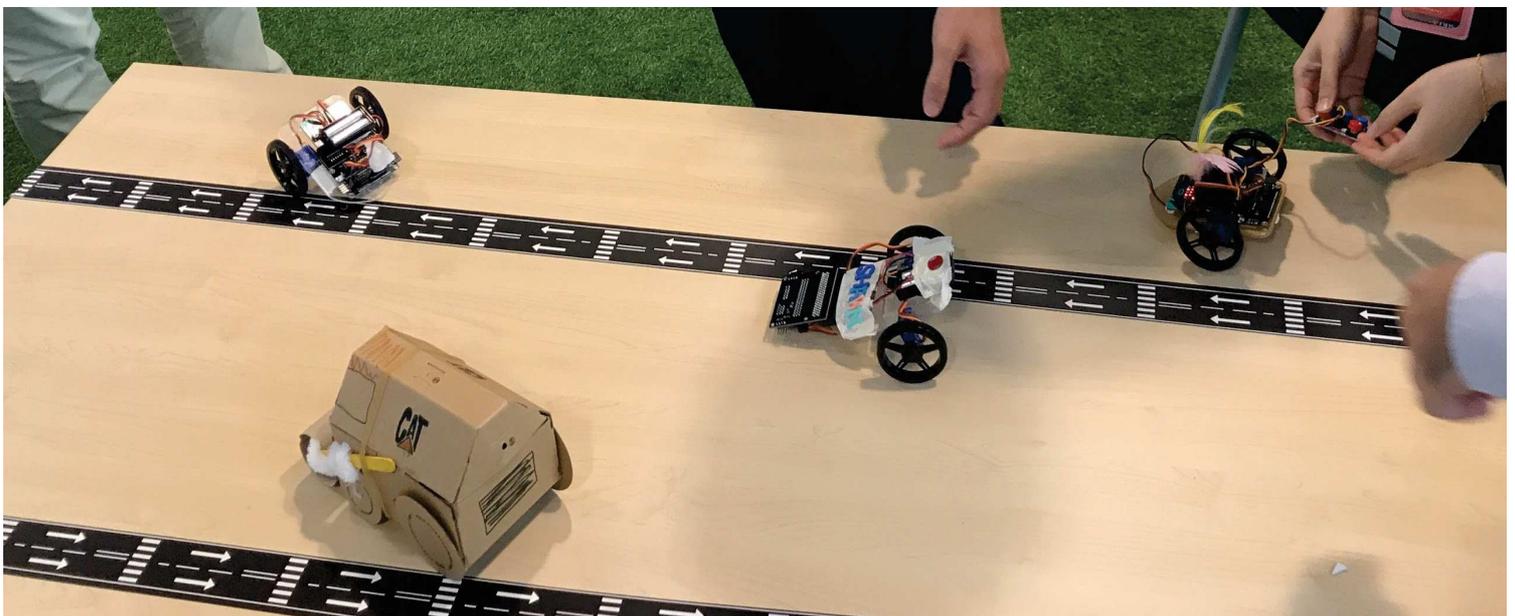
## Robotics with micro:bit? Sure...



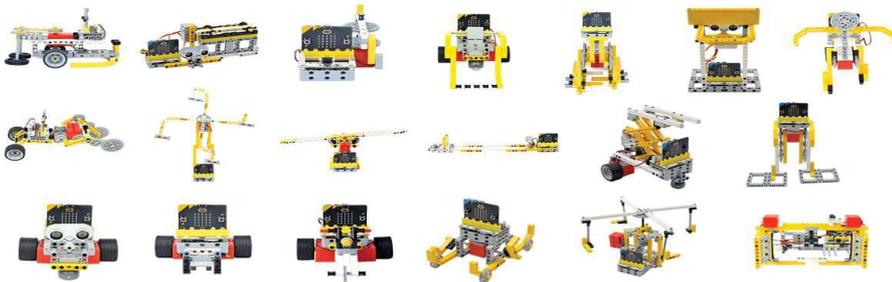
## Modified existing robot kits



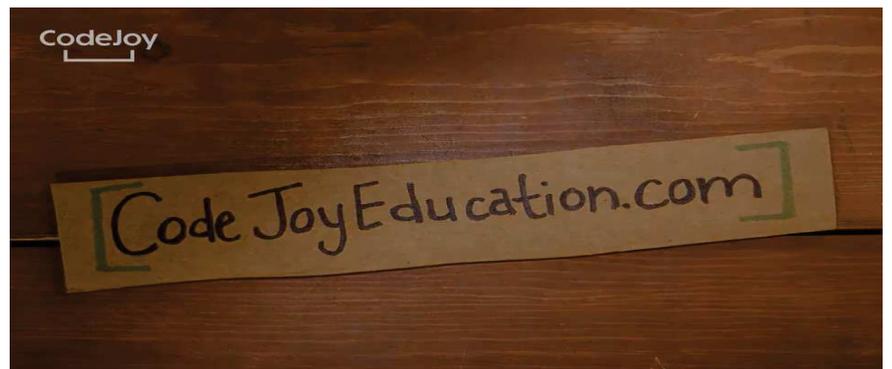
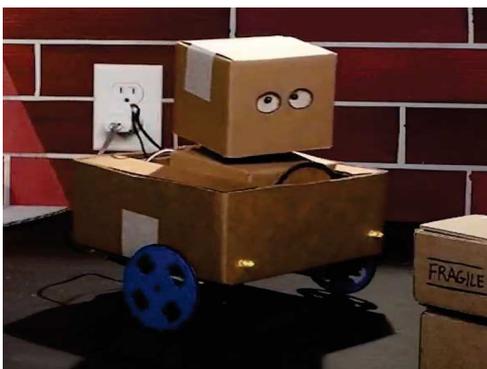
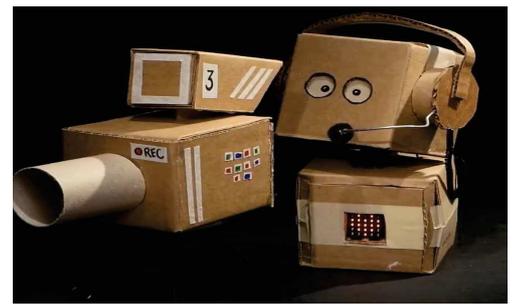
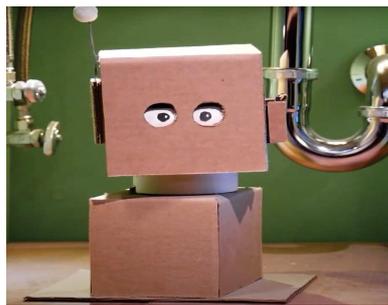
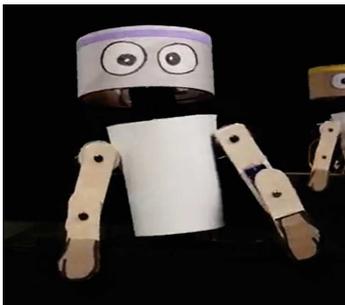
## Make your own micro:bit car!



