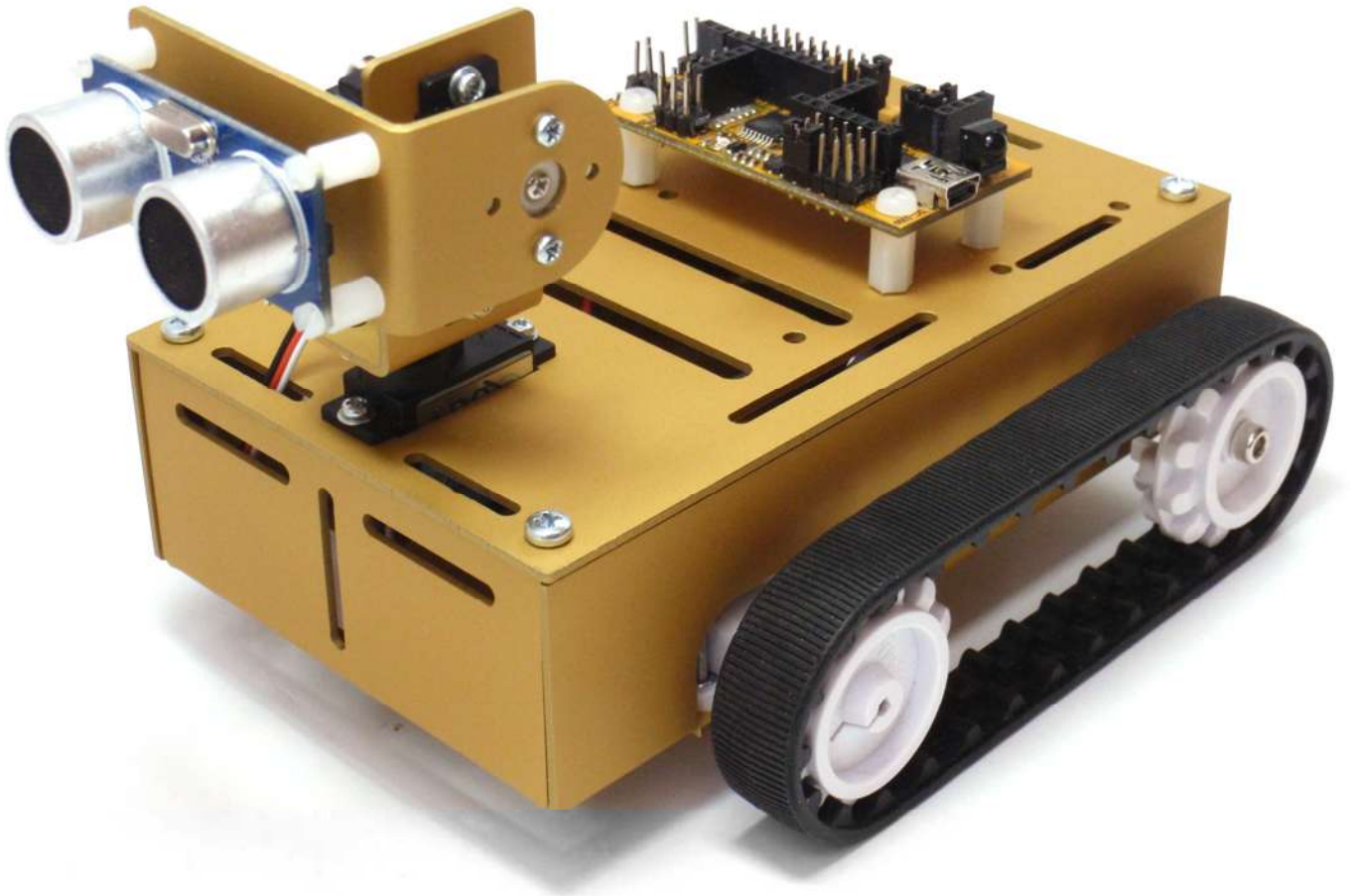
Research
Development of Electronics
Prototyping
Microcontroller education systems

AMEX Research Corporation Technologies

AMRobot

Educational mini-robot platform

Assembly Guide



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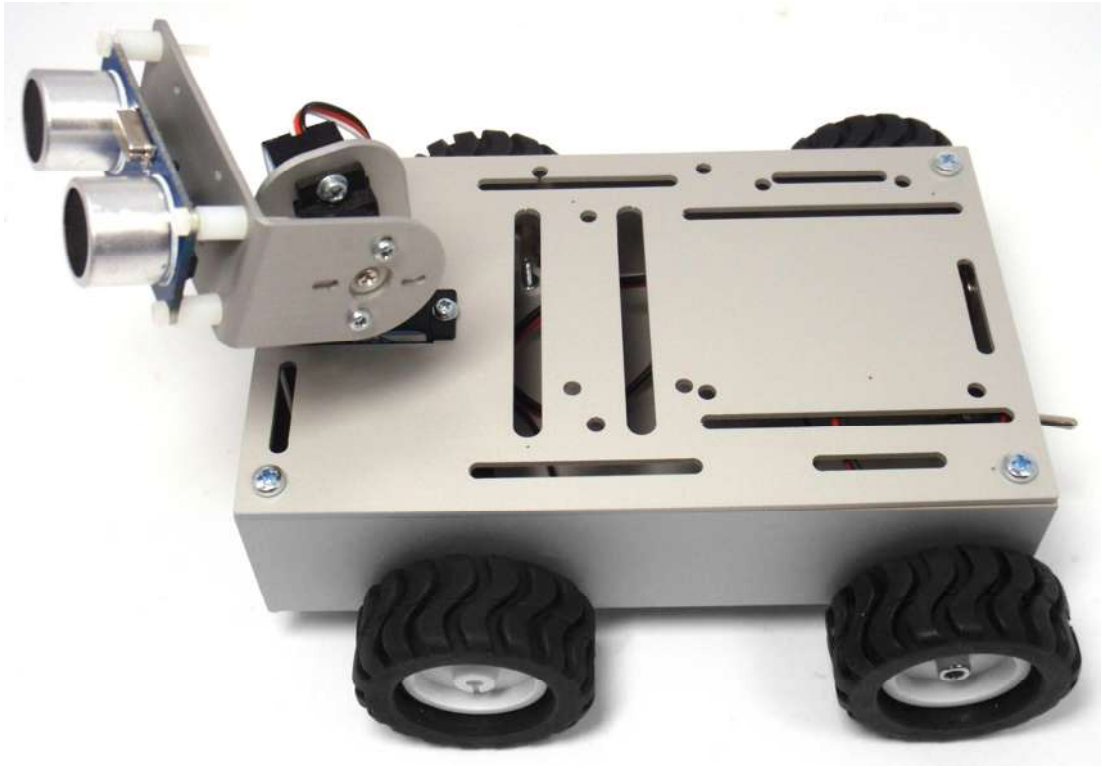
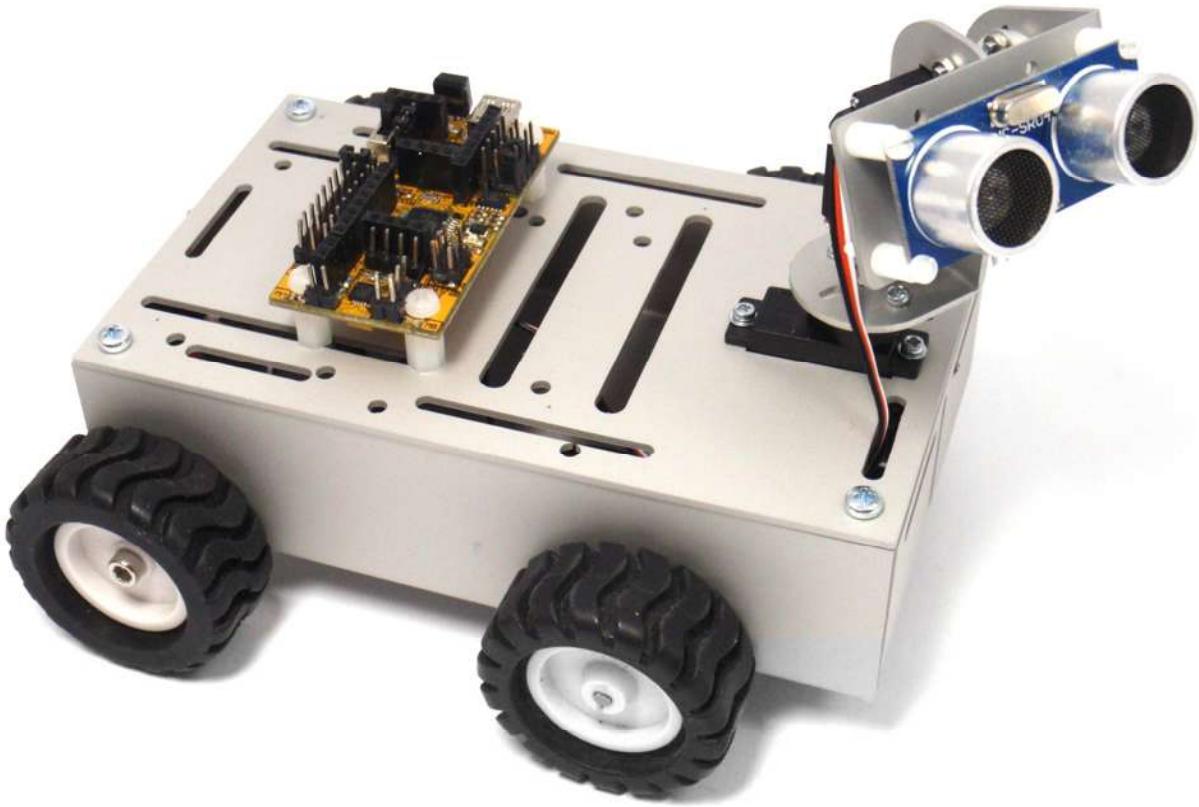
e-mail: amexinfo@amex.pl

Version 1

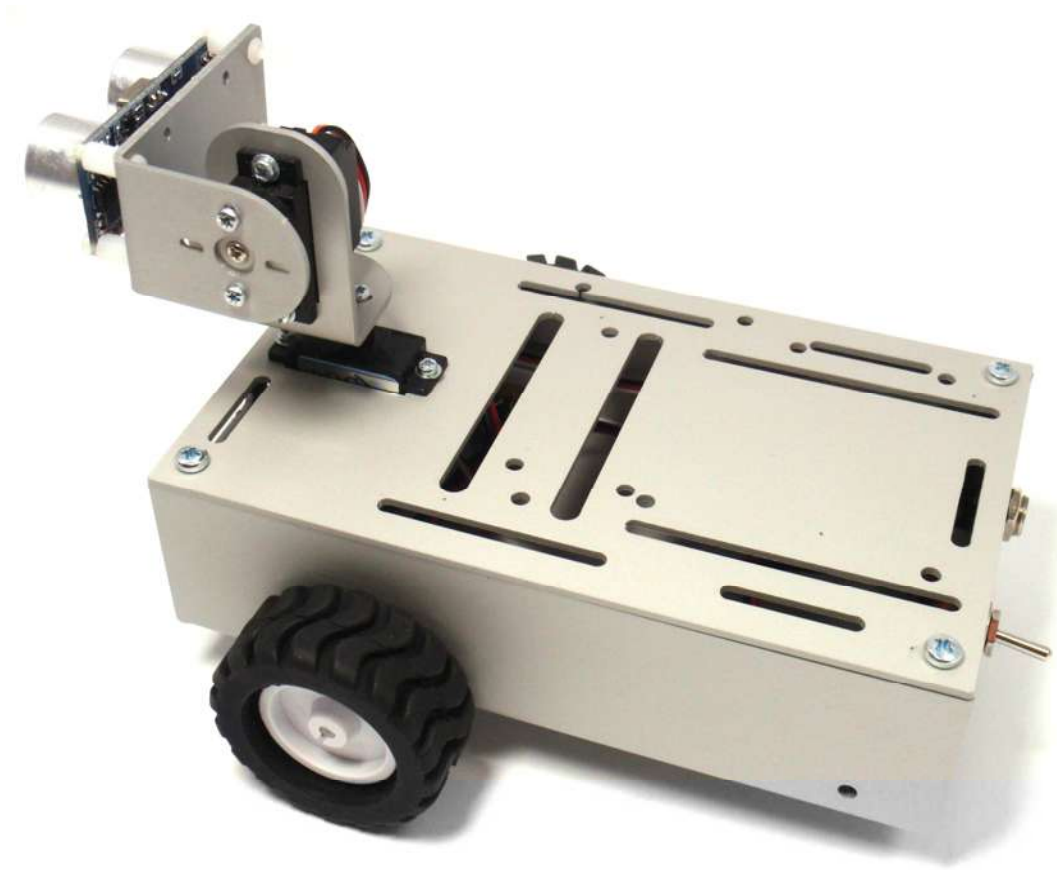
Four-wheeled platform (2 active front wheels and 2 passive rear wheels)

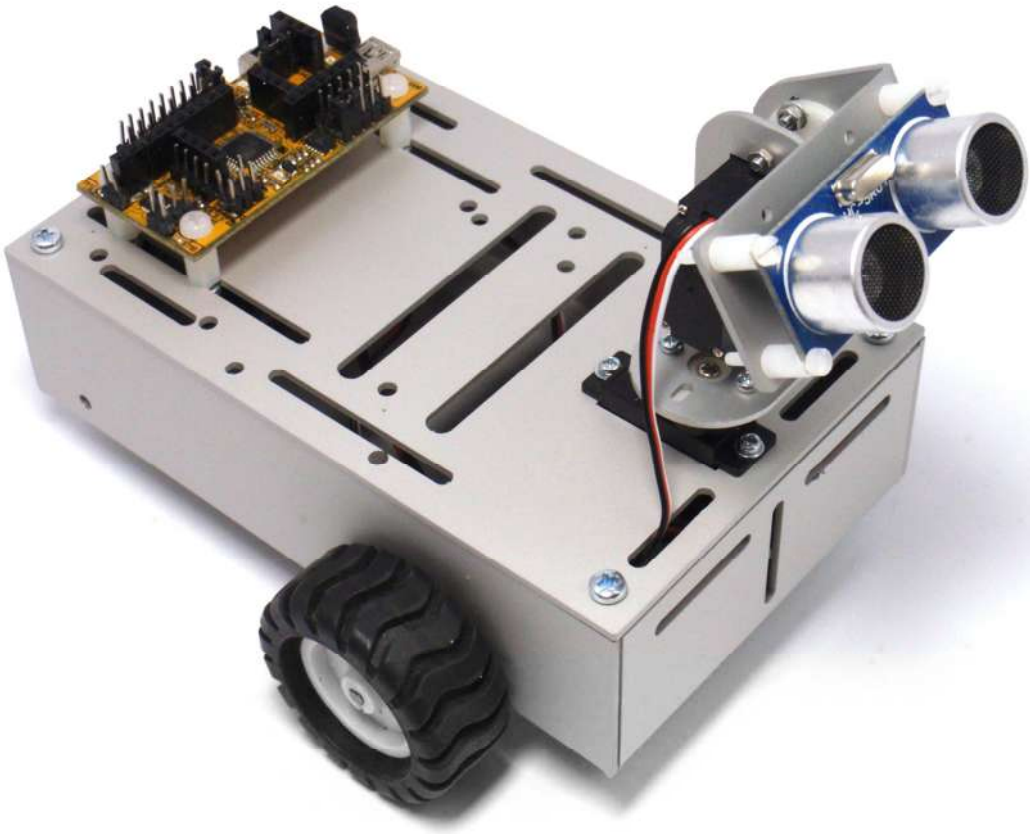




Version 2

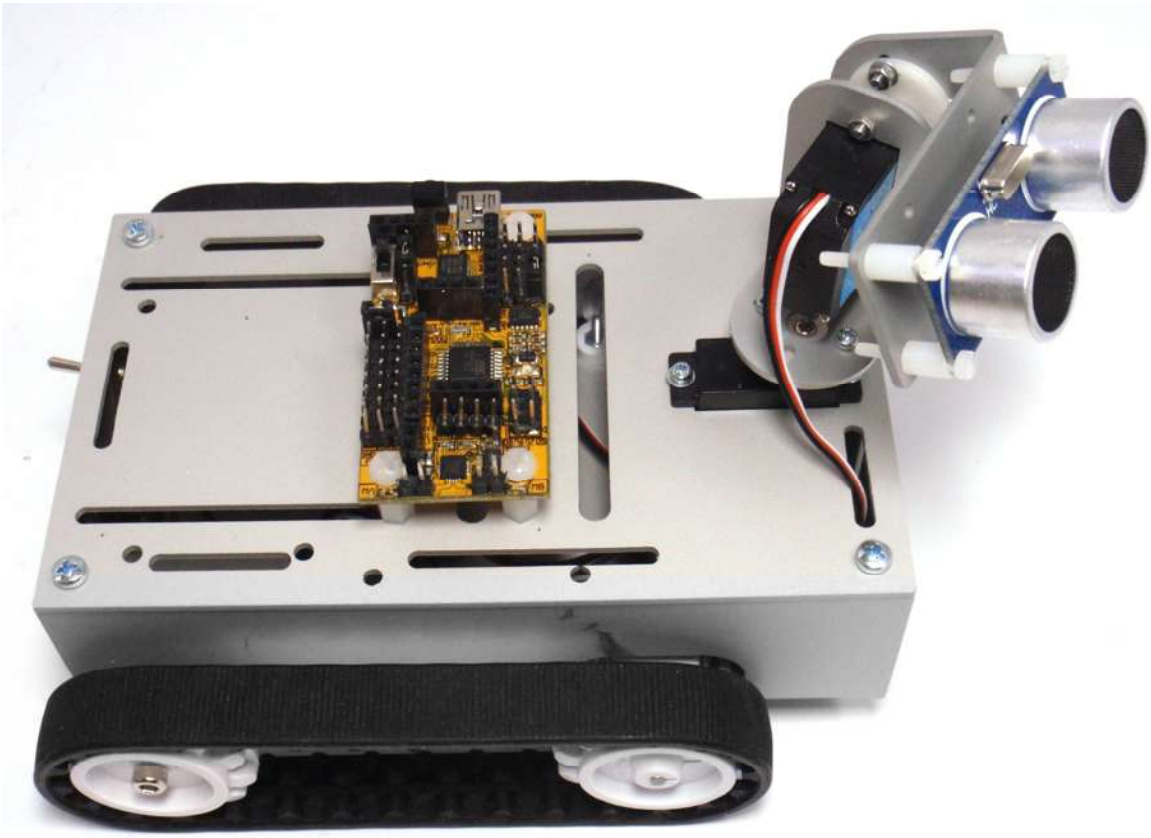
Two-wheeled platform with supporting ball caster and two motors





