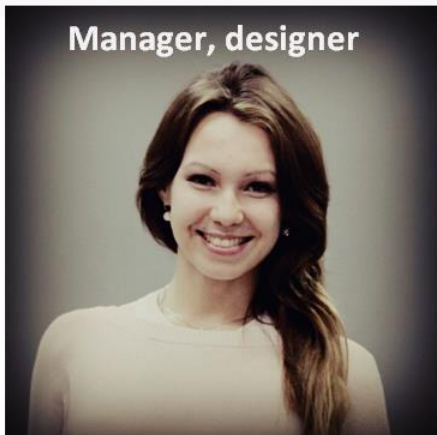


MOSCOW STATE UNIVERSITY OF MECHANICAL ENGINEERING (MAMI)



Team

Manager, designer



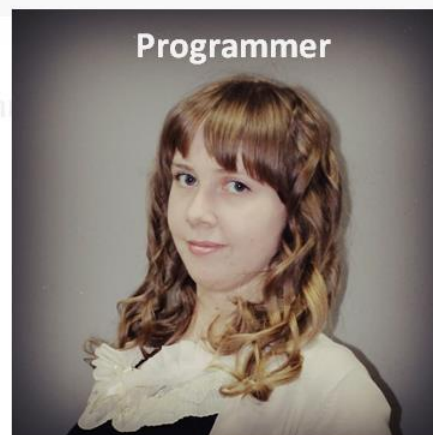
Kristina Ivanova

Programmer, engineer



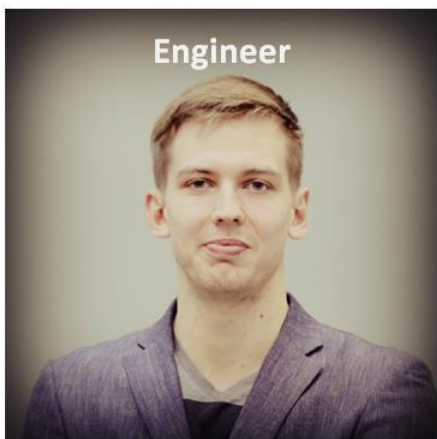
Pavel Karpenko

Programmer



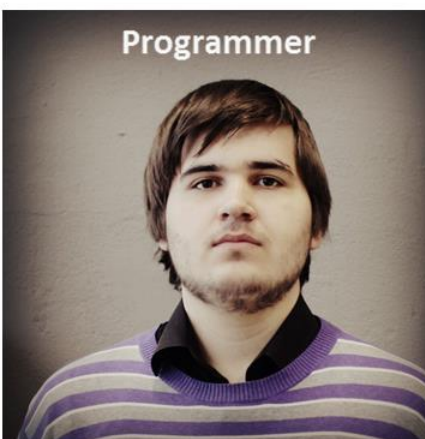
Natali Pogrebnyak

Engineer



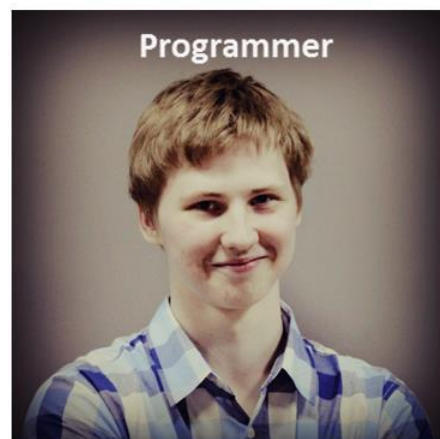
Stanislav Kuskov

Programmer



Igor Minenko

Programmer



Artem Chernyaev

Contents

CAROLO CUP
"Name of team"