# Make almost anything with micro:bit

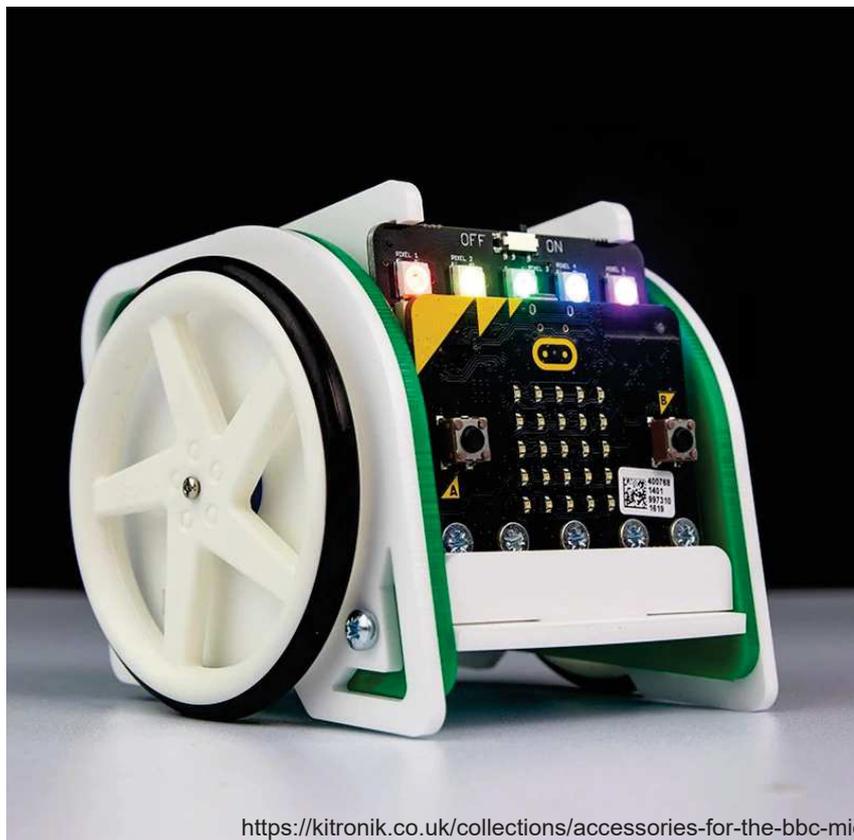


# Make almost anything with cardboard





# Dostupné kity



## Kitronik :MOVE mini MK2 buggy kit

1+ 34,47 €  
10+ 31,59 €

neobsahuje  
micro:bit

Stavebnica (opakovateľnosť?)  
Diferenciálny podvozok  
3x AA batéria 1,5V  
Otvor na fixku

<https://kitronik.co.uk/collections/accessories-for-the-bbc-micro-bit/products/5652-move-mini-mk2-buggy-kit-excl-microbit>

## micro: Maqueen micro:bit Robot

čiastočne stavebnica 1+ 39,48 €

Diferenciálny podvozok neobsahuje  
micro:bit

3,5V (3x AAA alebo 3,6-3,7V LiPo)

### Senzory:

2x Infrared (zdola)

1x Infrared Receiver (NEC decoder)

1x SR04 Ultrazvukový

### Aktuátory:

2x N20 js motor s kovovou prevodovkou 1:150

2x LED červená (smerovky)

4x RGB neopixel

1x I2C Interface (3.3V)

Rozmery: 81x 85 x 44 mm

Hmotnosť: 75,55 g



balenie obsahuje dosku micro:bit V2



## ELECFREAKS Ring:bit Car V2.0

1+  
47,88-52,90 €

vraj obsahuje  
micro:bit

Nie je stavebnica

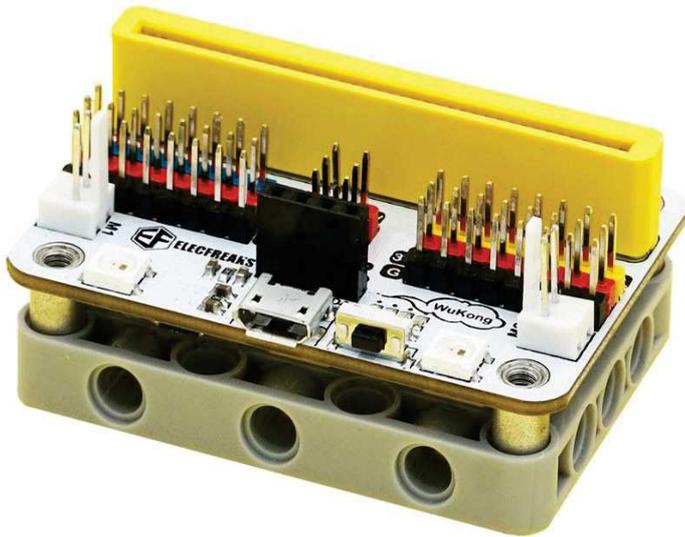
Diferenciálny podvozok

3x AA bateria 1,5V

Otvor na fixku?