Version 3

Platform with tracked drive system (two silicone tracks and two motors)

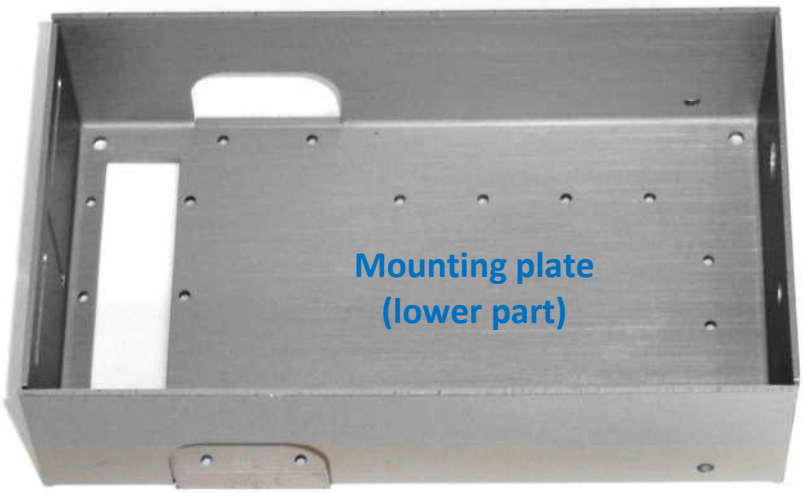


AMRobot platform components

(mechanical parts)

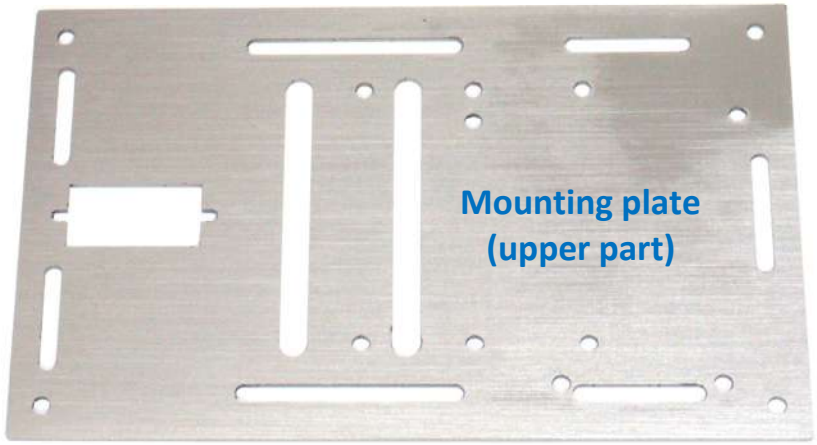
Mounting plates, components for the scanning device, power supply connector, switch and NiMH (6 x AA) battery container

Servos for scanning device



Power supply connector and switch

Scanning device



Battery container

Optional version of pan/tilt head (for Raspberry Pi camera and ultrasound sensor) - can be mounted together or separately on the head

Motors, fasteners and front wheels for 2 and 4 wheel drive system

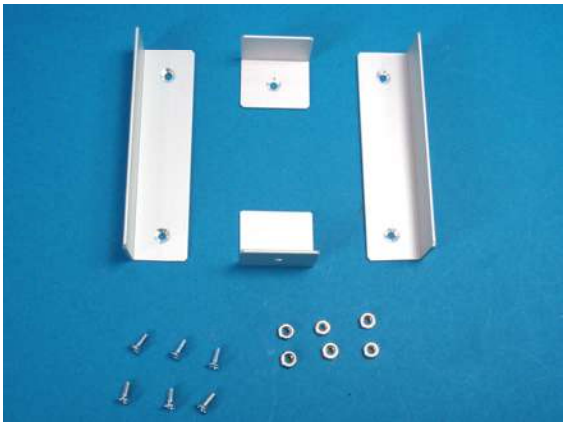
Rear wheels for 4-wheeled drive system

Track set with 2 front and rear drive wheels

Supporting ball caster (½") (for 2-wheeled version)

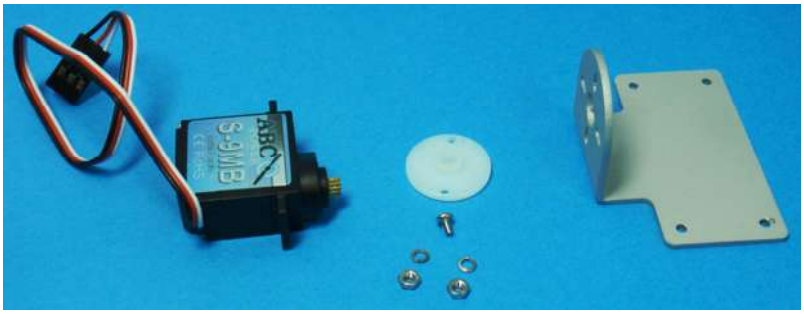
Metal standoffs

Fixing set for the battery container

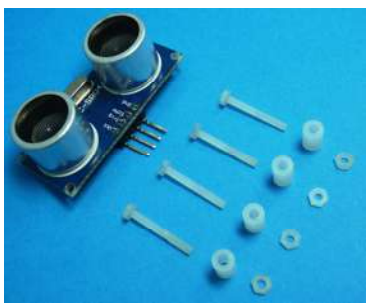


Line sensors

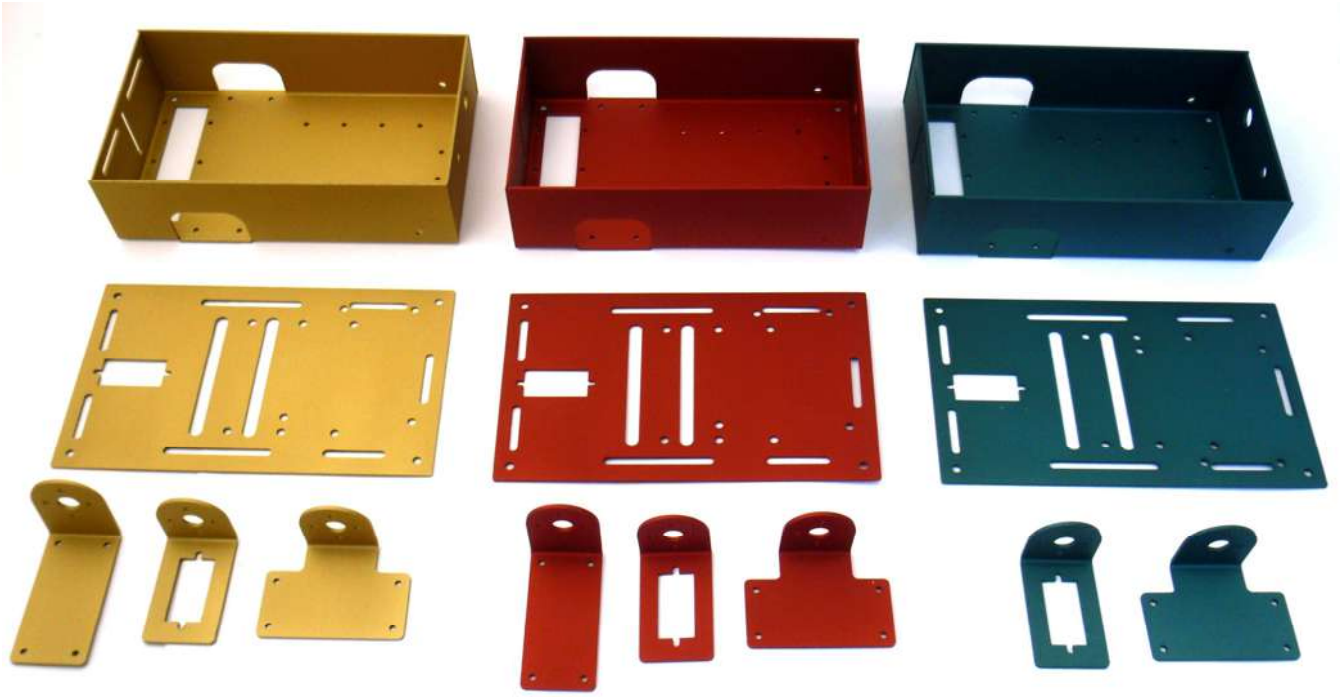
Scaner with one servo

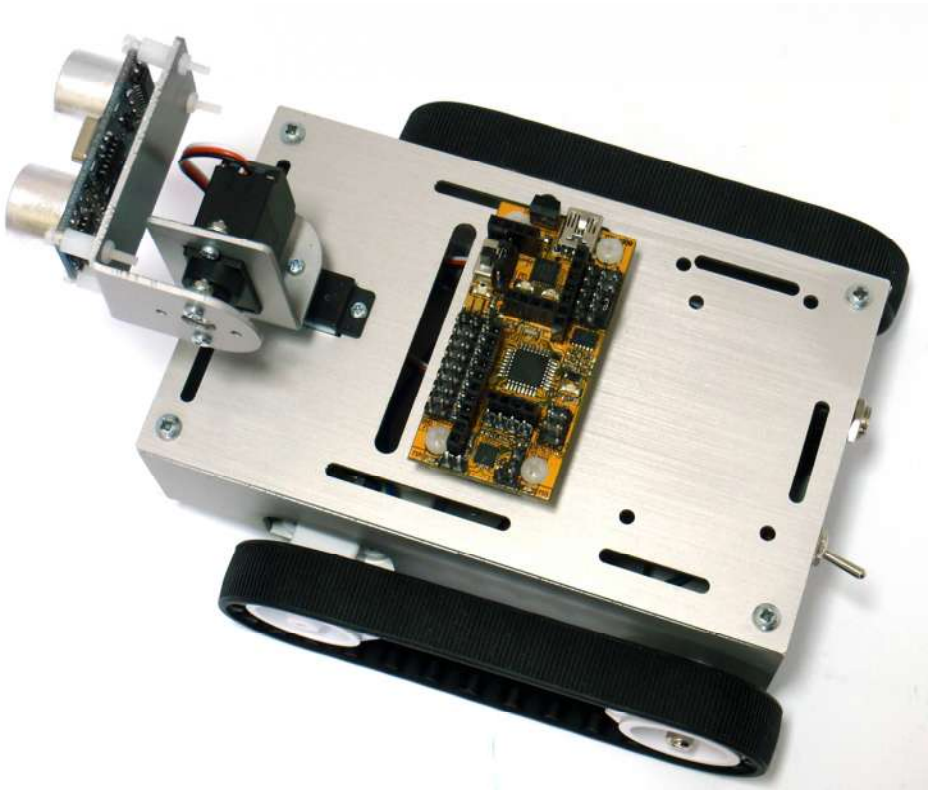


Ultrasonic sensor module and sensor fixing set



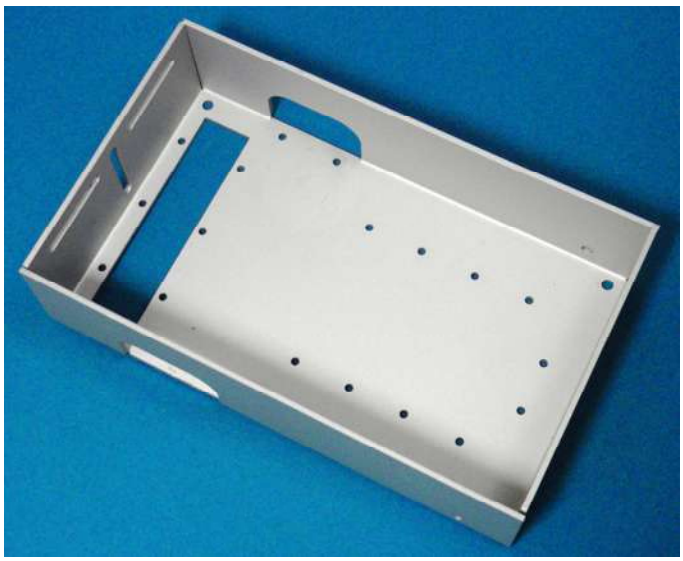
The platform is available in different colors