Technical side

Costs

Mechanical part

- Model (car) specification
- 3D modeling

Electronic part

- Functional scheme
- Characteristics of elements
- Energy consumption

Programming part

- Algorithms
- Applications
- Software

Technical side Mechanical part

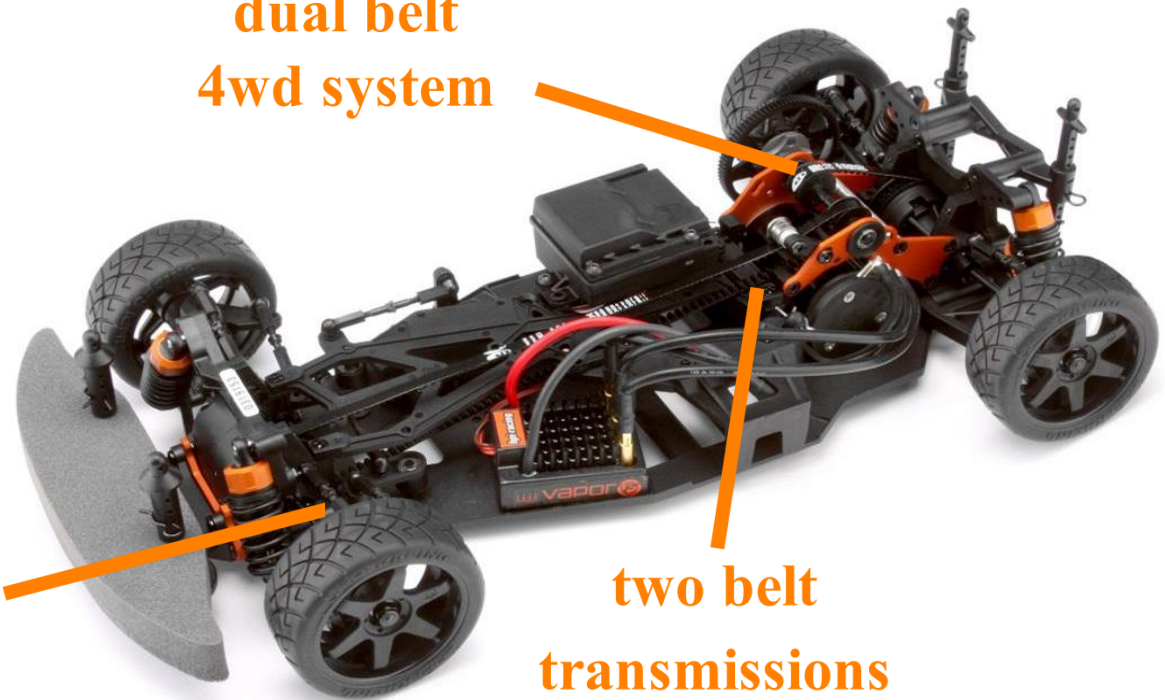
Model (car) specification

- Length: 431mm
- Width: 200mm
- Height: 127mm
- Wheelbase: 254mm
- Full-wheel DC drive