<https://youtu.be/zGyO9VICoSg>

# Wukong based robot



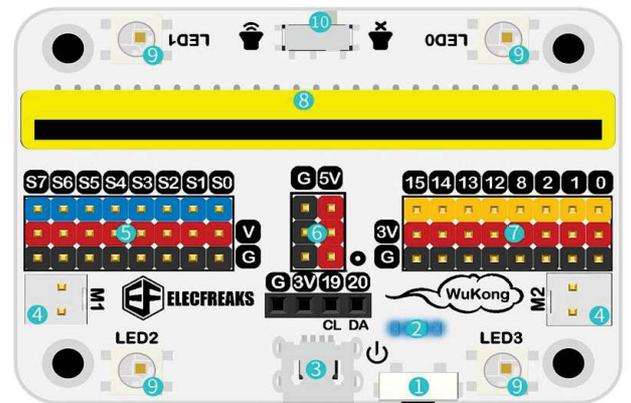
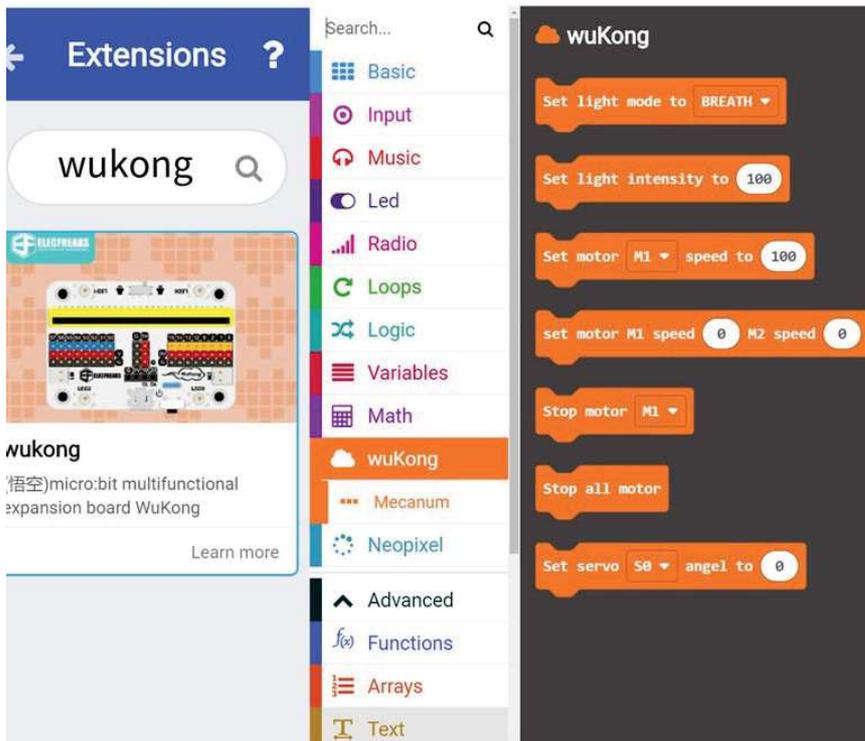
1+  
47,88-52,90 €

neobsahuje  
micro:bit

stavebnica  
Integrovaná batéria

<https://www.elecfreaks.com/wukong-board-with-lego-holder-for-micro-bit.html>

## search "wukong" in makecode



### Onboard resources instruction(the front side)

1.Power switch	2.Power indicating LED	3.USB power supply
4.Motor connection X2	5.Servo-drive connection	6.5v connection
7.8-way GVS connection	8.micro:bit adapter	9.Rainbow LED X4
10.Buzzer switch		



# Úlohy

## Projekt 1

### WHAT IF THE CAR COULD SMILE AT YOU?

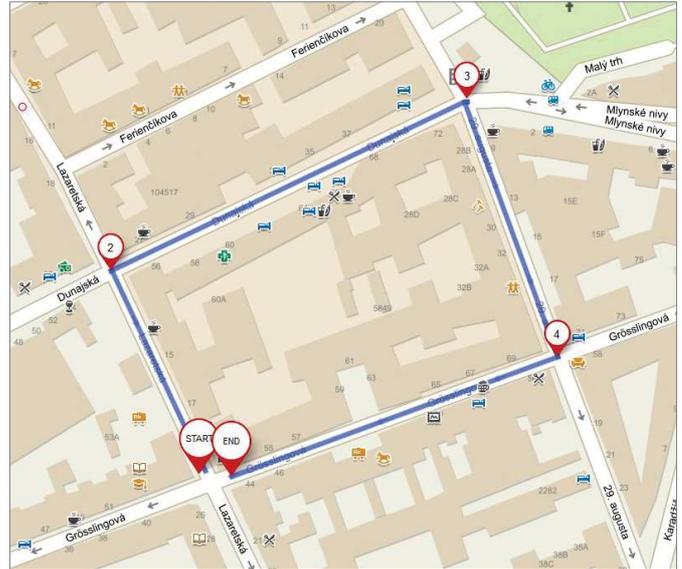
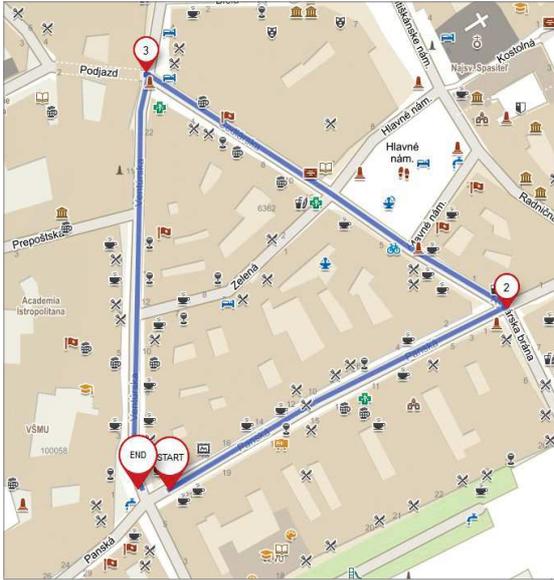


