

Cardboard robot car · START A BIT



Scan to open

Parts you need

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Micro:bit
the brain: it runs your program

Simple Servo board
Kitronik 5673: holds the Micro:bit, the batteries and the servo plugs

360° servo
for example FS90R. It must be 360°: a 180° servo cannot spin a wheel

Wheel
pushes onto the servo shaft

AA battery
go in the holder on the back of the board

Stiff cardboard
the car body, about 9 cm × 14 cm

Skid
a bottle cap or a big bead: it slides under the back

Rubber bands, tape
double-sided tape or hot glue for the servos

USB cable
to download your program to the Micro:bit

A second
Micro:bit: the
remote

Build it

1

2

3

4

5

Wire it

Servo 1
LEFT wheel

Servo 2
RIGHT wheel

Remember

Servo

Three wires: brown or black to GND, red to +, orange or yellow is the signal from a pin.

Radio between Micro:bits

Same group number on both Micro:bits; one sends, the other reacts in "on radio received".

Story 1: Drive and stop

function forward

set servo 1 to turn counter-clockwise at 50 % speed

set servo 2 to turn clockwise at 50 % speed

function stop_car

stop servo 1

stop servo 2

on button A pressed

show arrow North

call forward

pause (ms) 2000

call stop_car

clear screen

Story 2: Spin around

function forward

set servo 1 to turn counter-clockwise at 50 % speed

set servo 2 to turn clockwise at 50 % speed

function stop_car

stop servo 1

stop servo 2

function spin_right

set servo 1 to turn counter-clockwise at 50 % speed

set servo 2 to turn counter-clockwise at 50 % speed

on button A pressed

show arrow North

call forward

pause (ms) 2000

call stop_car

clear screen

on button B pressed

show arrow East

call spin_right

pause (ms) 1000

call stop_car

clear screen

Story 3: Drive a square

function forward

set servo 1 to turn counter-clockwise at 50 % speed

set servo 2 to turn clockwise at 50 % speed

function stop_car

stop servo 1

stop servo 2

function spin_right

set servo 1 to turn counter-clockwise at 50 % speed

set servo 2 to turn counter-clockwise at 50 % speed

on button A+B pressed

repeat 4 times

do

call forward

pause (ms) 1500

call spin_right

pause (ms) 700

call stop_car

Story 4: Steer with a remote

The car

function forward

set servo 1 to turn counter-clockwise at 50 % speed

set servo 2 to turn clockwise at 50 % speed

function stop_car

stop servo 1

stop servo 2

function spin_right

set servo 1 to turn counter-clockwise at 50 % speed

set servo 2 to turn counter-clockwise at 50 % speed

function spin_left

set servo 1 to turn clockwise at 50 % speed

set servo 2 to turn clockwise at 50 % speed

on radio received receivedNumber

if receivedNumber == 1 then

call forward

else if receivedNumber == 2 then

call spin_right

else if receivedNumber == 3 then

call spin_left

else

call stop_car

on start

radio set group 7

The remote: a second Micro:bit

forever

if rotation (°) pitch < -30 then

radio send number 1

show arrow North

else if rotation (°) roll > 30 then

radio send number 2

show arrow East

else if rotation (°) roll < -30 then

radio send number 3

show arrow West

else

radio send number 0

clear screen

pause (ms) 100

on start

radio set group 7