**dual belt
4wd system**

**custom suspension
geometry**

**two belt
transmissions**

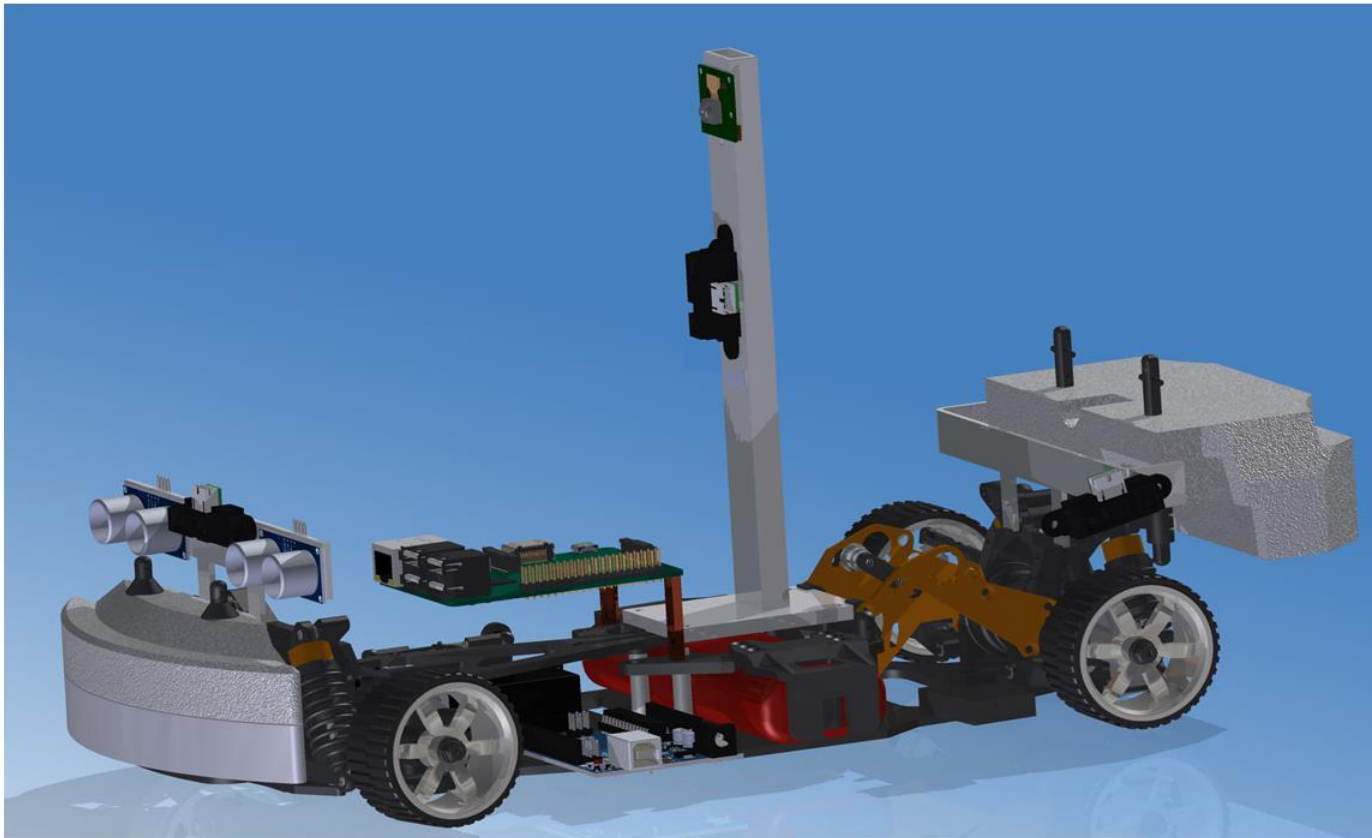


53+
mph



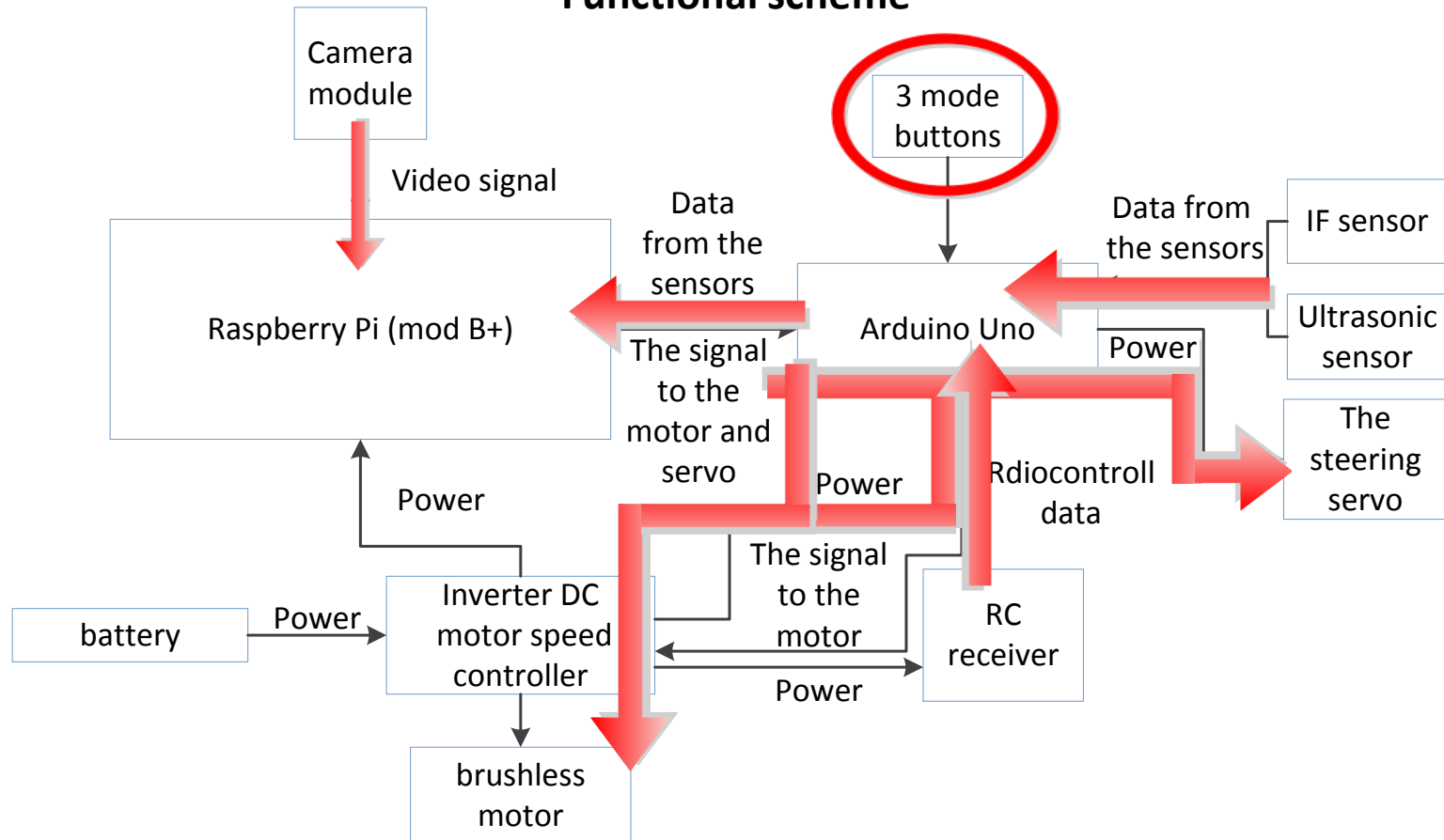
Technical side Mechanical part

3D modeling



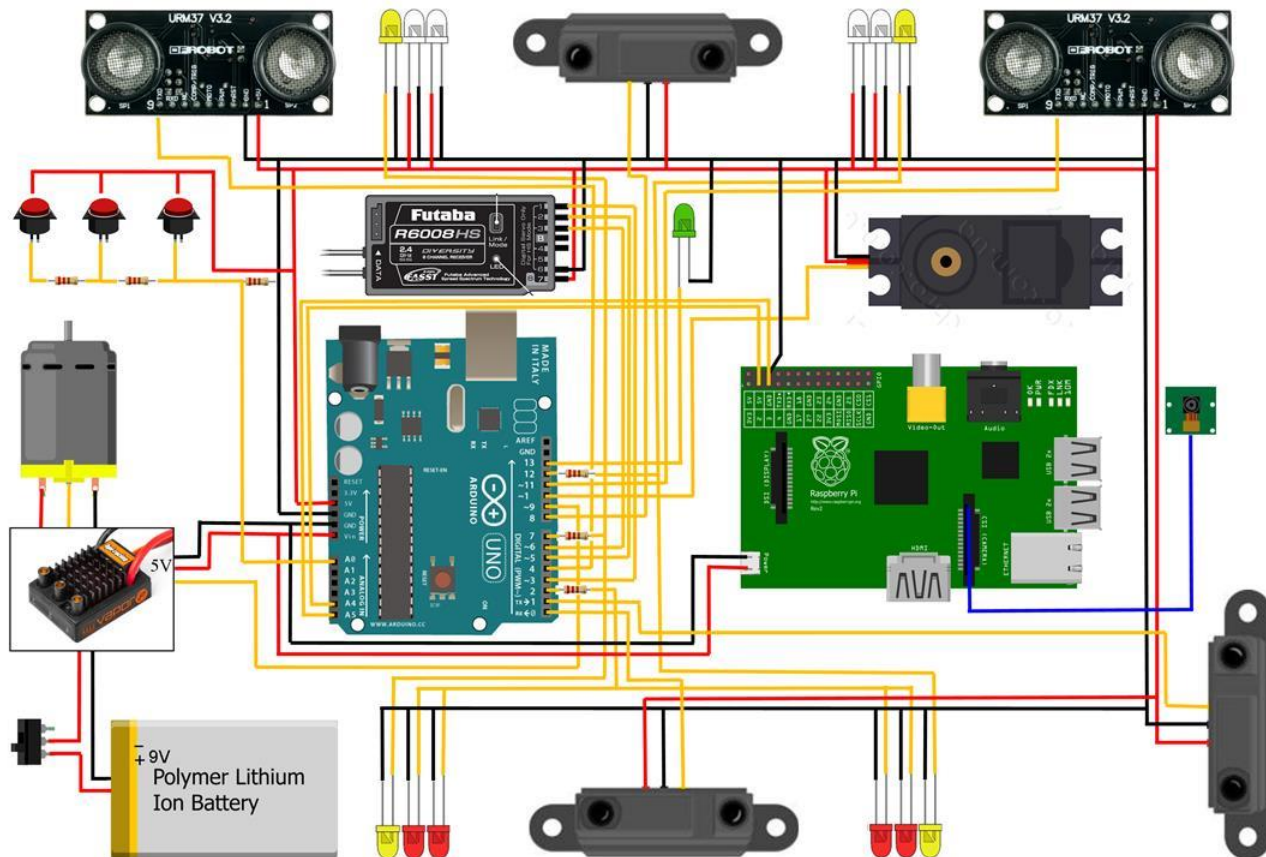
Technical side Electronic part

Functional scheme



Technical side Electronic part

Electrical scheme



Technical side Electronic part

Characteristics of elements

Raspberry PI model B

Parameter	Value
Chip	Broadcom BCM2835
CPU	700 Mhz ARM1176JZ-F
GPU	Dual Core VideoCore IV
Memory	512 mb SDRAM
Operating system	Linux
Voltage	5 V
Consumption current	750 mA

Arduino UNO

Parameter	Value
Chip	ATmega328 16 Mhz
Input voltage	7-12 v
Output voltage	5 V, 3.3 V
Memory	2 kb SDRAM, 16 mb ROM
Digital output	14
Analog output	6
Consumption current	24 mA

Ultrasonic distance sensor URM37

Parameter	Value
Measuring cycle	40 ms
Output type	digital
Distance measuring range	4cm-2.5m
Voltage	5 V
Consumption current	20 mA