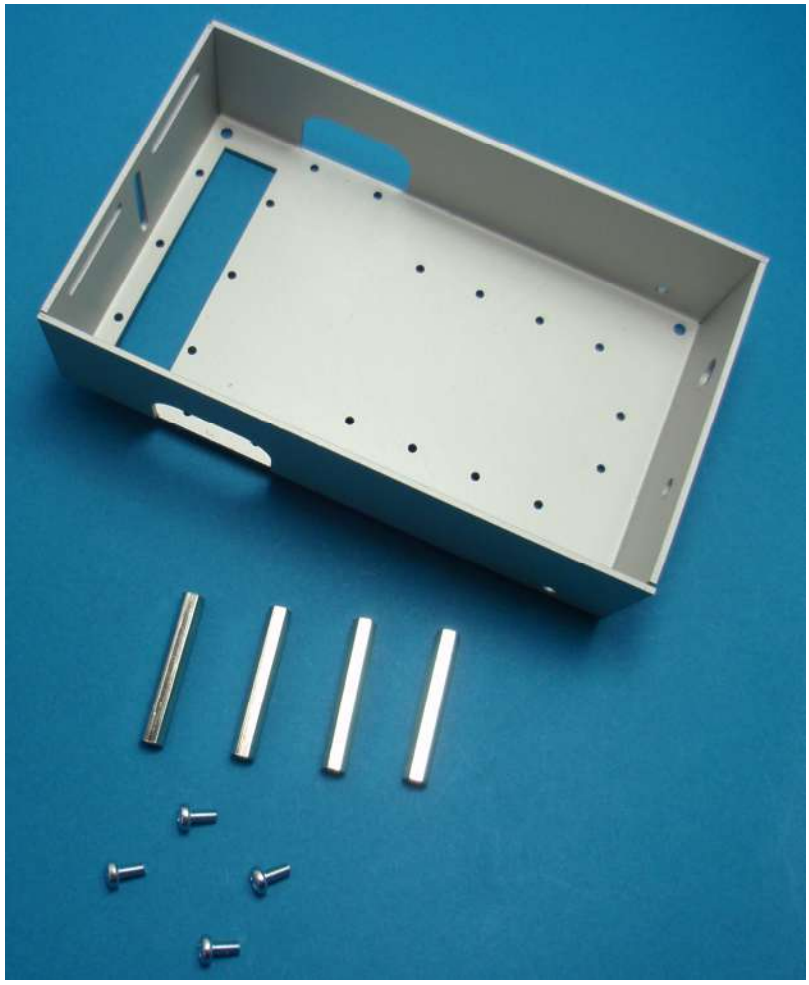




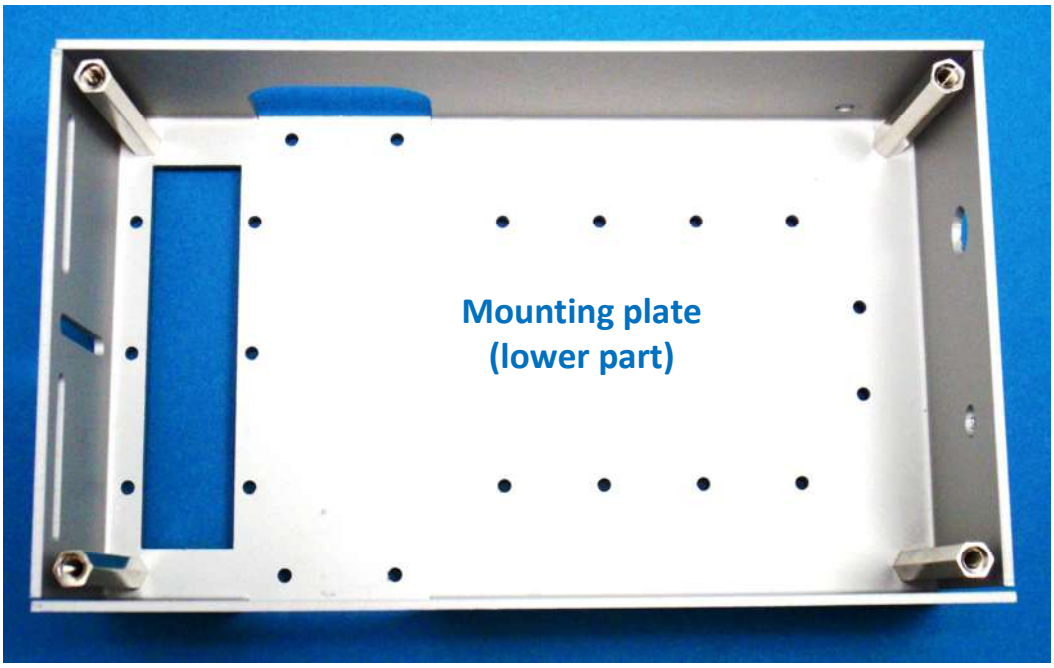
STEP 1

Metal standoffs

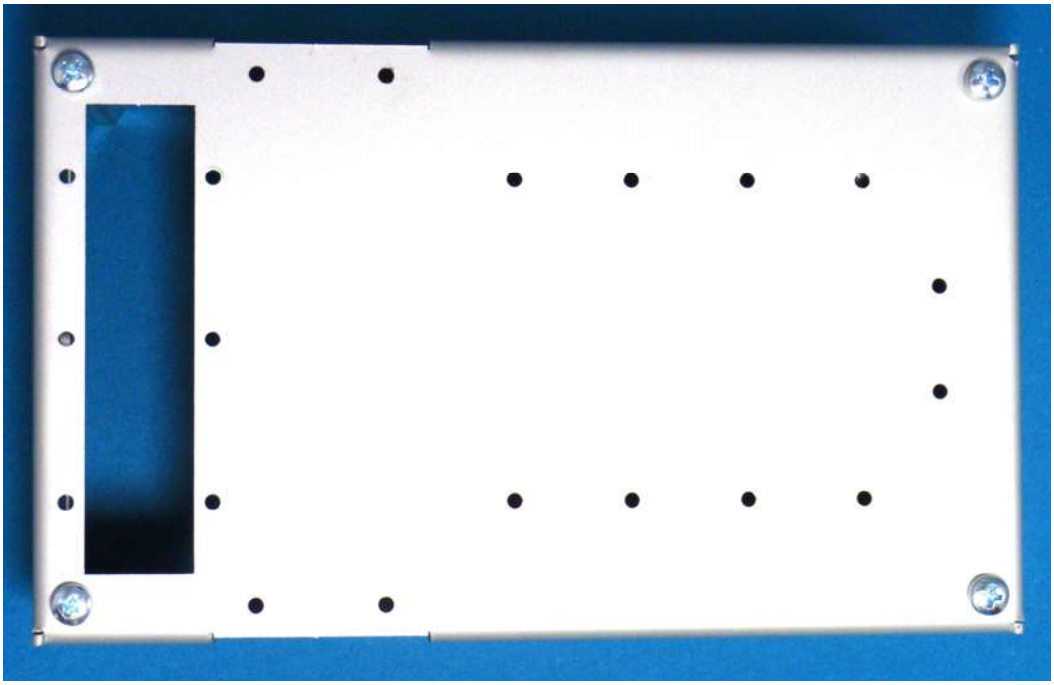




Mounting plate (lower part) with 4 standoffs

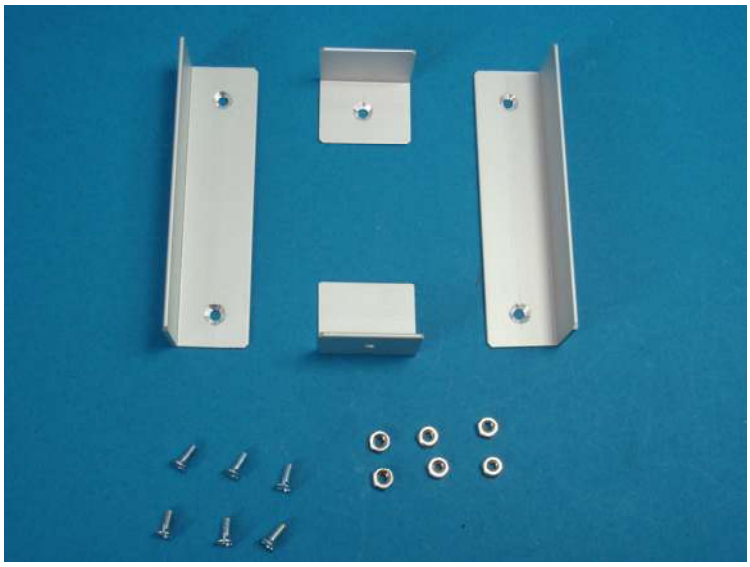


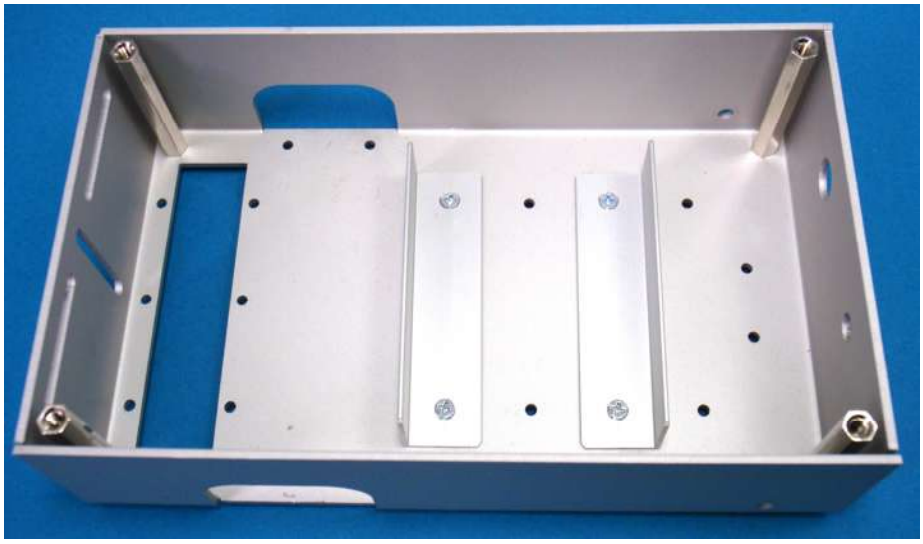
Mounting plate (lower part) – view from bottom