**Ondrej Dóci**

3<sup>rd</sup> year / BA program  
Product Design  
Slovak University of Technology  
ondrodoci@gmail.com

## Projekt 2

# Naprogramujme Bratislavu...



## Integrated Development Environment (IDE) + Simulator

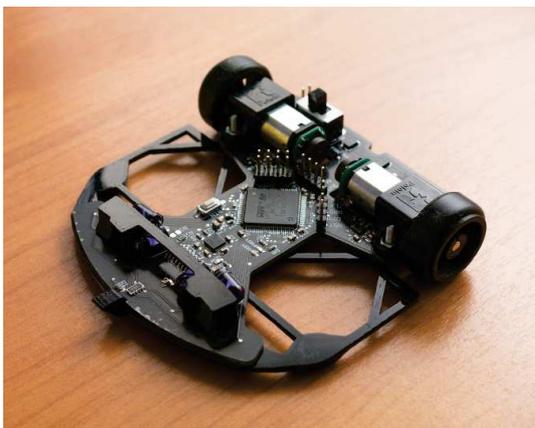
A screenshot of the Hedgehog IDE. The interface is divided into several sections. On the left is a sidebar with a file explorer showing a project named 'test' with a file 'main.blockly'. Below the file explorer is a category list with items like Drive, Motors, Servos, Sensors, Custom, Logic, Loops, Math, Lists, Variables, Functions, and Text. The main area is a code editor with a Scratch-like block-based programming language. The script consists of a 'repeat while' block with the condition 'value of analog sensor 5 &lt;= 3000'. Inside the loop, there is a 'do' block containing 'move motor 0 and 1 with speeds 1000 and 1000' and 'print text value of analog sensor 5'. To the right of the code editor is a 'Simulator' window showing a 2D environment with various colored shapes (red rectangle, blue diamond, yellow square, green circle, purple circle) and a small green robot. At the bottom of the IDE is a console window showing the output of the 'print text' block: '2909.0909090909' repeated three times, followed by '&gt;&gt;&gt;'. The footer of the IDE shows '© PRIA · Home'.



**WORK IN PROGRESS**



### Diferenciálny podvozok



# Diferenciálny podvozok

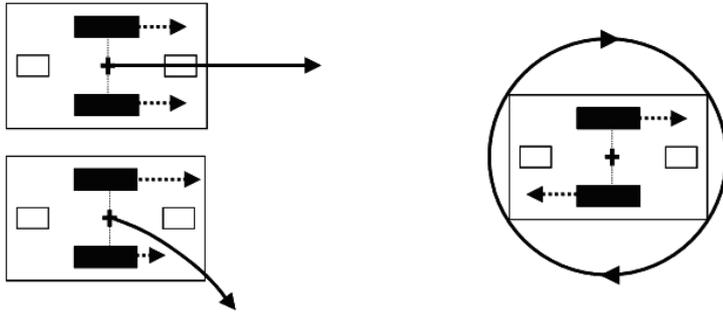
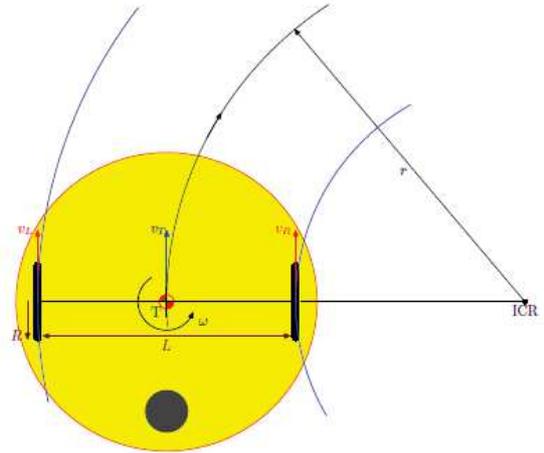
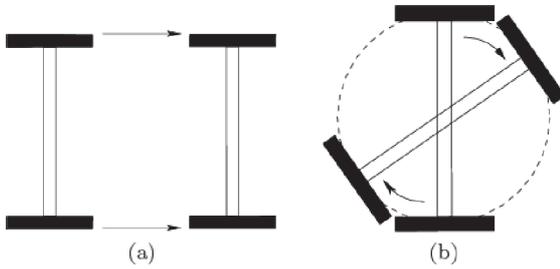
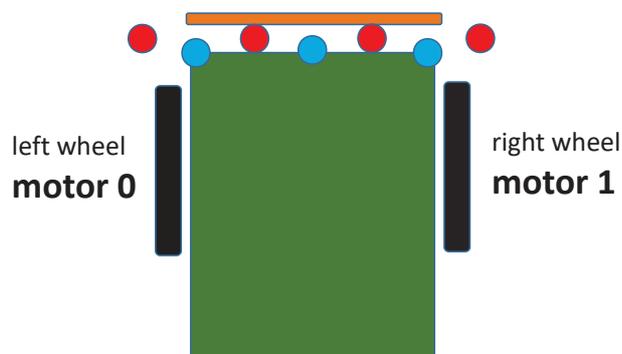