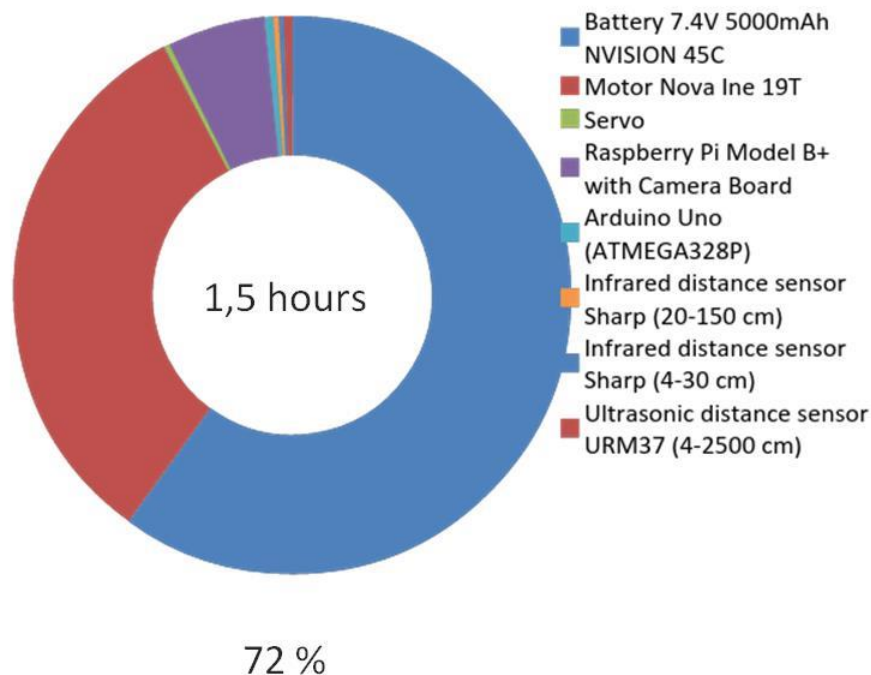
Infrared distance sensor Sharp (4-30)/(20-150)

Parameter	Value
Measuring cycle	16.5 ms/39 ms
Output type	Analog
Distance measuring range	4 to 30 cm/20 to 150 cm
Voltage	5 V
Consumption current	30 mA/40 mA