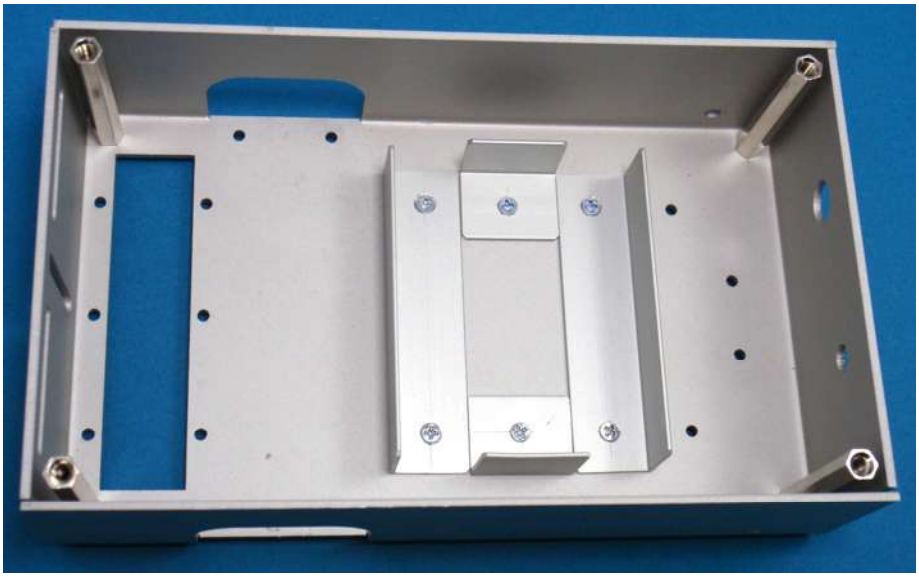


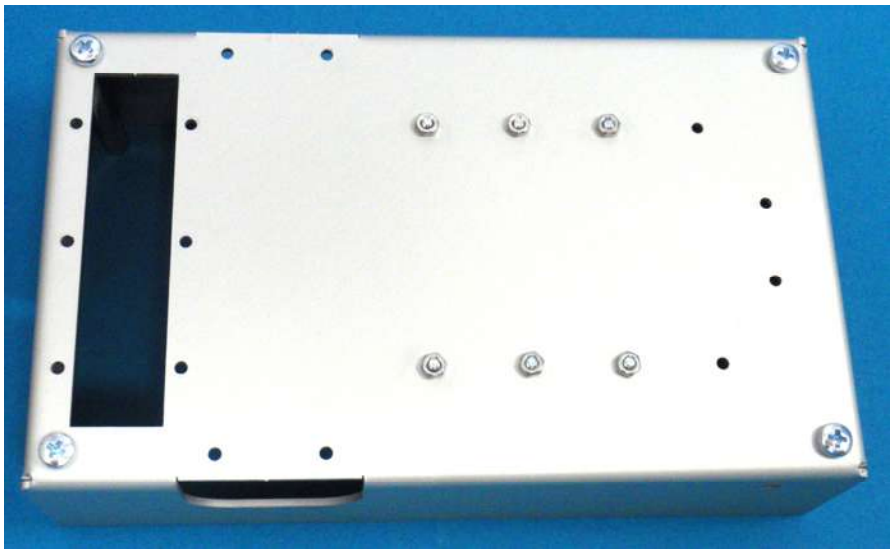
STEP 2

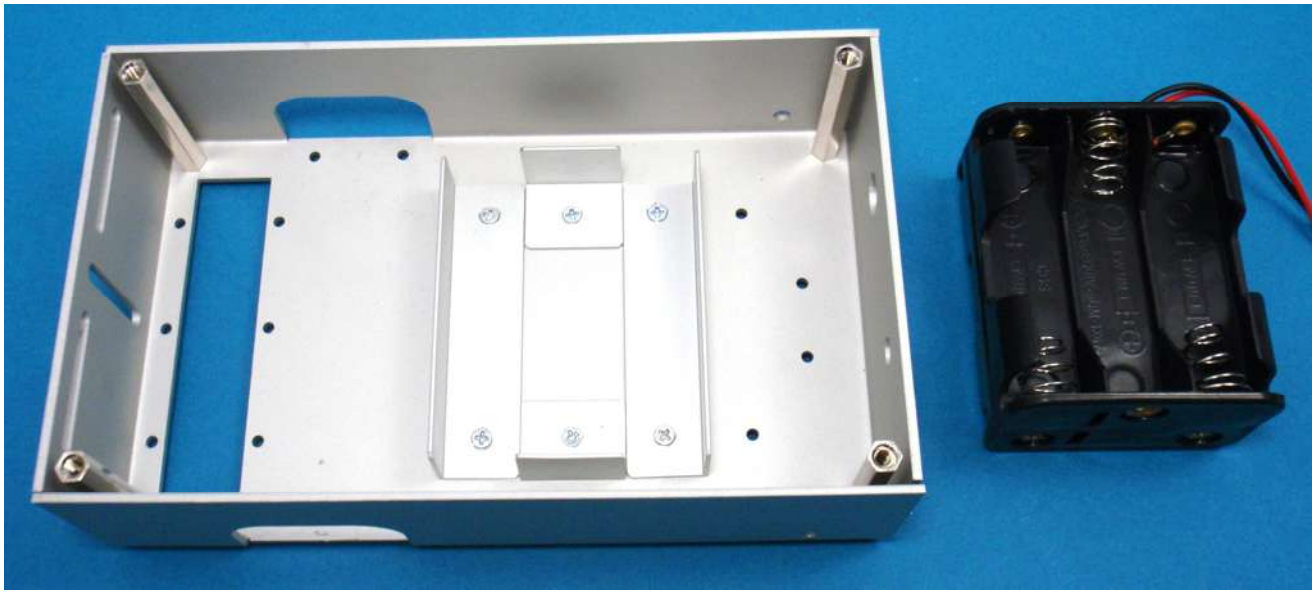
Fixing set for the battery container

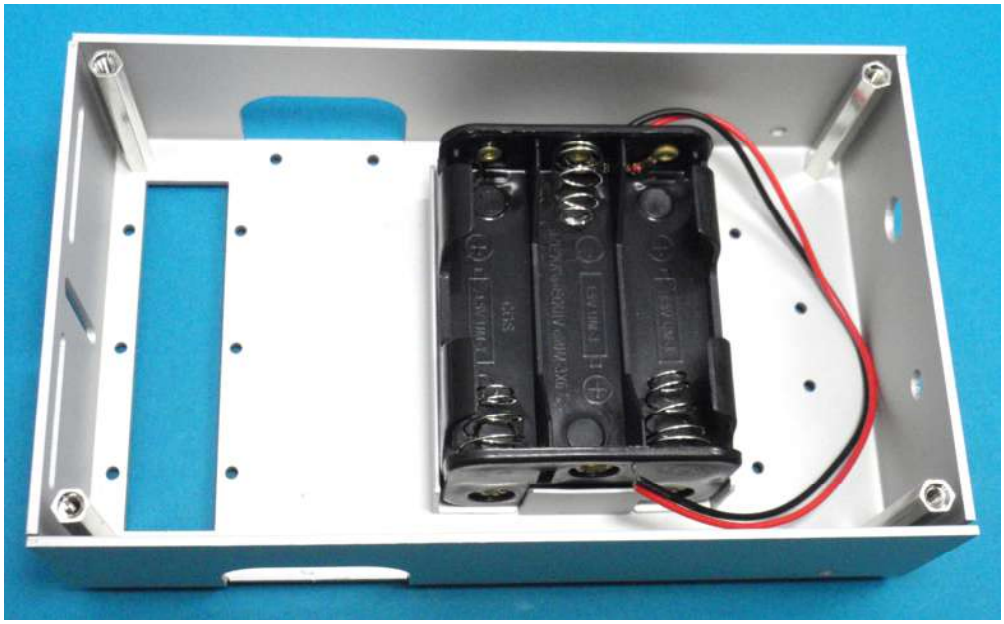






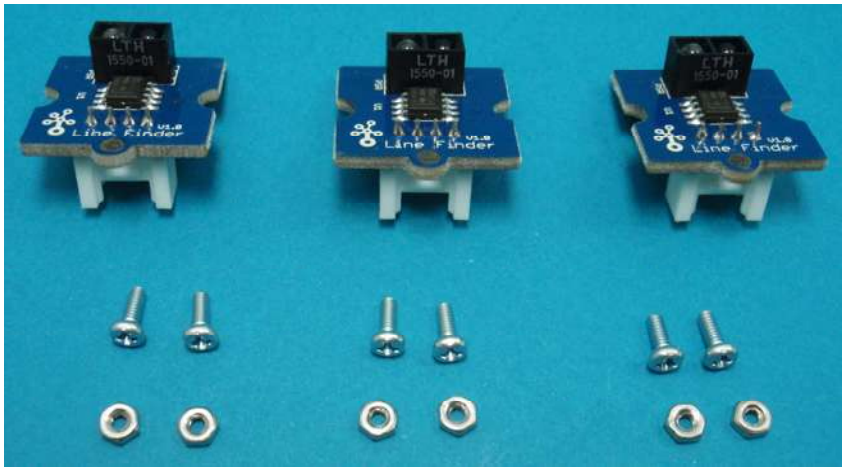


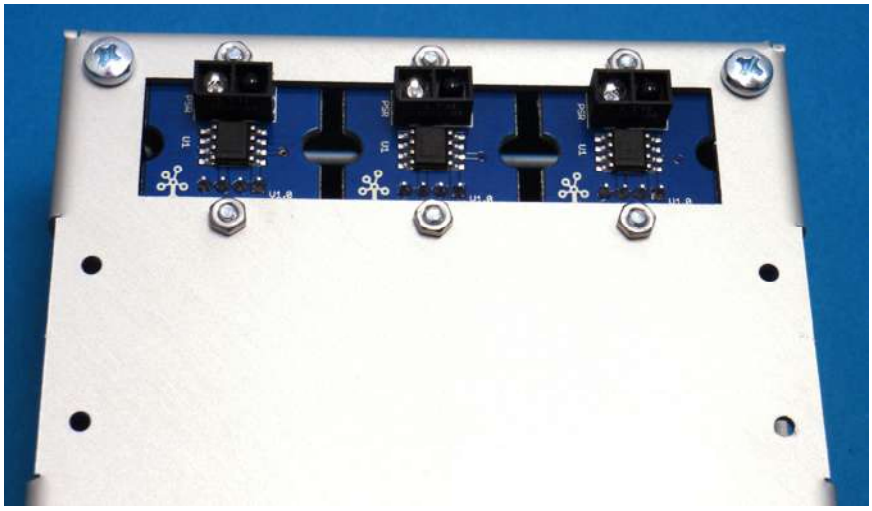


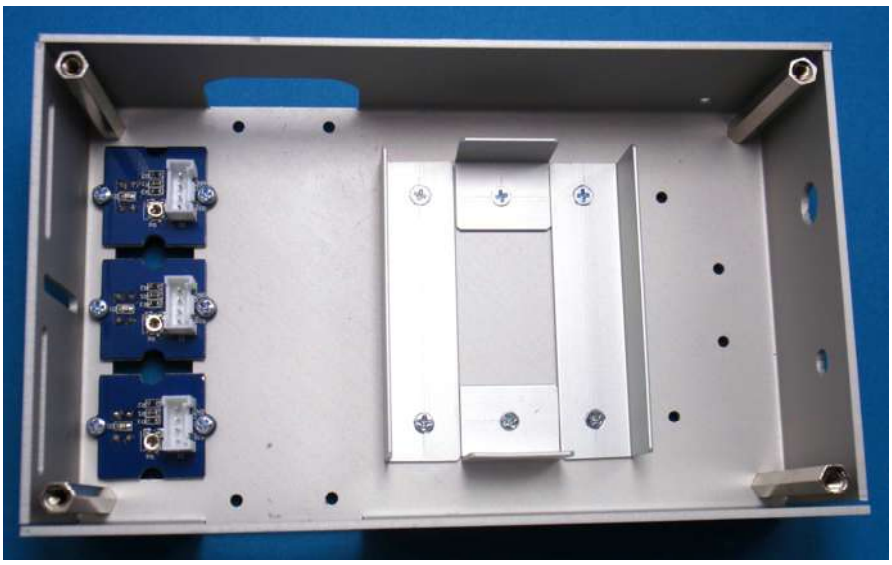


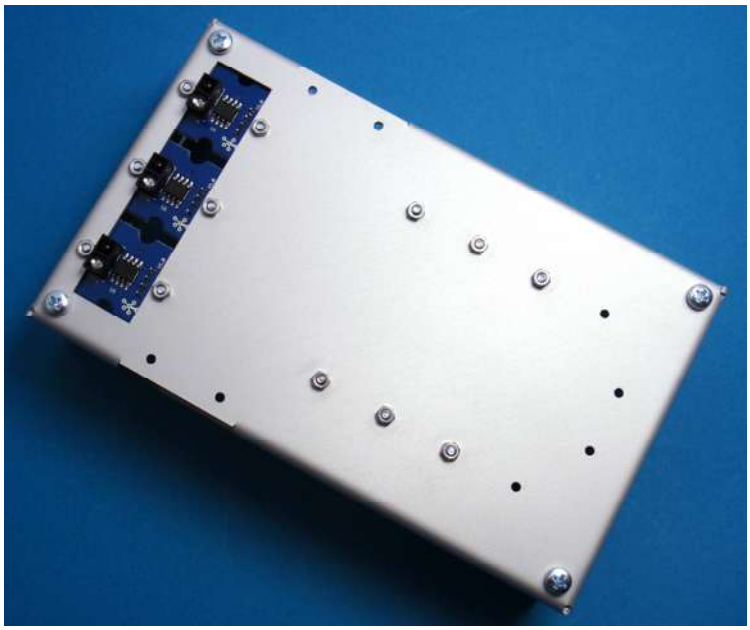
STEP 3

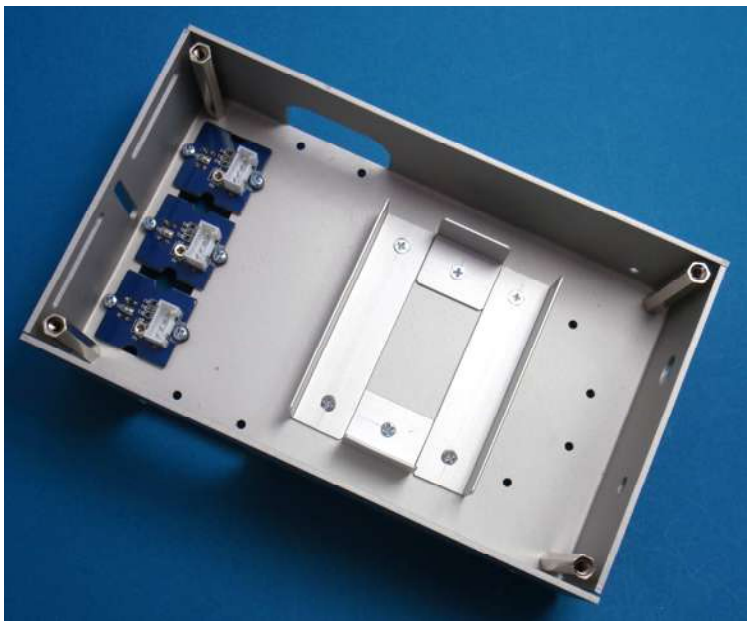
Line sensors





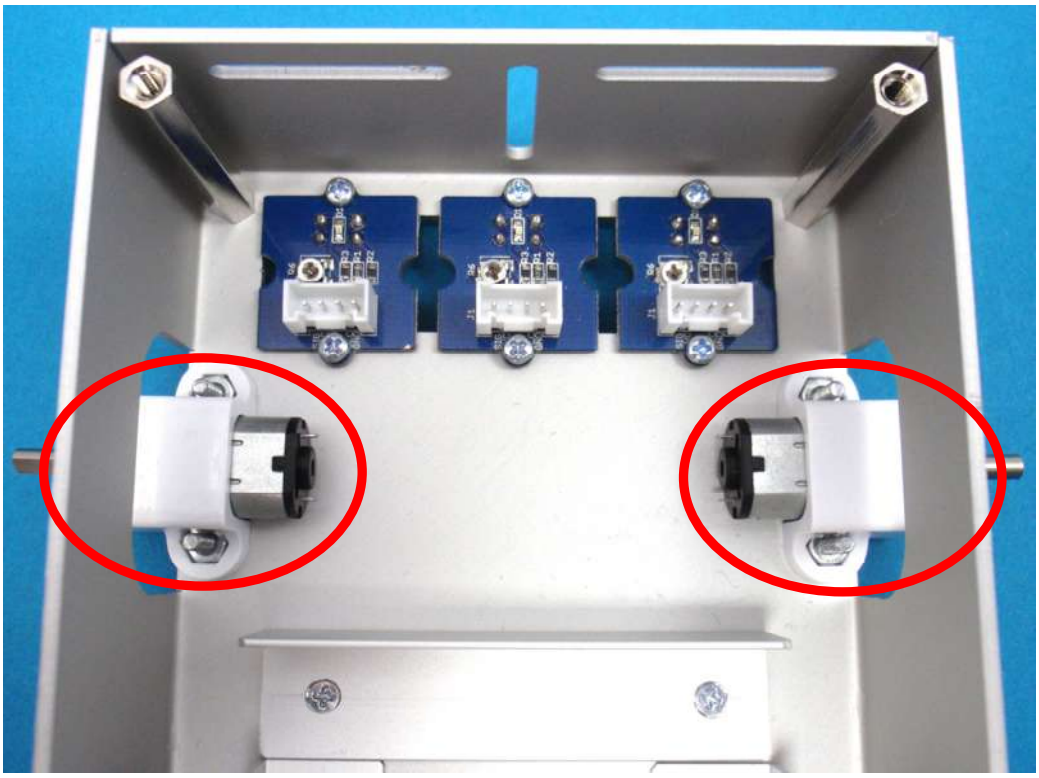


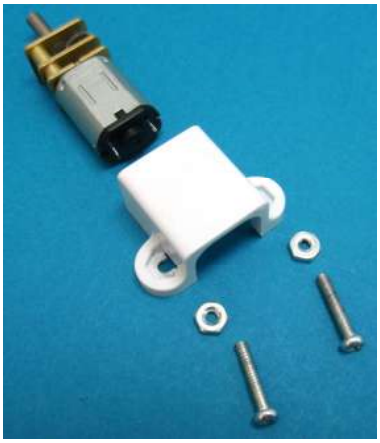


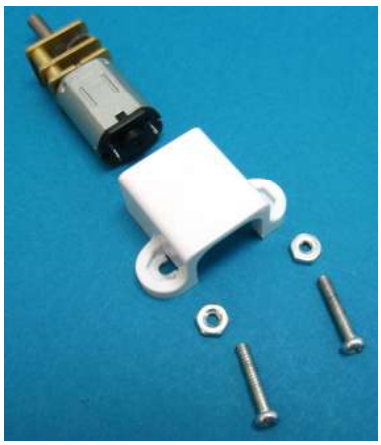


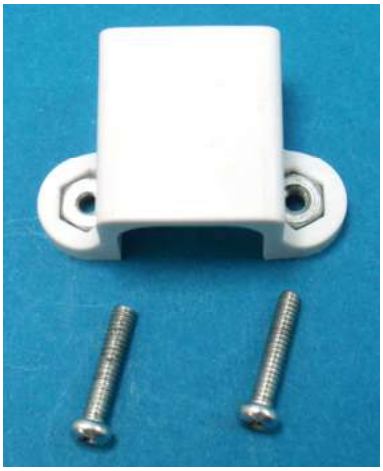
STEP 4

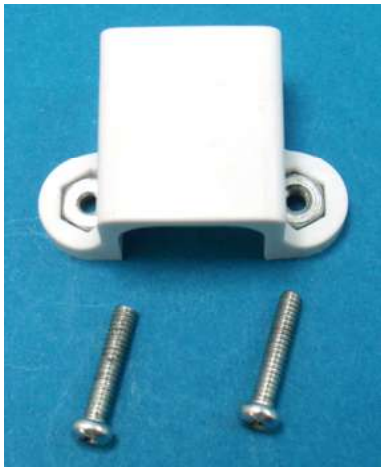
Motors and fasteners

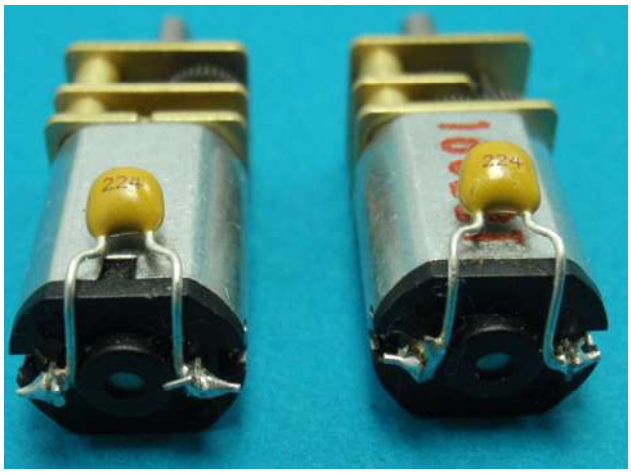


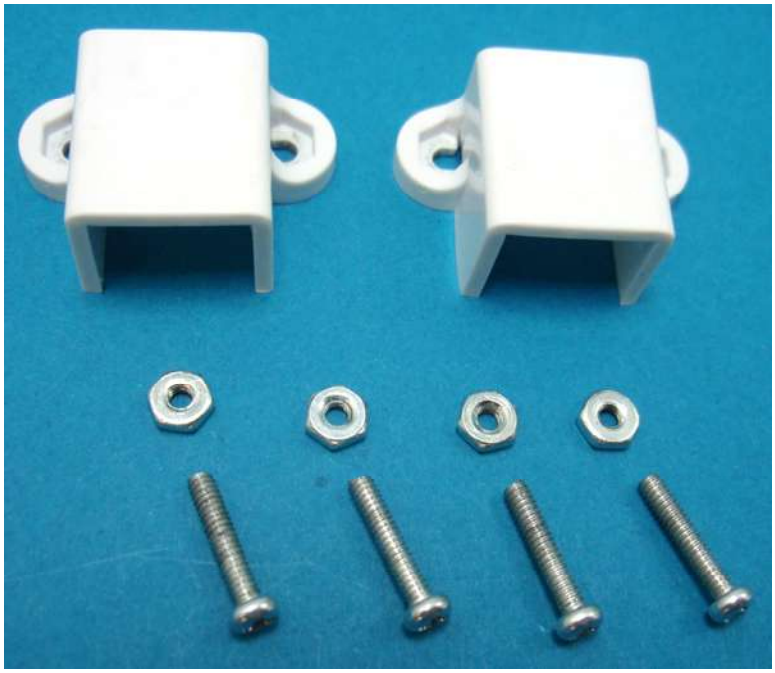


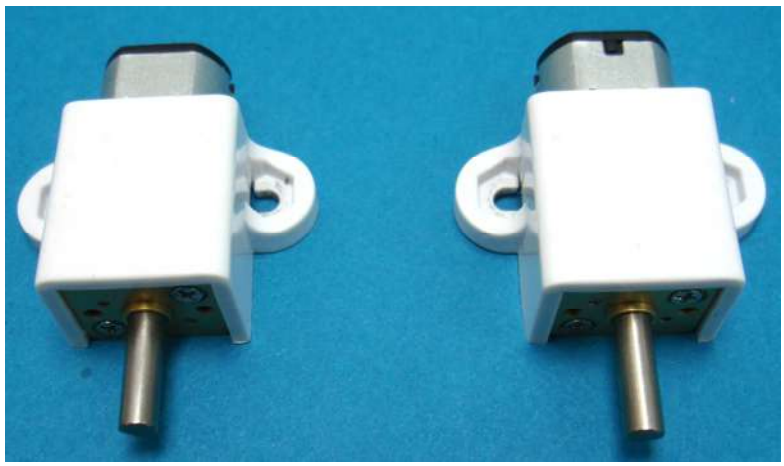


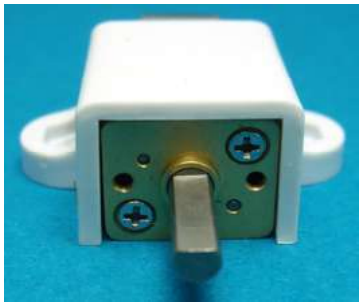
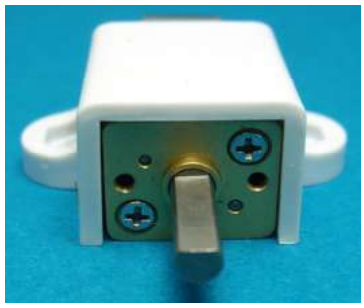
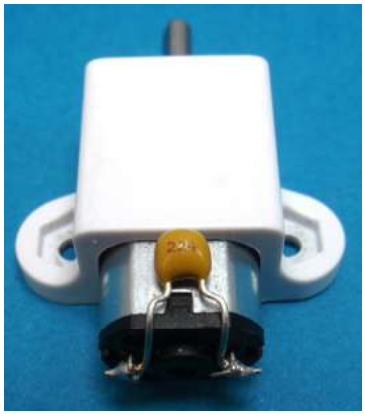
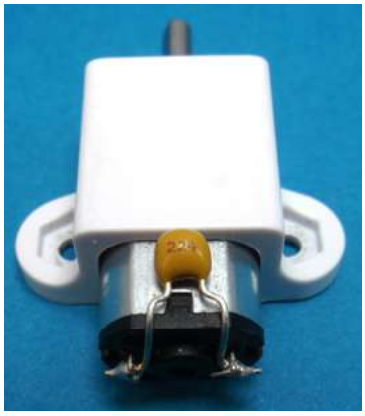