Figure 8.2: Driving and rotation of differential drive



# Robot v simulátore PRIA - pohon

Motors can use speeds between



2D physical engine:

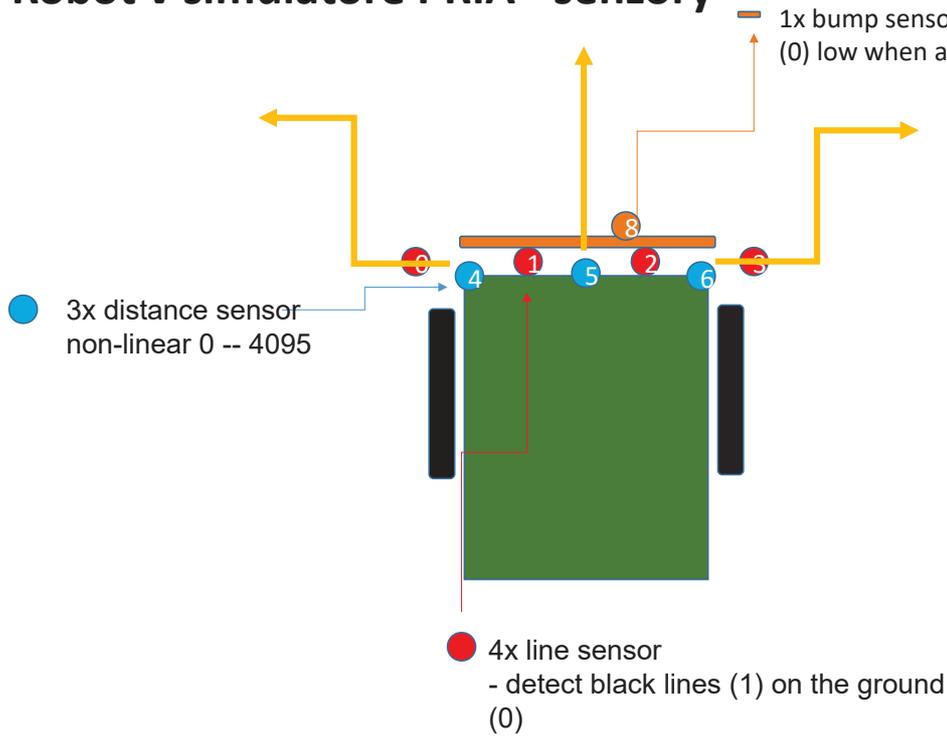
turn motors 0 and 1 off

brake motors 0 and 1

move motor 0 and 1 with speeds 1000 and 1000

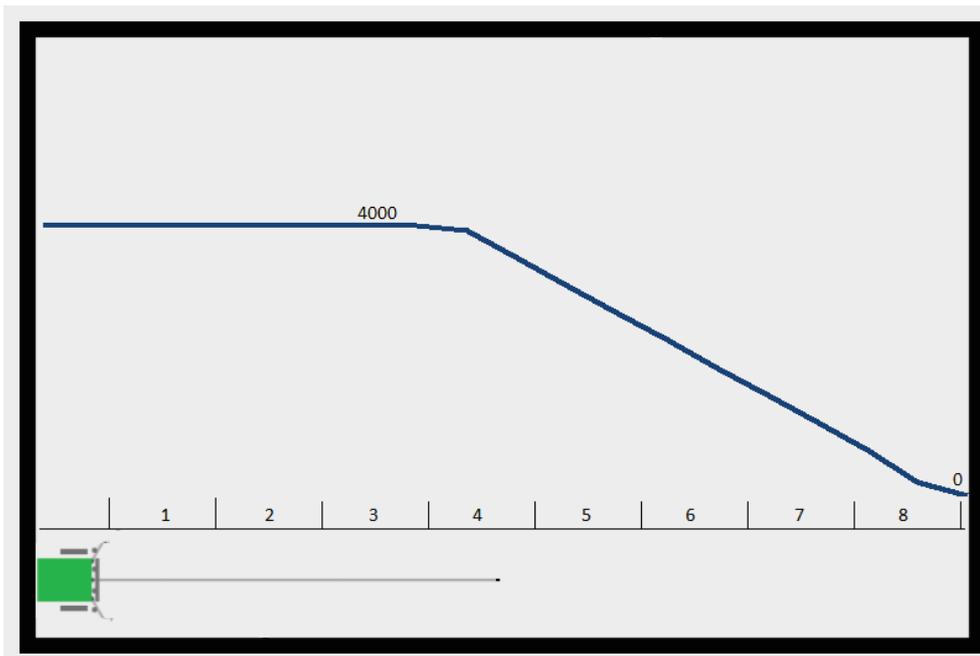
move motor 0 and 1 with speeds 1000 and 1000 for 1 seconds