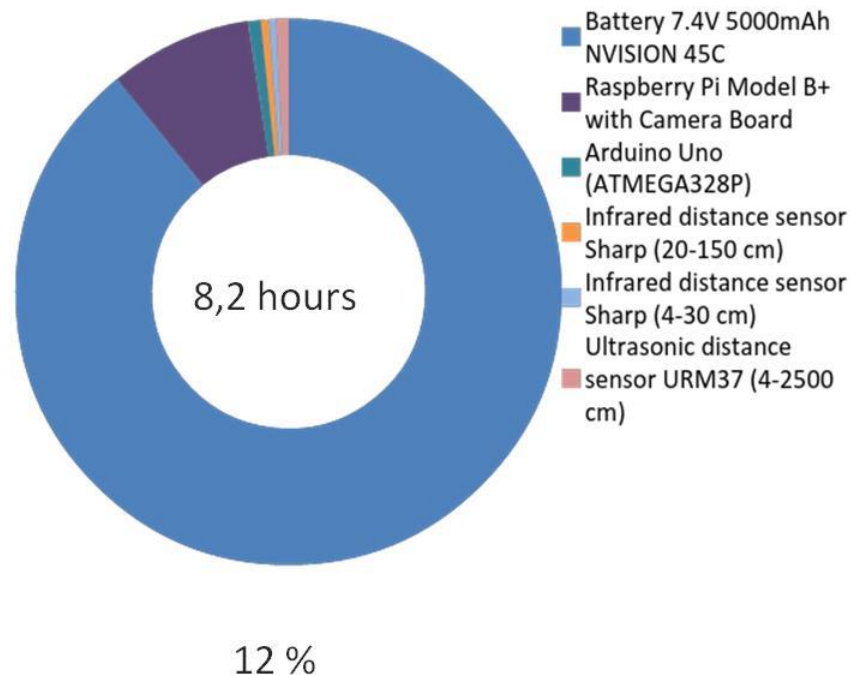
Technical side Electronic part

Energy consumption

All electronic units

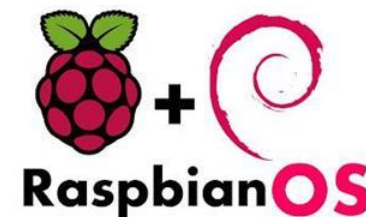


Only built in