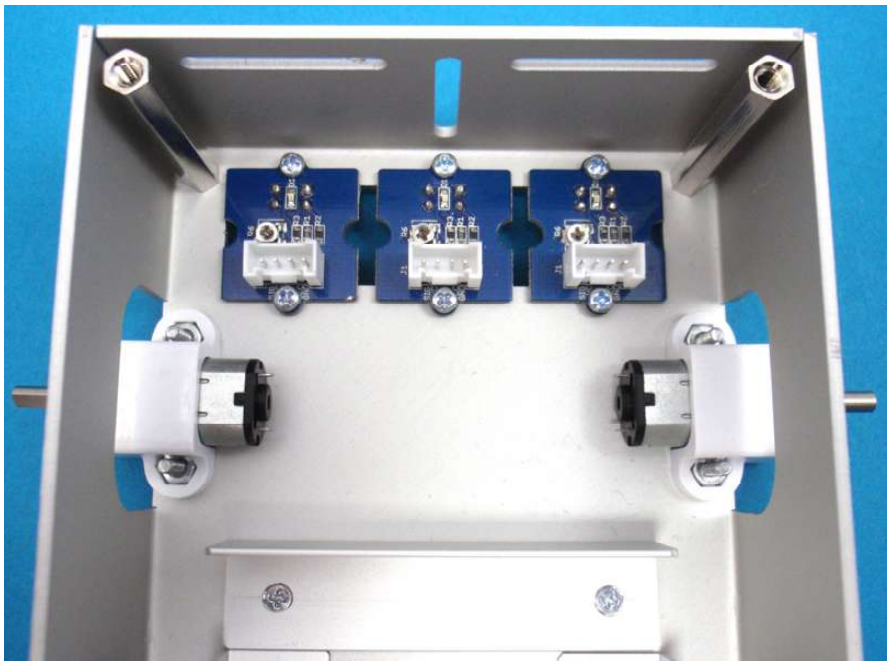


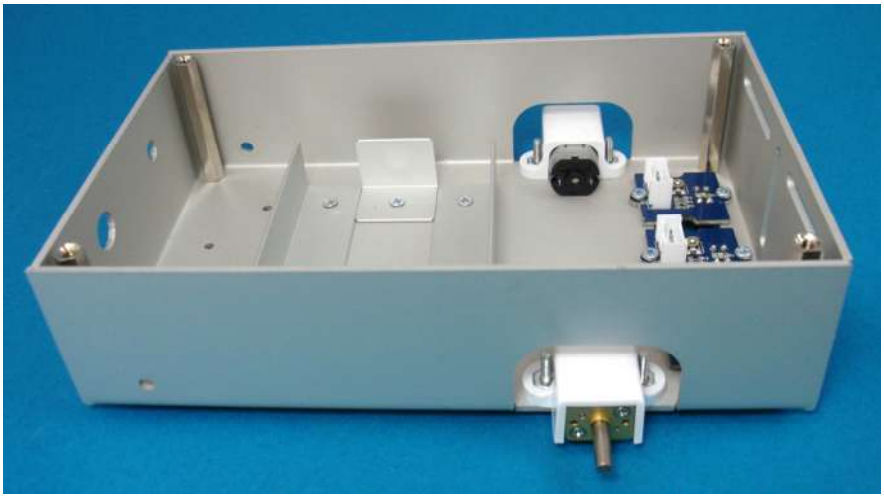


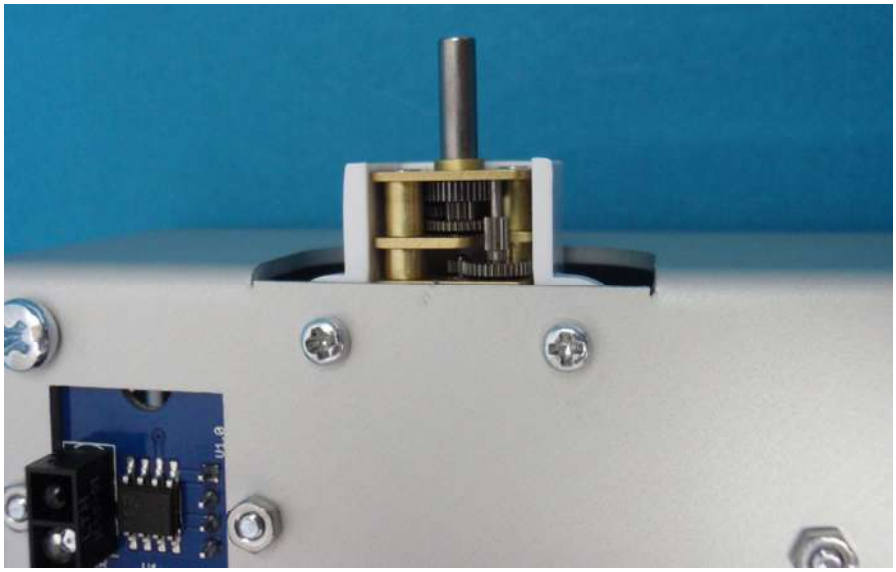


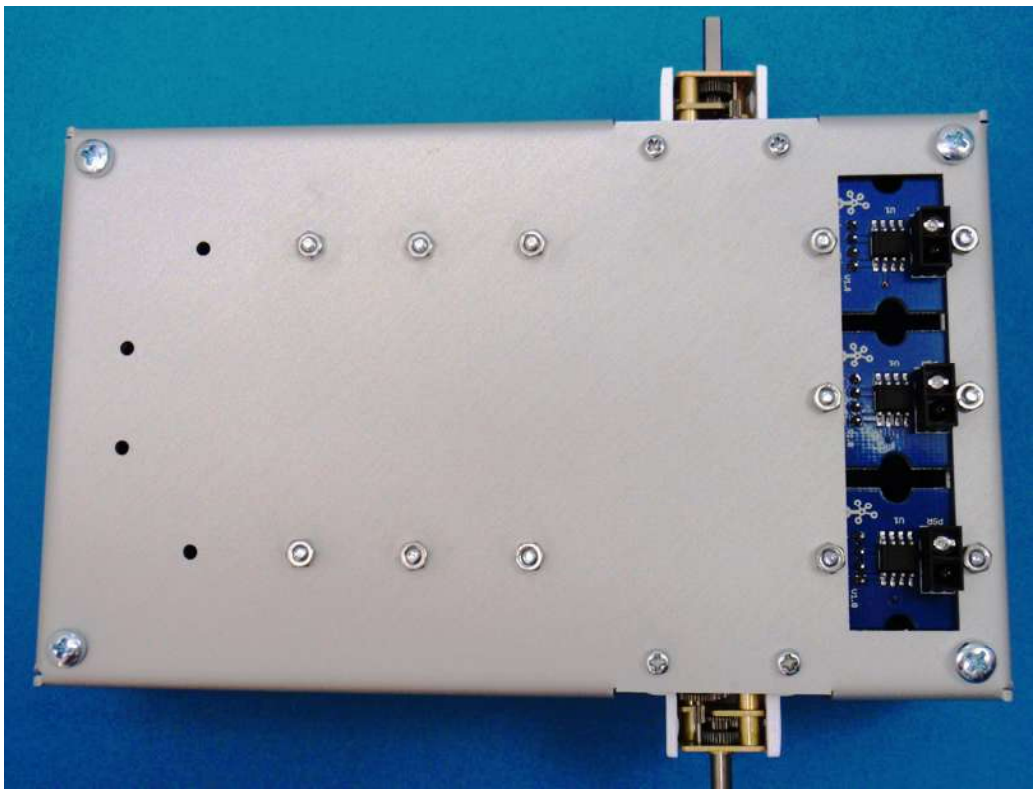





The assembly principle of motor to lower mounting plate









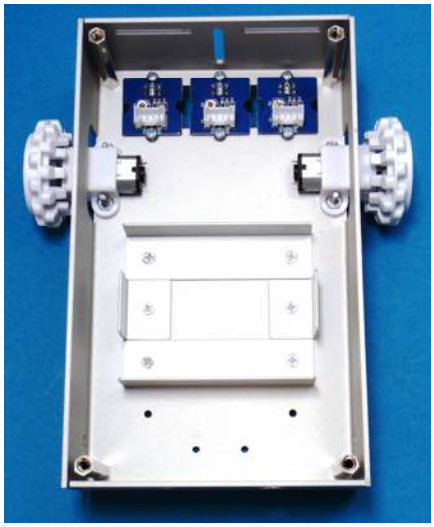
STEP 5

Drive system (version 3)

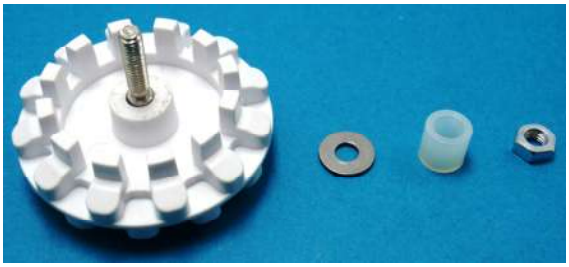
Version 3

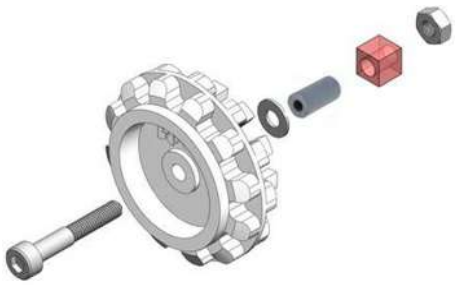
Platform with tracked drive system (two silicone tracks and two motors)