## Robot v simulátore PRIA - senzory



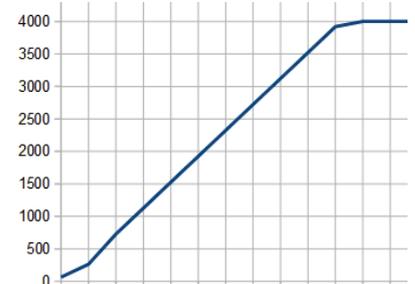
#	Senzor	Rozsah
0	čiara celkom vľavo	0/1
1	čiara vľavo	0/1
2	čiara vpravo	0/1
3	čiara celkom vpravo	0/1
4	vzdialenosť ľavý	0 - 4095
5	vzdialenosť stredný	0 - 4095
6	vzdialenosť pravý	0 - 4095
7	n/a	
8	nárazník	0/1

## Robot v simulátore PRIA – senzory

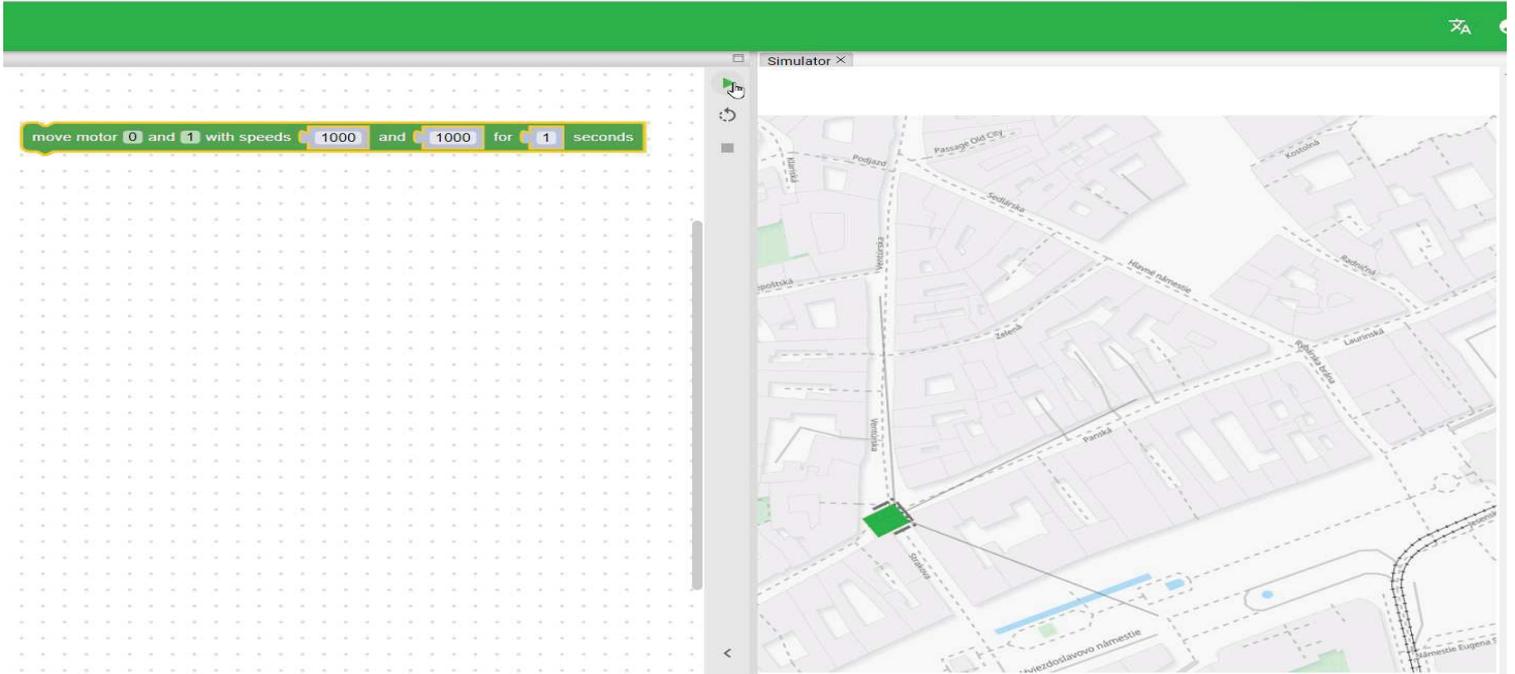


Simulator  
Linear distance sensor

range from 0 to 4095



# ZPOC 3: prechádzka po meste



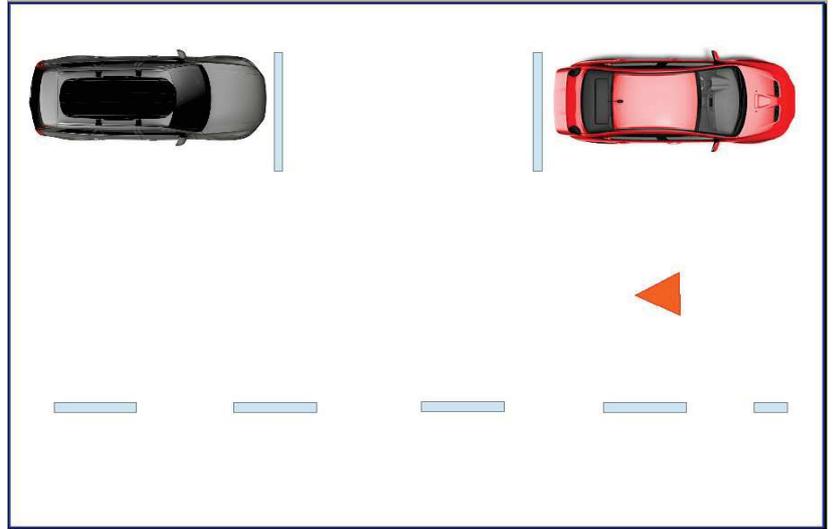
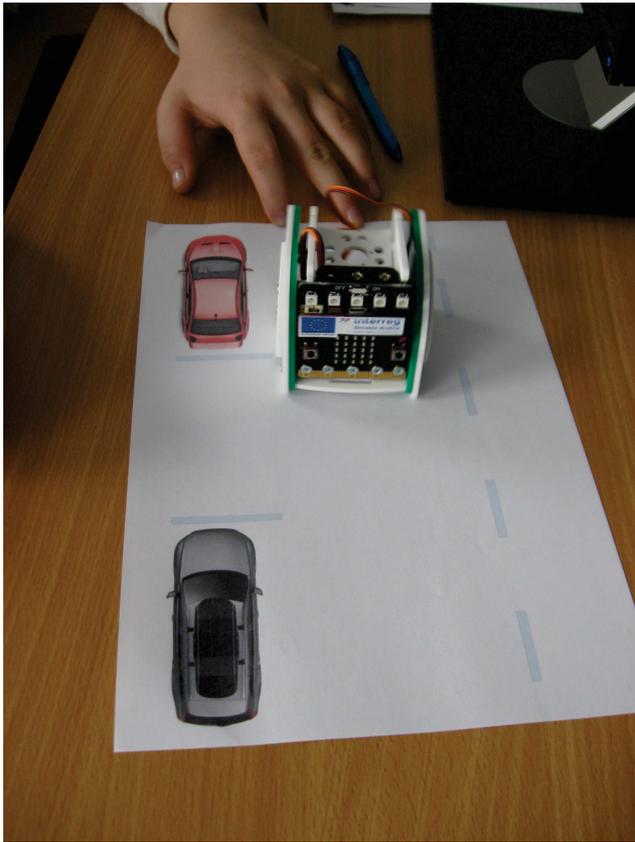
## ZPOC 3:



