**System architecture**

The robot has the following domains:

* Mechanical structure
* Actuation
* Sensor system
* Motherboard
* Battery and power management
* Control System
* Communication interface

**Mechanical structure**

* 2 wheels, directly driven by two electric motors via a gearbox
* Both motors are attached to the bottom acrylic plate via bracket mounts
* 2 additional acrylic plates are mounted on top of the bottom plate

**Actuation**

* Brushed 6V DC motor geared to 210rpm
* An encoder is integrated inside the motor housing

**Sensor system**

* Inertial measurement unit (accelerometer, gyro)
* Ultrasonic sensors (mounted on different sides of the robot)
* Motor current measurement

**Motherboard**

* A custom made motherboard having all the main electronic components (MCU, voltage stabilization, battery charger, motor drivers, external connectors, communication interfaces, signaling)
* Design constraint: PCB size of 140 x 100 mm

**Battery and power management**

* Battery technology: LiPo, 7.4V, 4200mAh
* Battery charger should be integrated on the motherboard
* The whole robot should be powered via a 12V 2A supply
* Battery level should be visually signalized using a LED

**Robot Software**

* Represents the brain of the robot.
* Control of the movement.
* Gathers sensor information.
* Handles external communication.

**Communication interface**

* Probably Bluetooth. A part of the motherboard or even a part of a SoC.

Revision:

09/08/2018: Specified all domains, some more in depth than other.

10/08/2018: Added details to batteries, motherboard and motors

11/09/2018: Minor changes