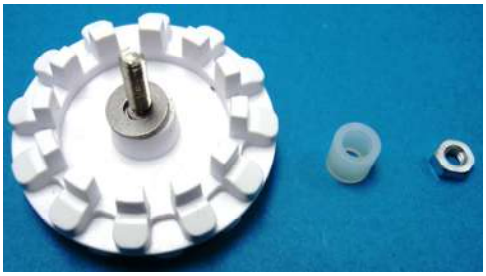
2 active front wheels

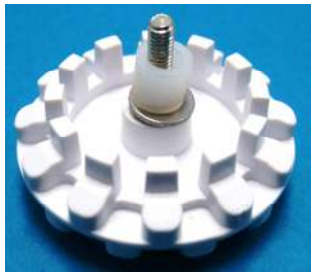


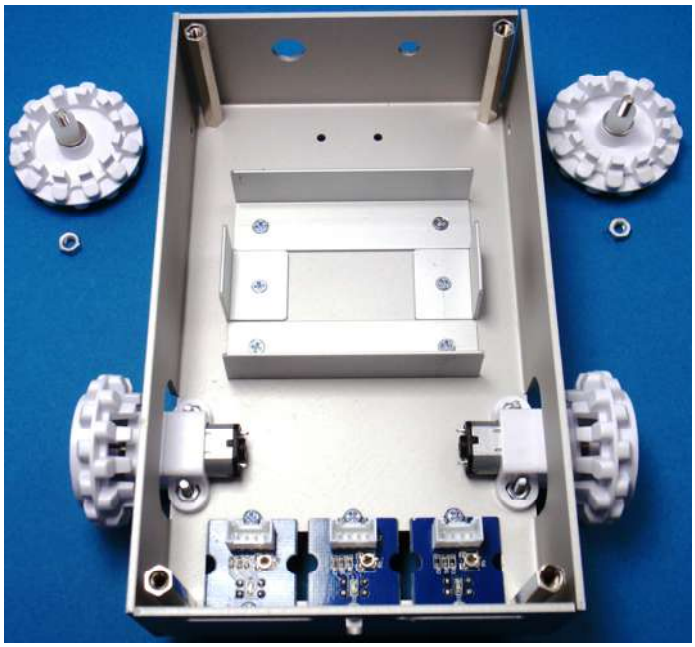
2 passive rear wheels

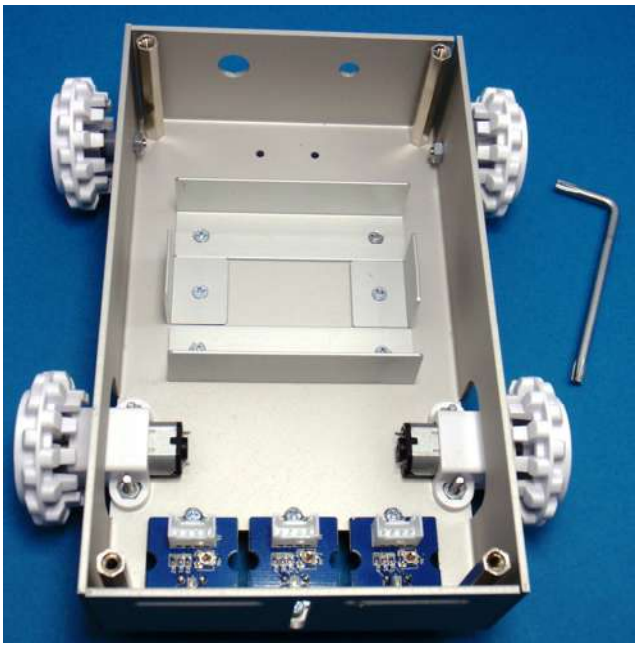


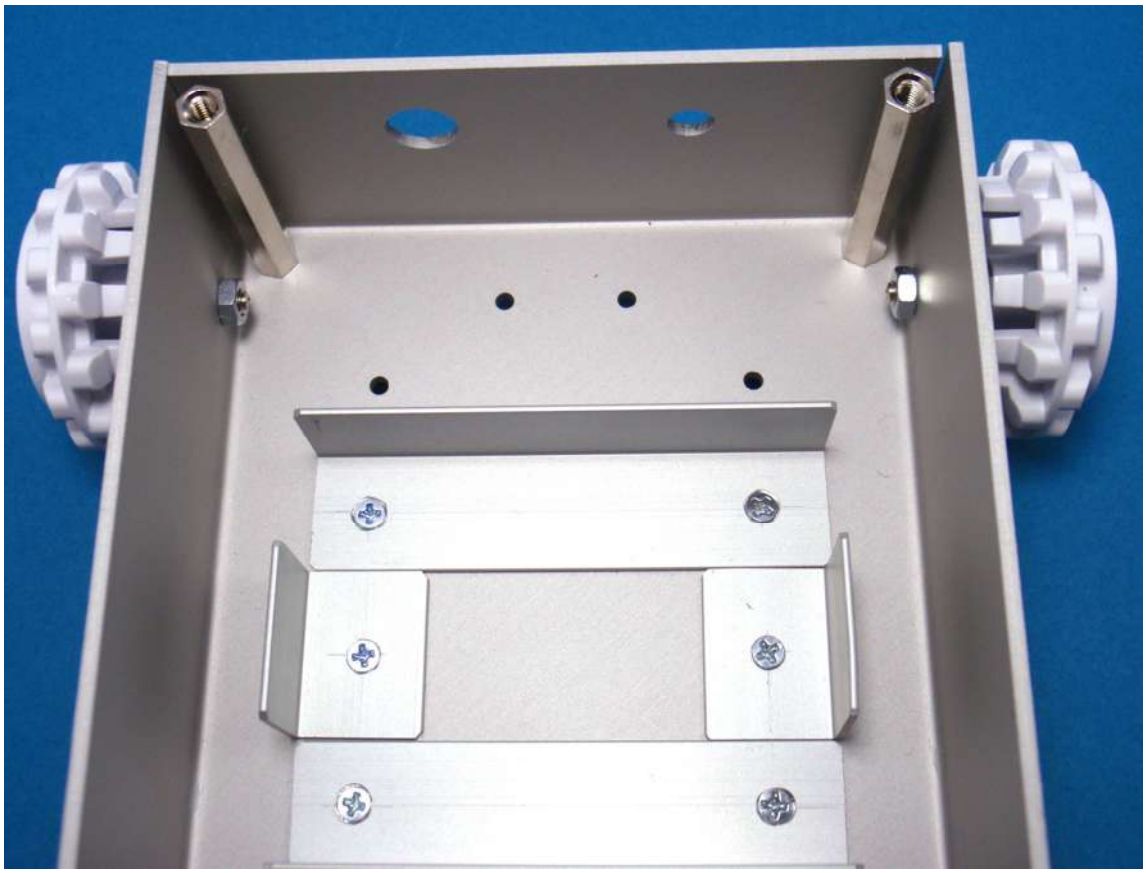


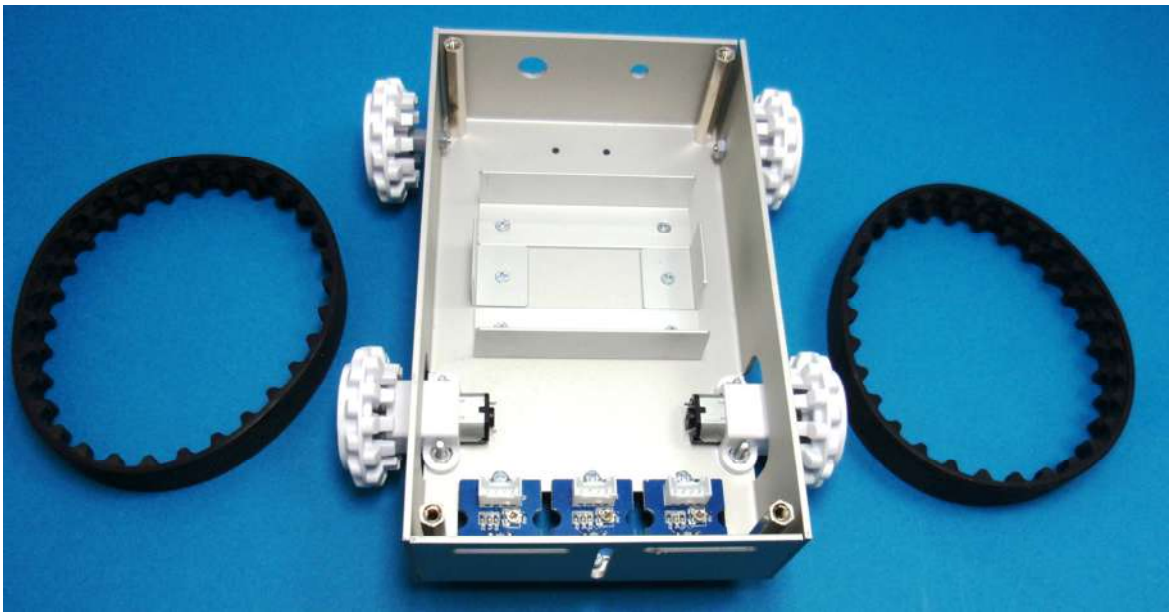


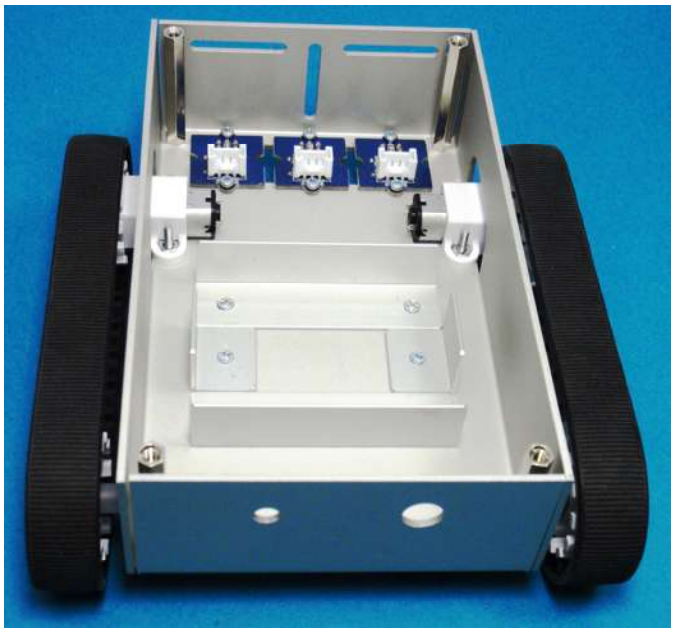


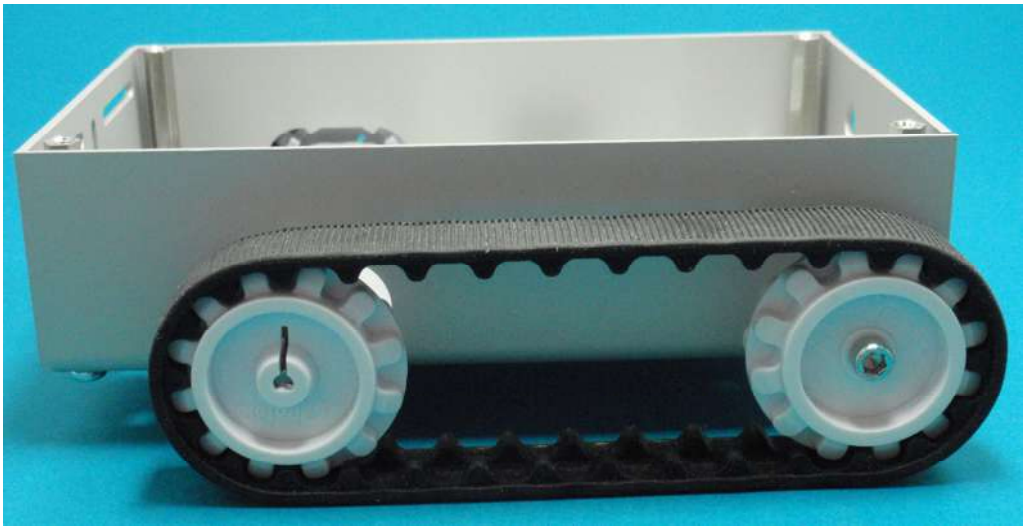




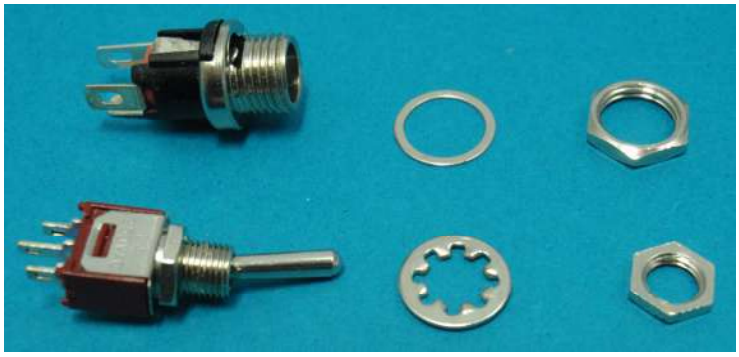


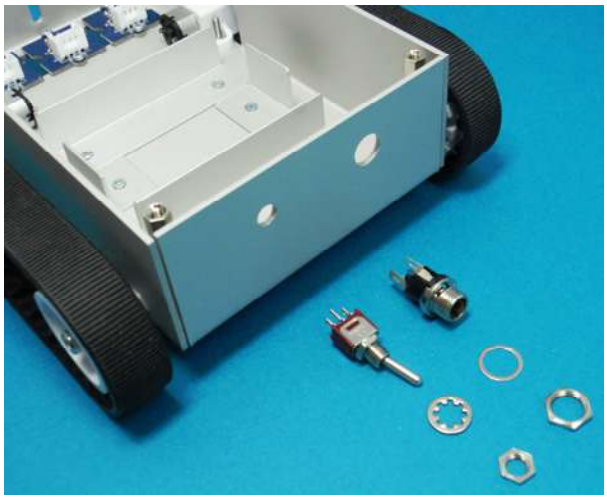


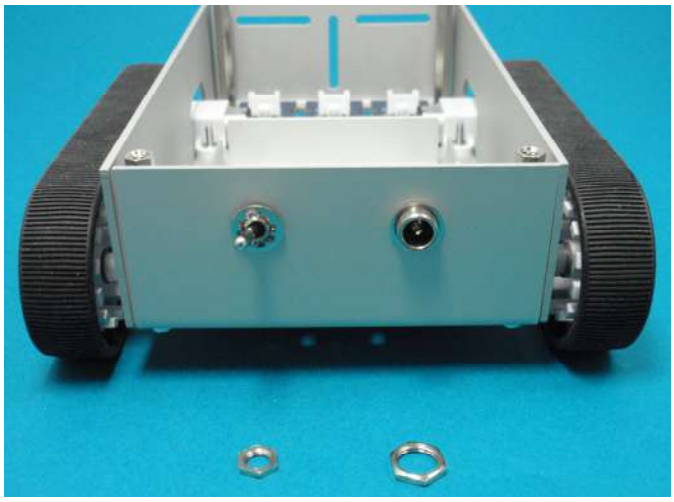


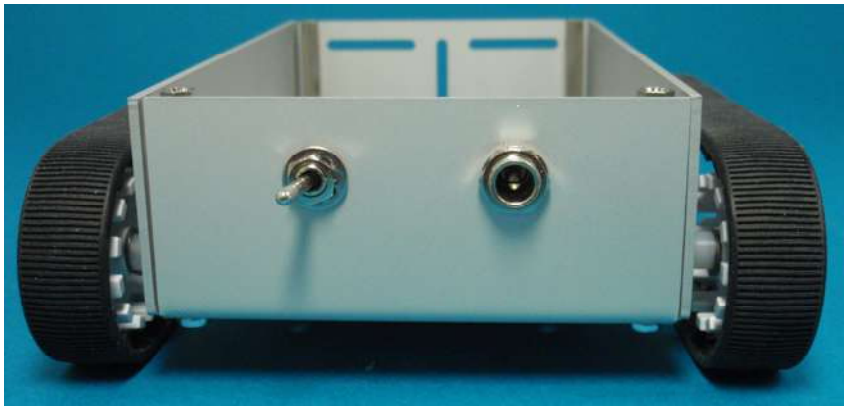


STEP 6 (switch and power connector – for all versions of drive system)

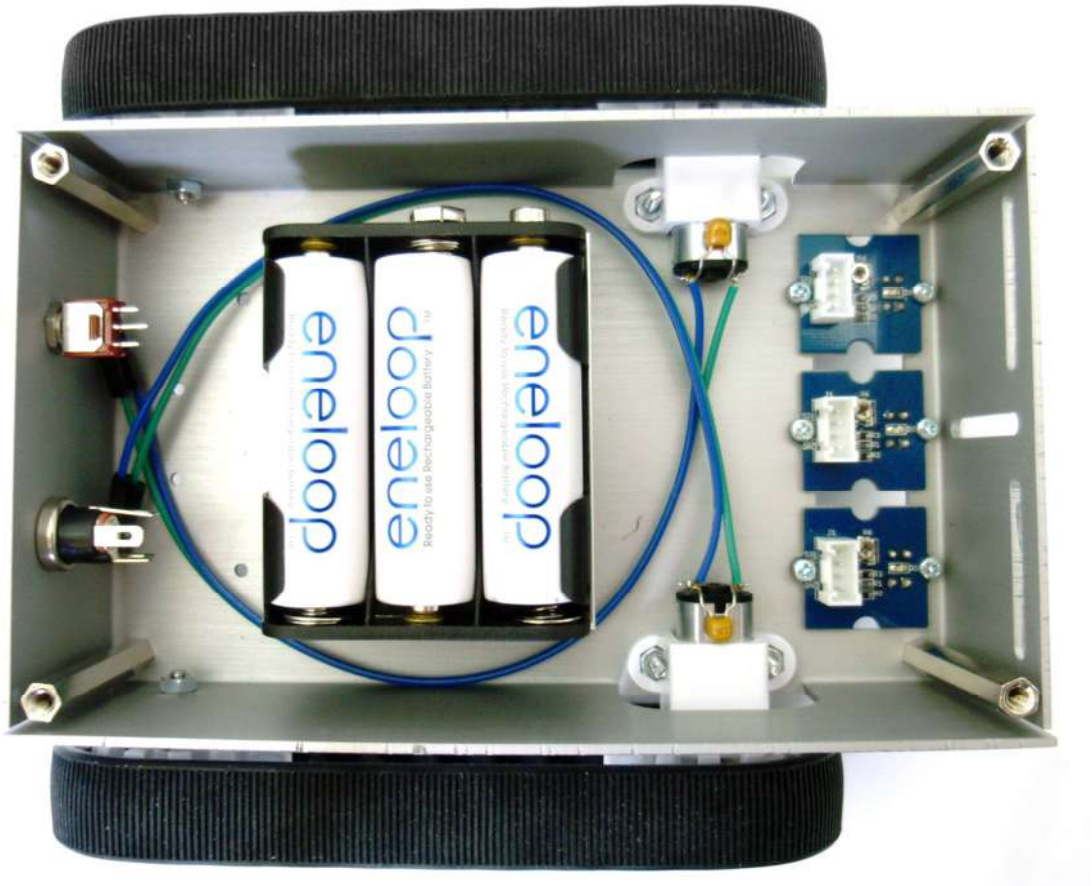








eneloop
eneloop
eneloop


eneloop
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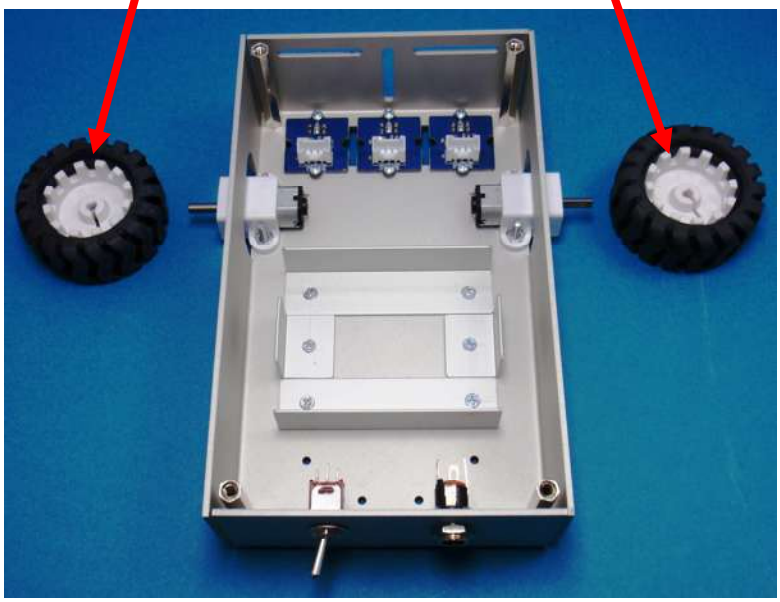
eneloop

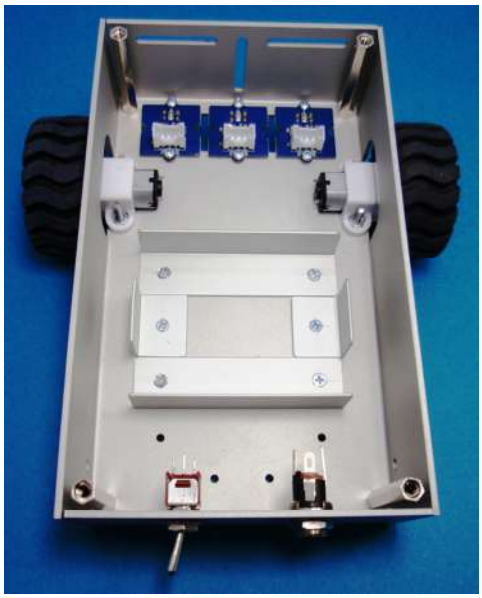
STEP 7 (Drive system, version 1)

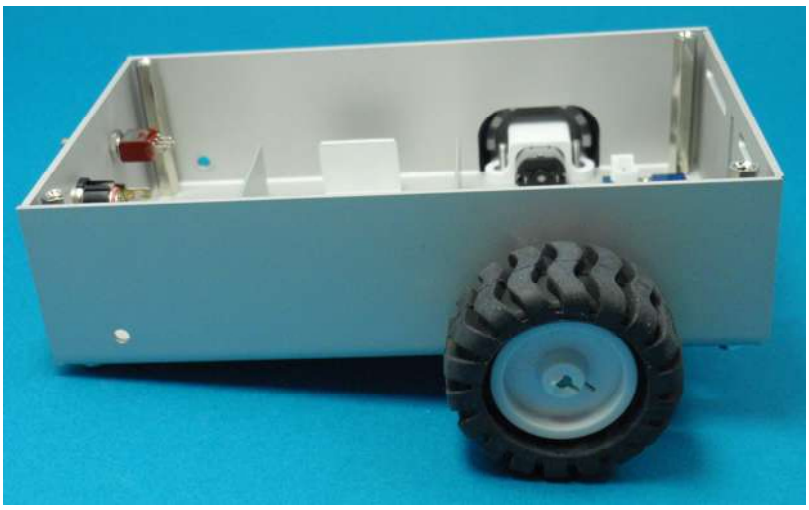
Version 1

Four-wheeled platform (2 active front wheels and 2 passive rear wheels)