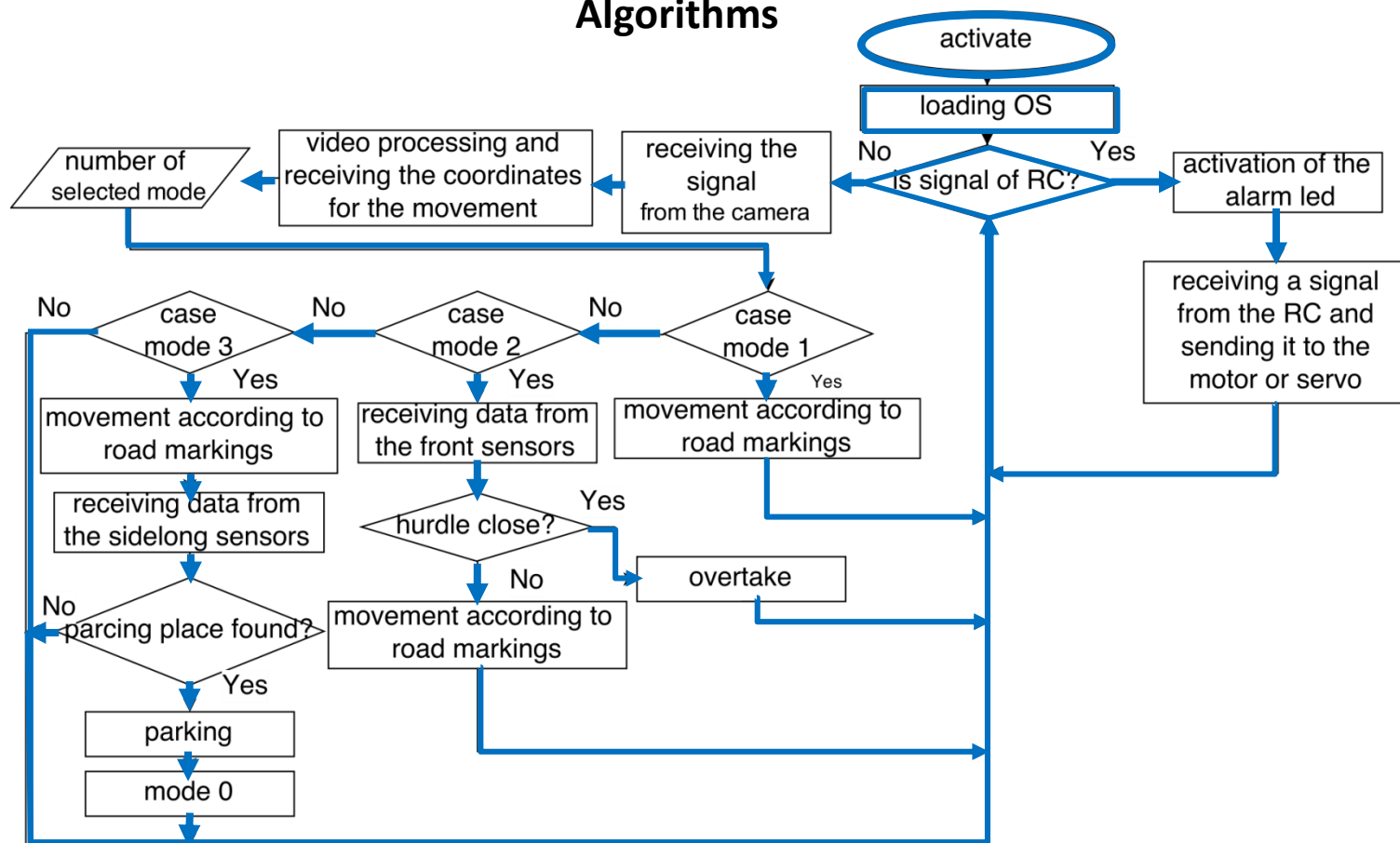
Technical side Programming part

Software



Technical side Programming part

Algorithms

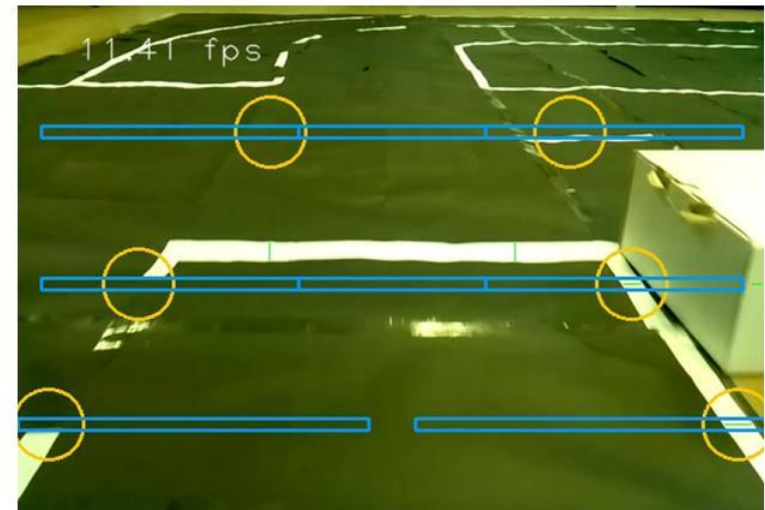
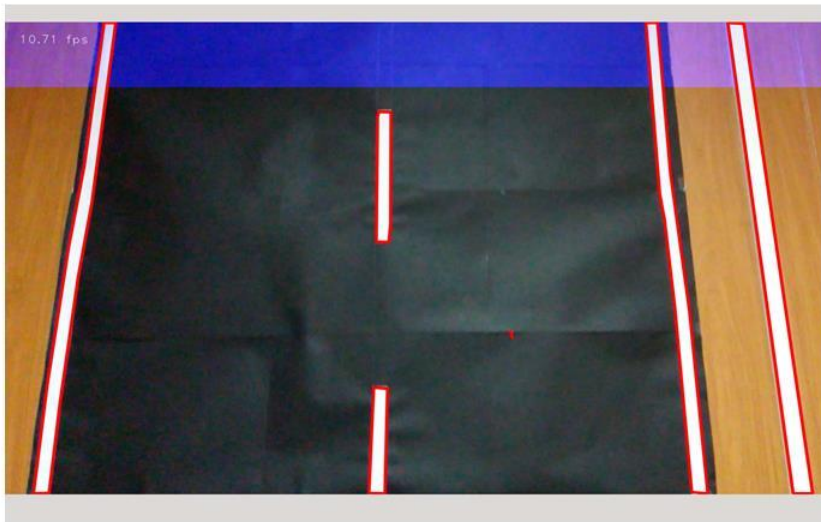