Bosch Parking assistant

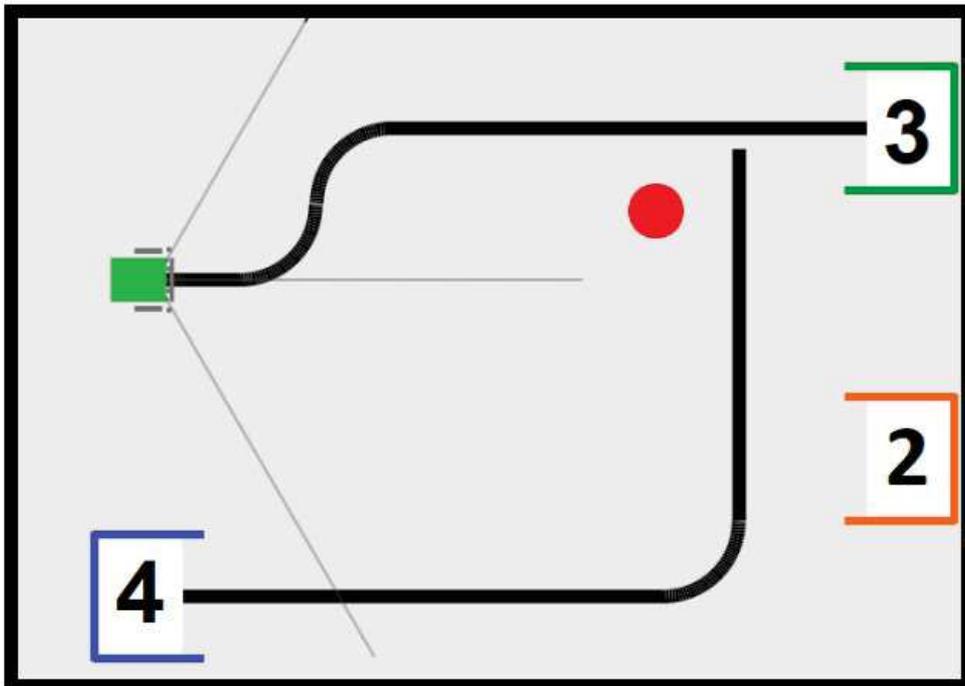


<https://youtu.be/HWMzP9HYNCQ>

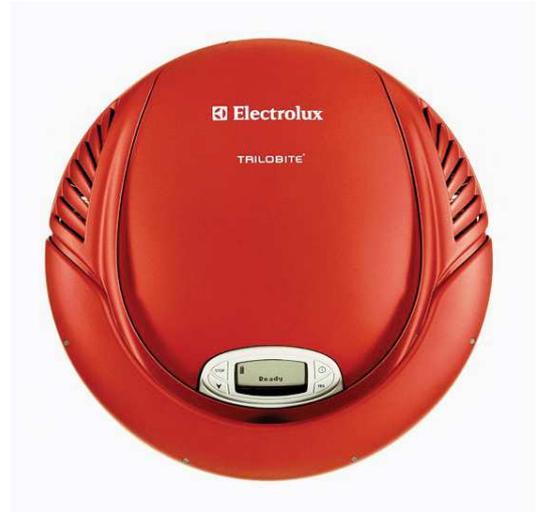


## Úloha 2:

2-4 body

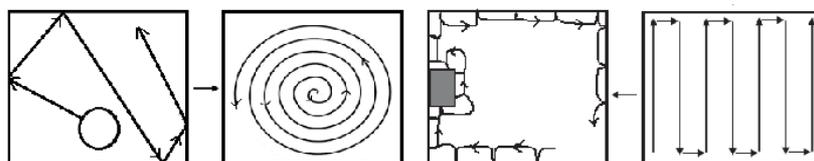
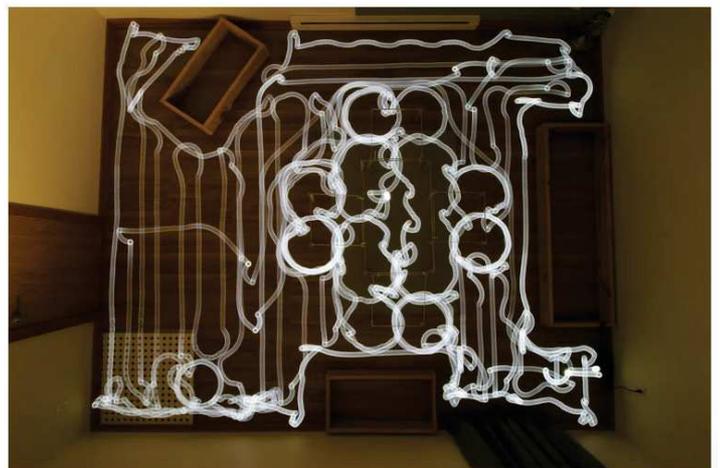
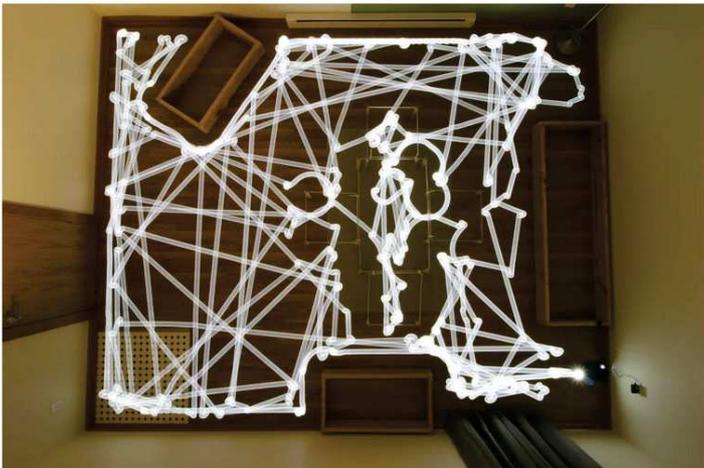


## ZPOC 1:



The first robot vacuum cleaner Trilobite launched in 2001

## Úloha 1:



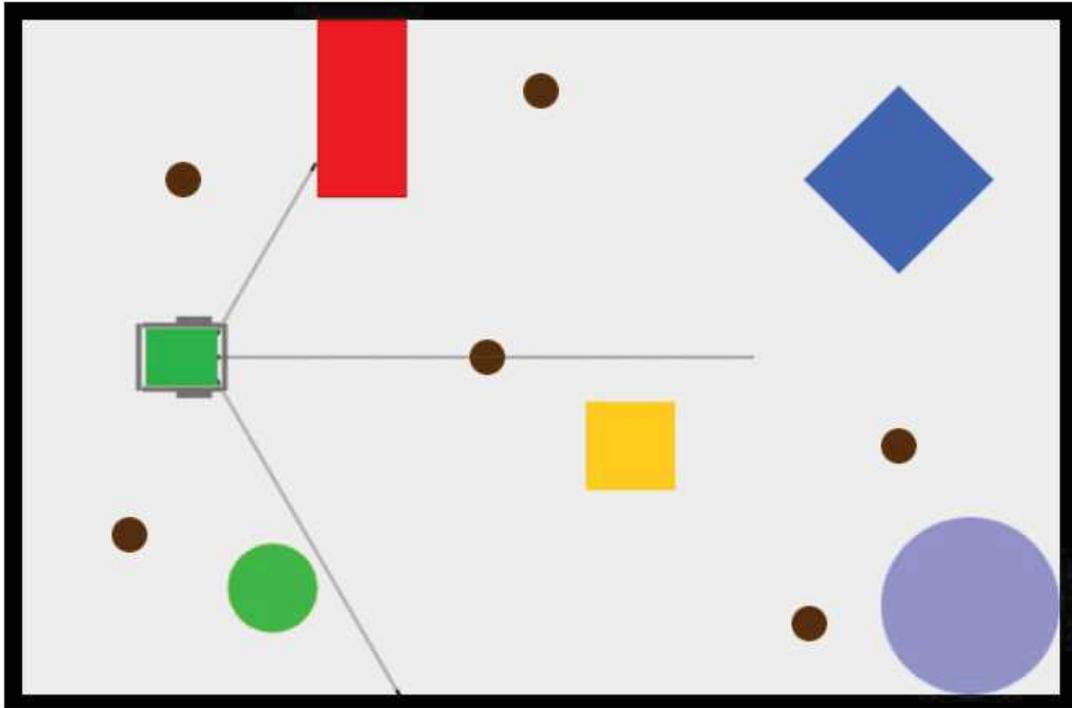
Mi Robot Vacuum: Cleaning Path Comparision



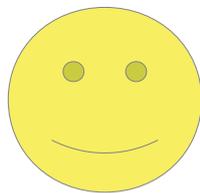
<https://youtu.be/SusPRqU2W4M>

## Úloha 1:

2 body

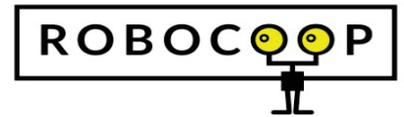


 micro:bit



<https://lnk.sk/fpnx/>





# To je všetko.

**Richard Balogh**

Ústav automobilovej  
mechatroniky  
FEI STU v Bratislave



[balogh@elf.stuba.sk](mailto:balogh@elf.stuba.sk)

<http://www.robotika.sk>  
<http://senzor.robotika.sk>



SLOVAK UNIVERSITY OF  
TECHNOLOGY IN BRATISLAVA  
FACULTY OF ELECTRICAL ENGINEERING  
AND INFORMATION TECHNOLOGY