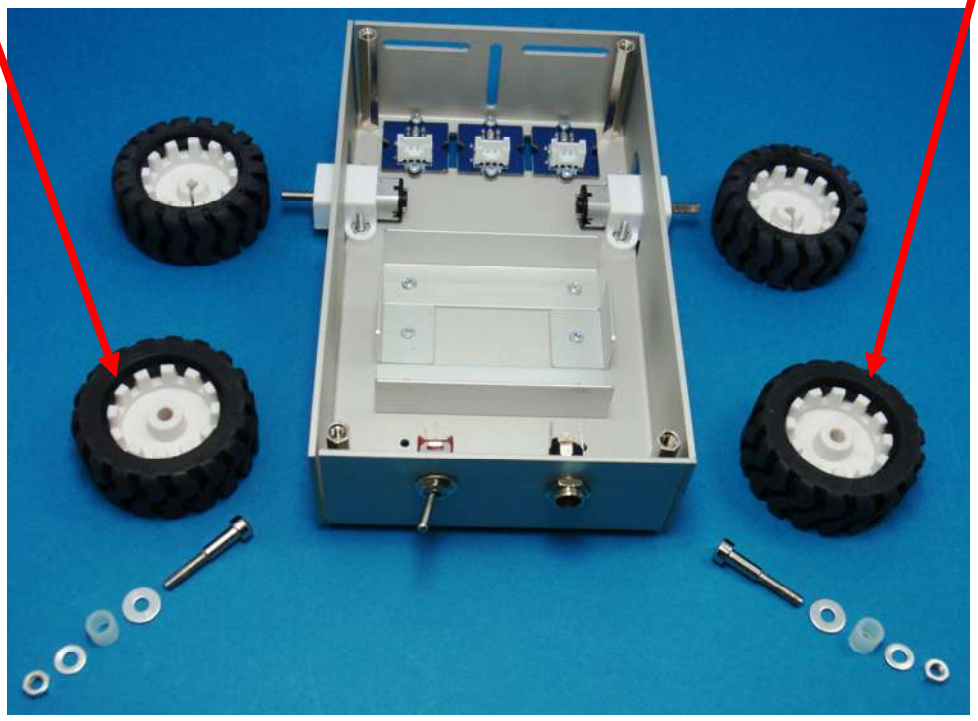
2 active front wheels (side 1 and side 2)

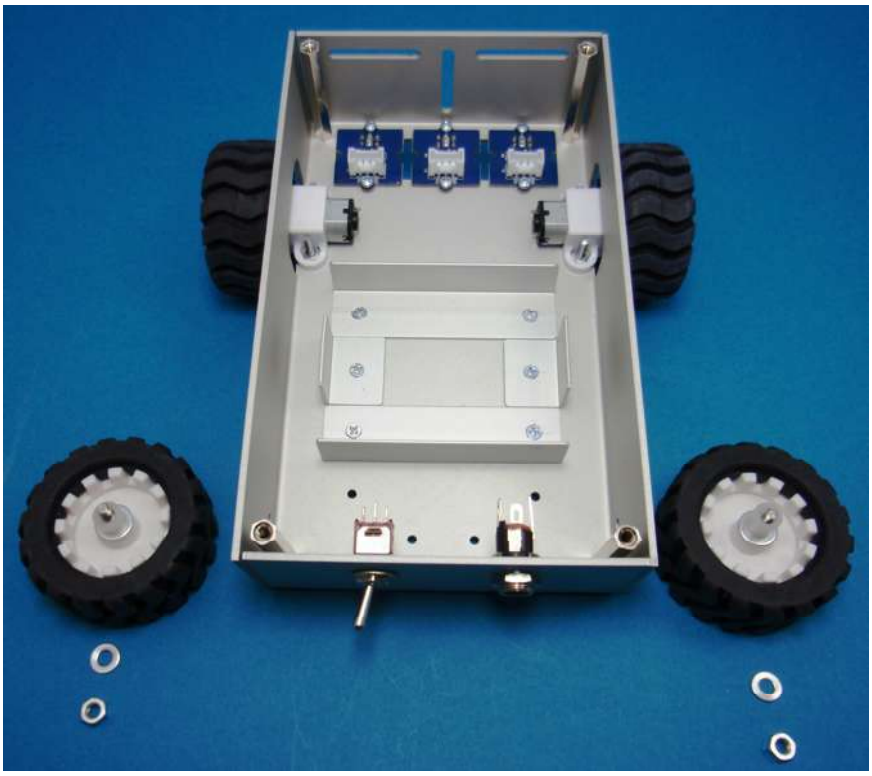


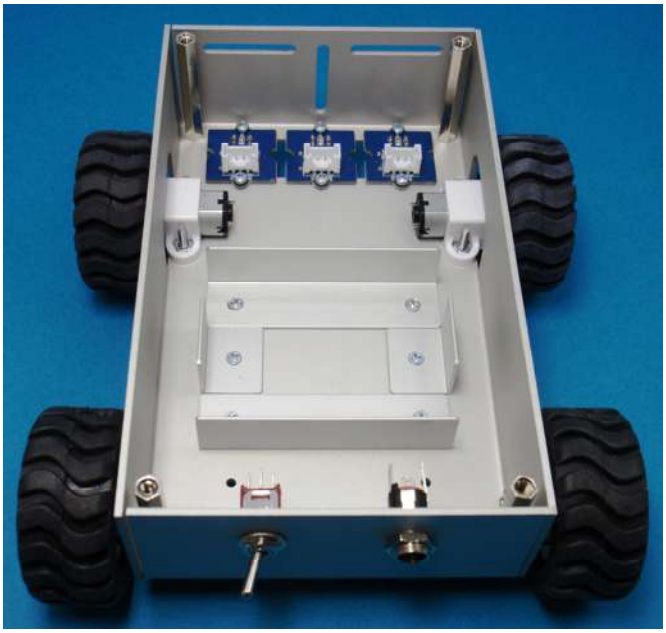


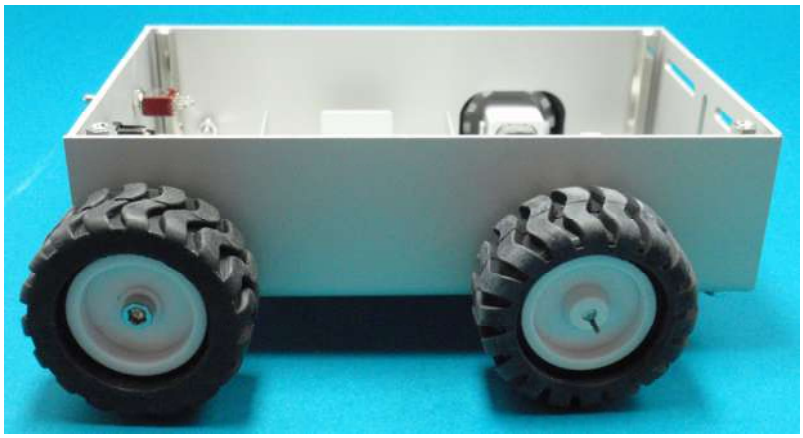


2 passive rear wheels (side 1 and side 2)





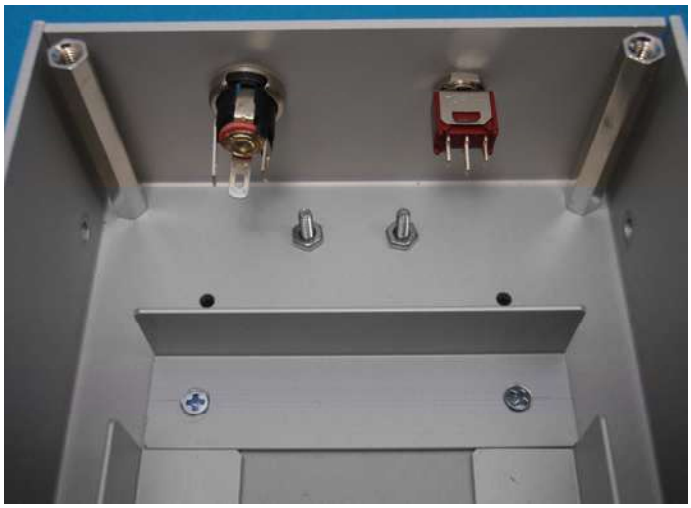


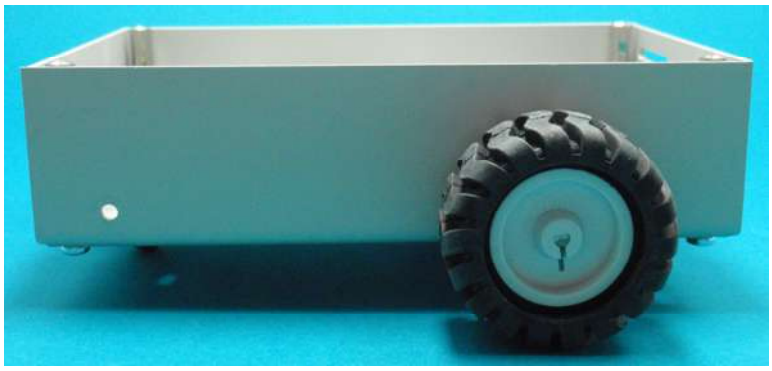


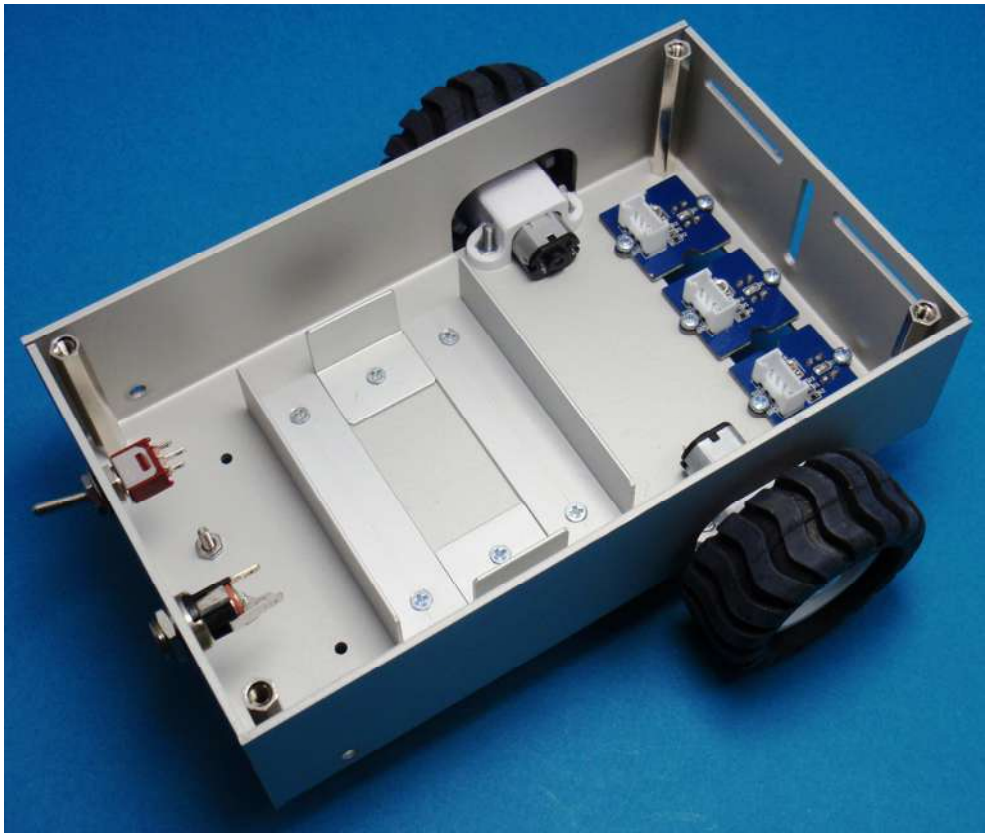
STEP 8 (Drive system, version 2)

Version 2

Two-wheeled platform with supporting ball caster and two motors

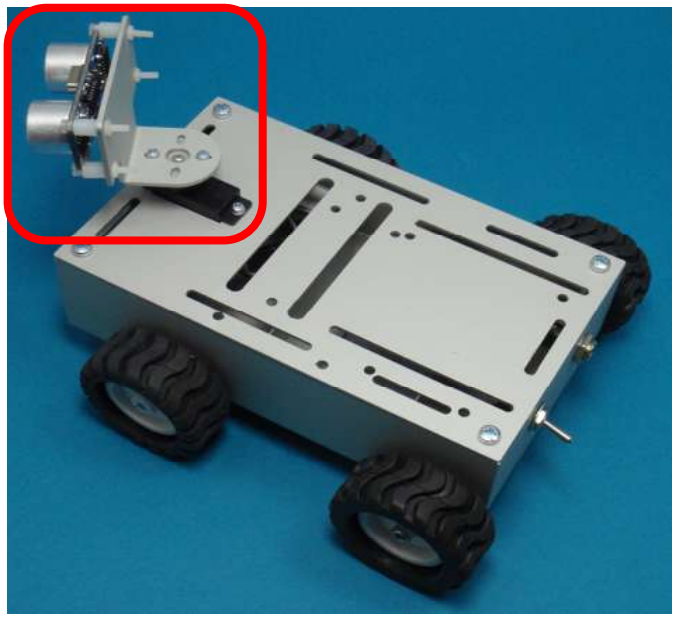


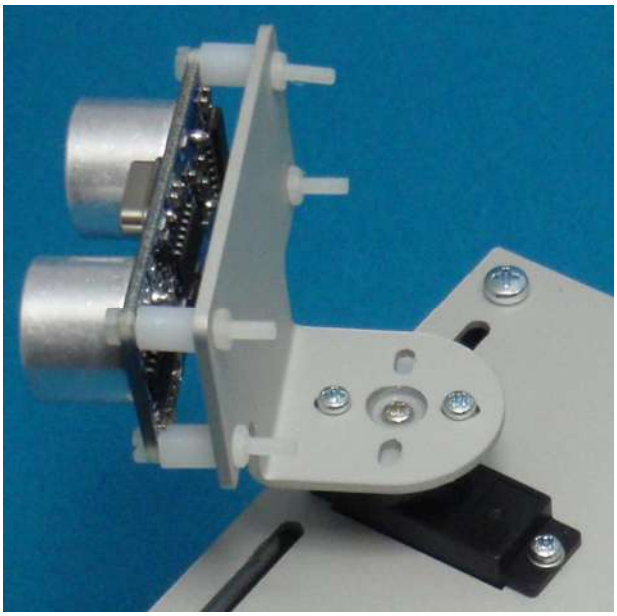


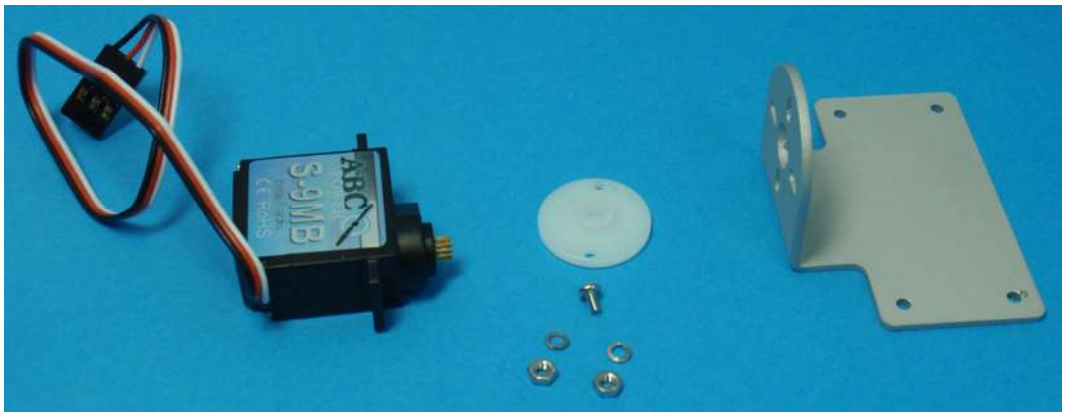


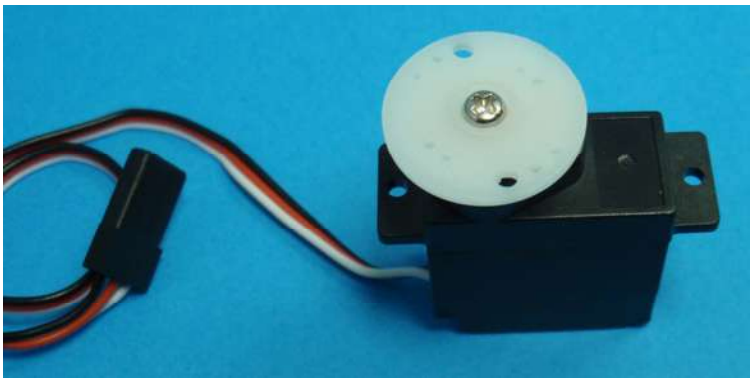
STEP 9

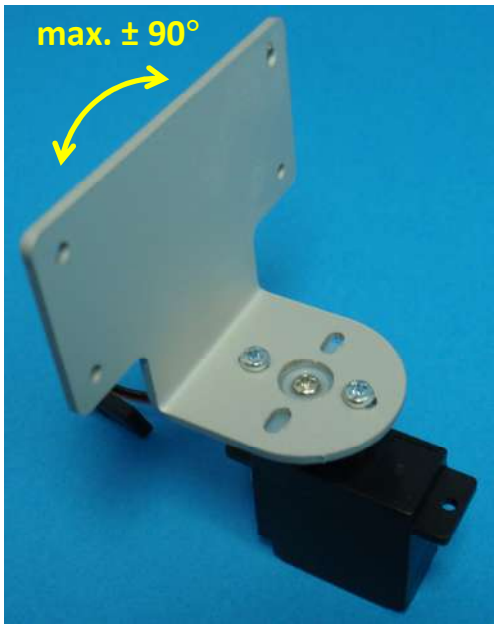
Sensor Pan/Tilt Kit (with one servo)