Technical side Programming part



Applications

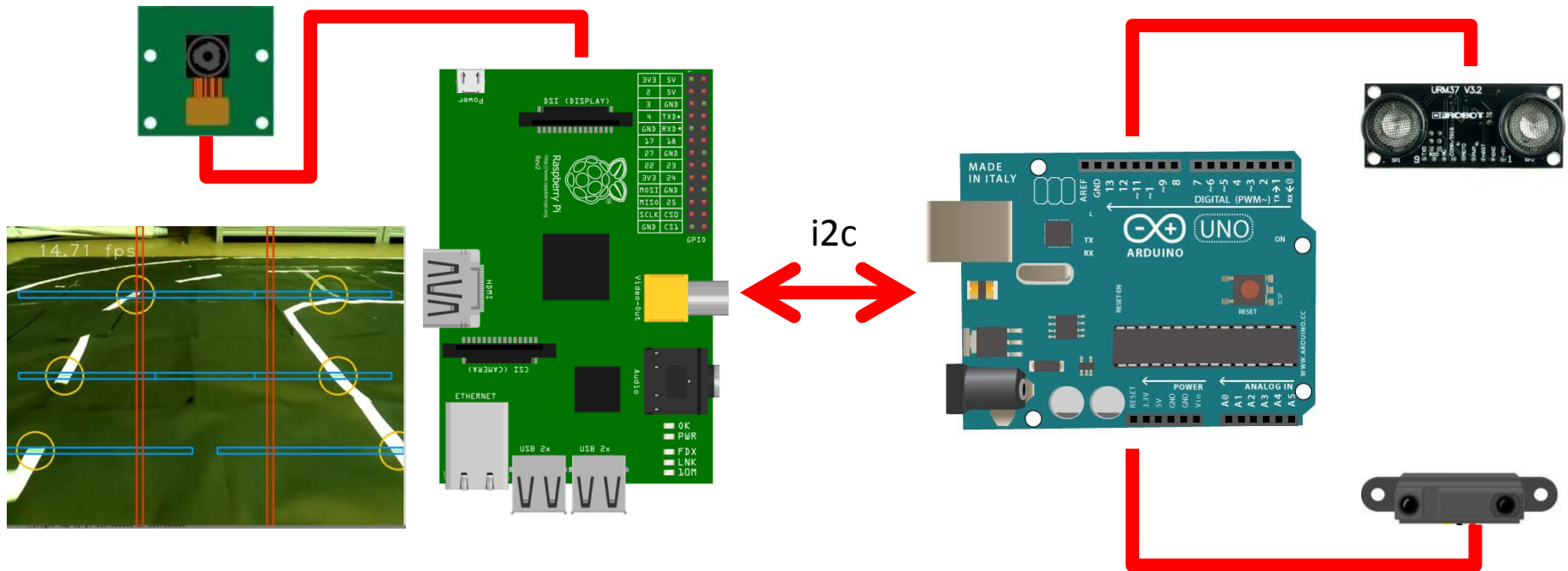
Computer vision



Technical side Programming part

Applications

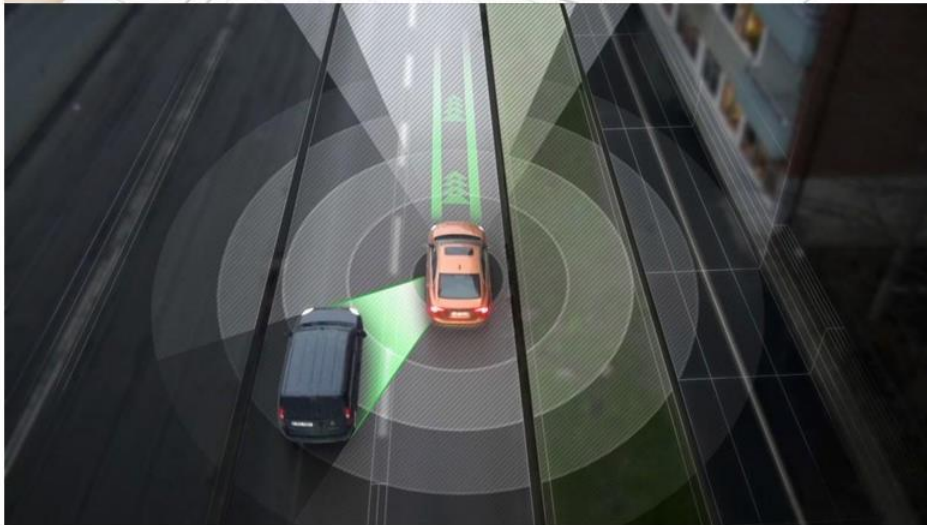
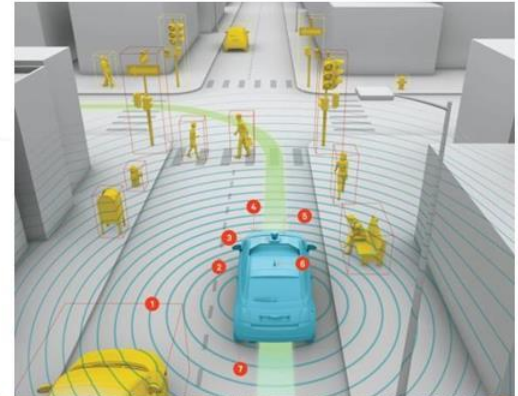
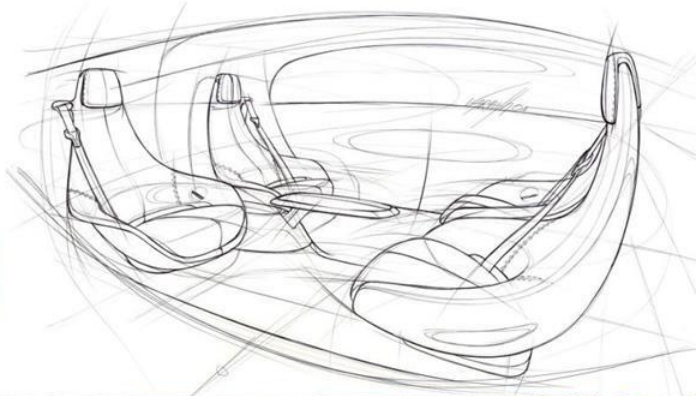
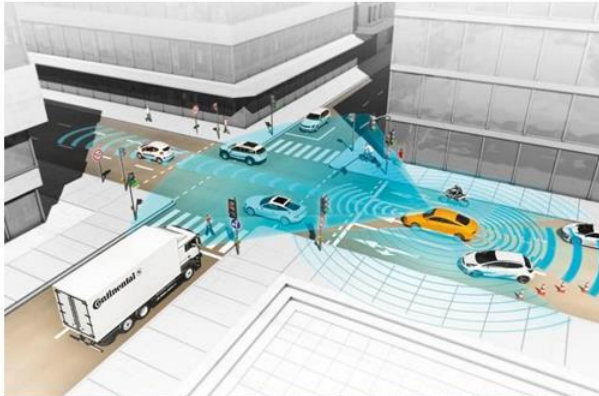
Signal processing



Costs

name	price	number	sum
Car SPRINT 2 FLUX BMW M3	€ 130,47	1	€ 130,47
Battery 7.4V 5000mAh NVISION 45C LiPo	€ 33,64	1	€ 33,64
RC Associated XP3D 3 mode FM 40Mgc	€ 51,19	1	€ 51,19
Brushless motor Nova Ine 19T	€ 26,33	1	€ 26,33
Raspberry Pi Model B+ micro computer	€ 37,88	1	€ 37,88
Arduino Uno	€ 20,48	1	€ 20,48
Raspberry Pi camera	€ 36,42	1	€ 36,42
IR sensor Sharp (20-150 cm)	€ 14,48	1	€ 14,48
IR sensor Sharp (4-30 cm)	€ 16,67	4	€ 66,70
US sensor HC-SR04	€ 5,70	2	€ 11,4
Memory microSD,16 GB	€ 5,41	1	€ 5,41
Wire	€ 7,02	2	€ 14,04
Button	€ 0,15	3	€ 0,44
		result	€ 448,48

Future



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ENGINEERING (MAMI)

Thank you for your attention!