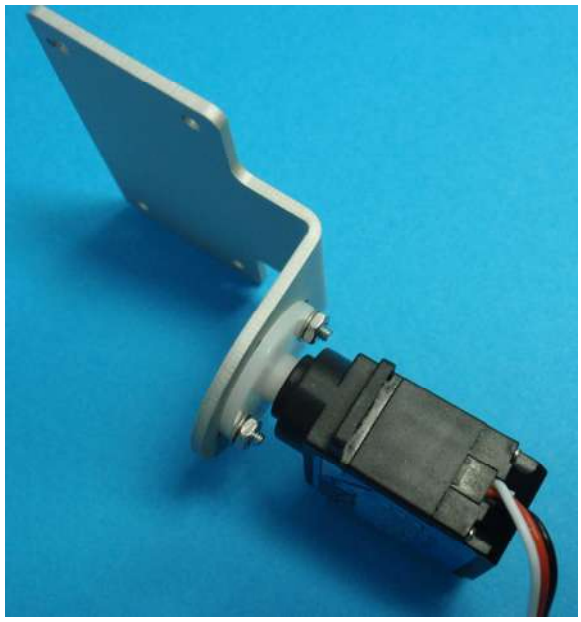




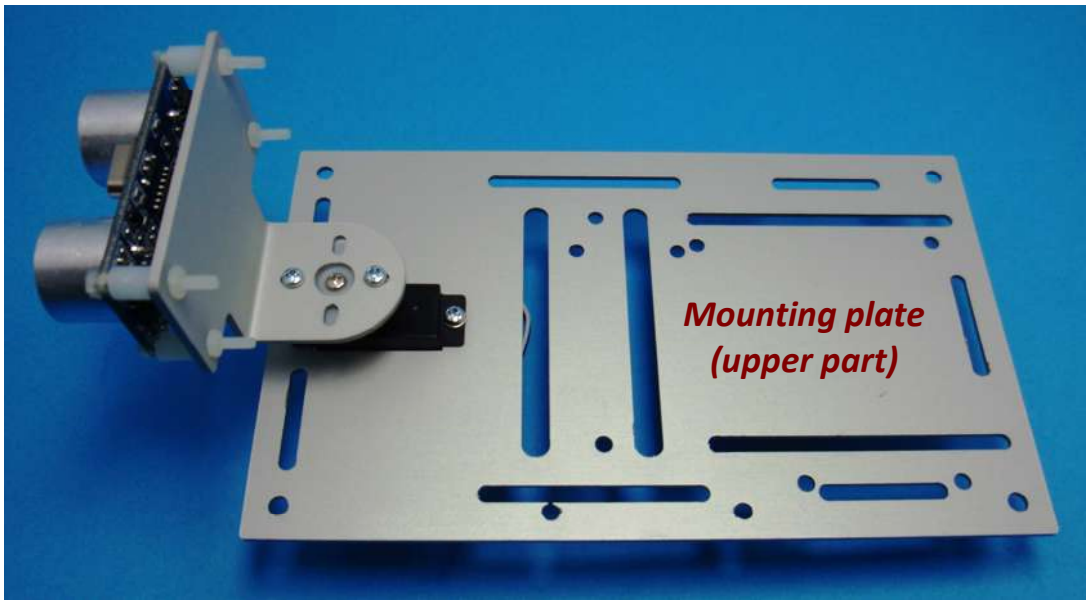


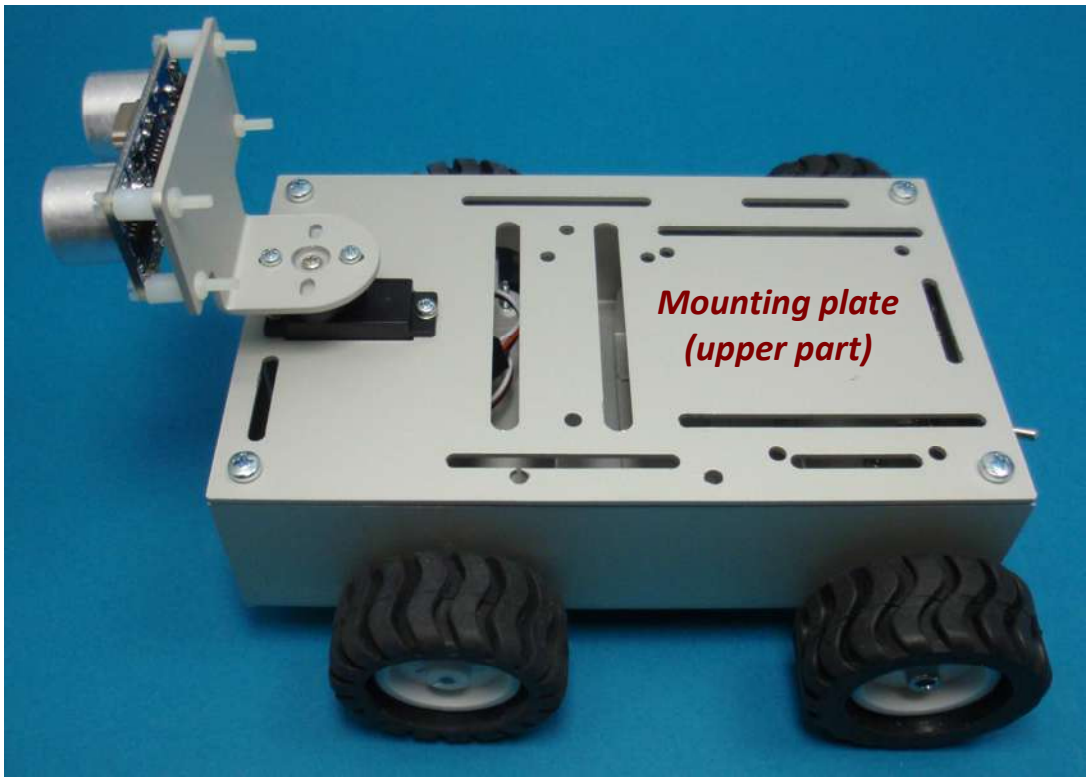


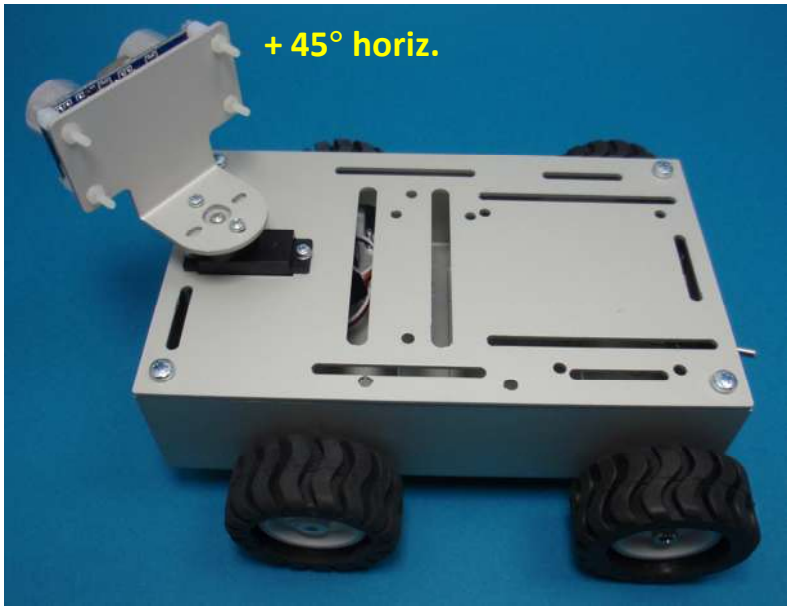

max. ± 90°

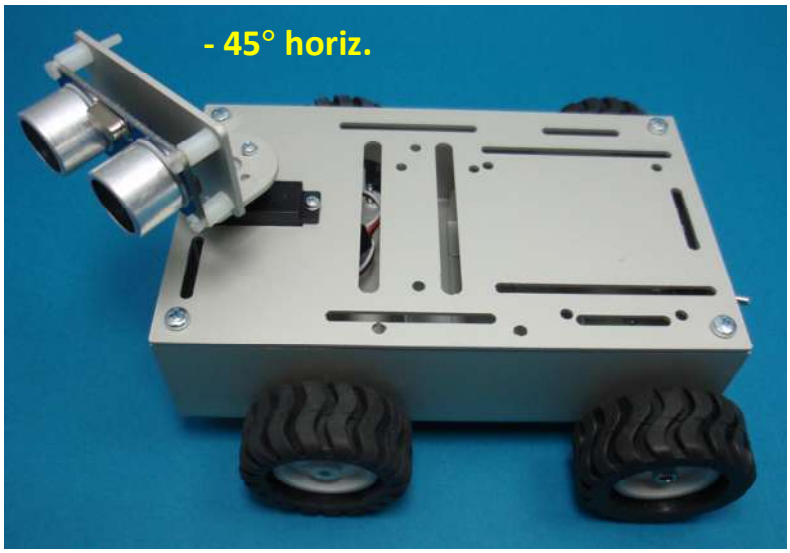


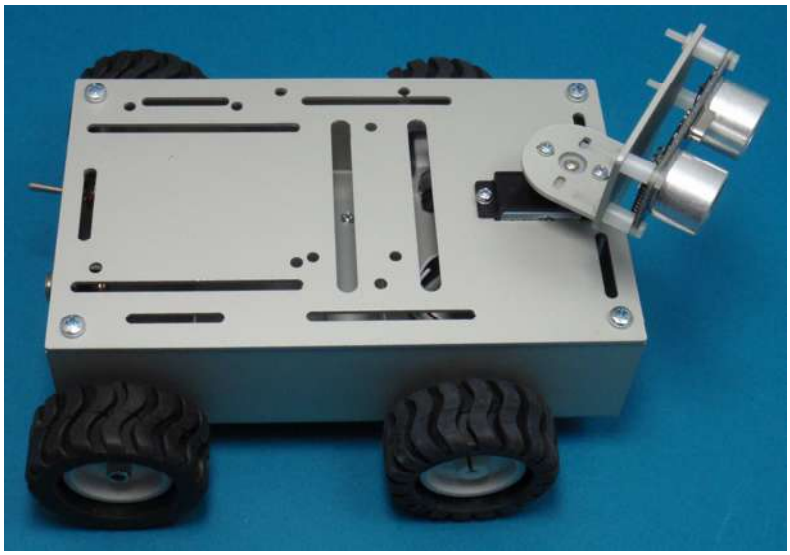
Vcc
Trig
Echo
Gnd


Mounting plate
(upper part)


Mounting plate
(upper part)

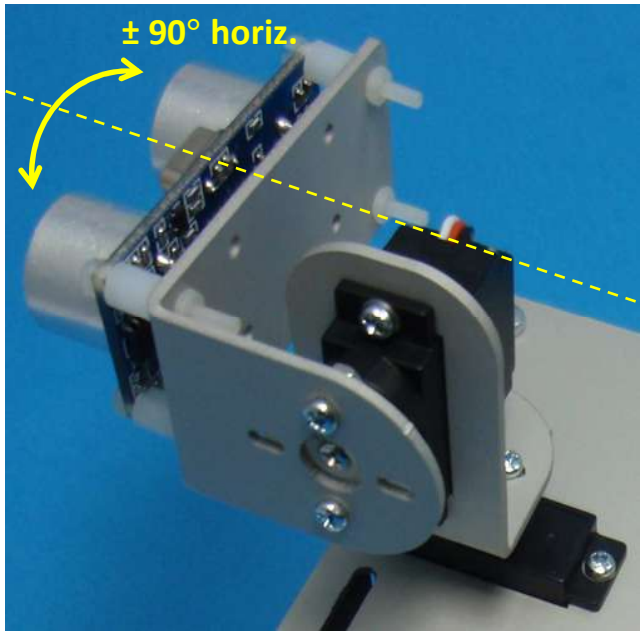

+ 45° horiz.

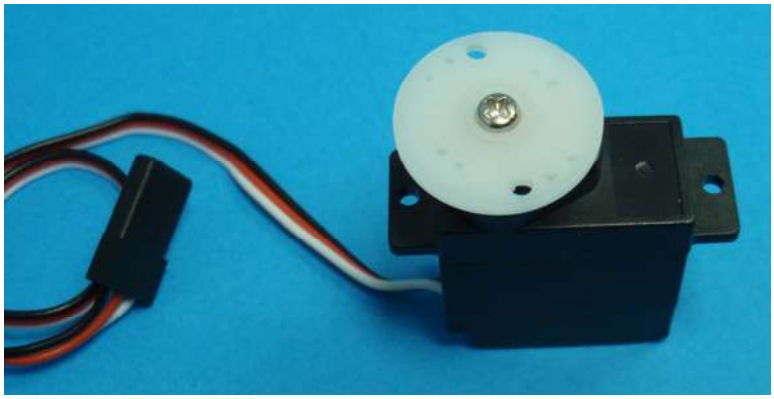

- 45° horiz.

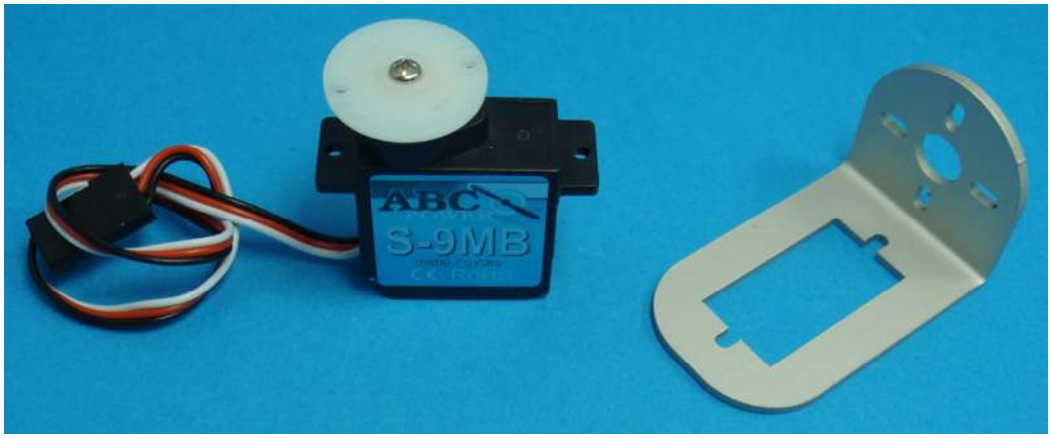


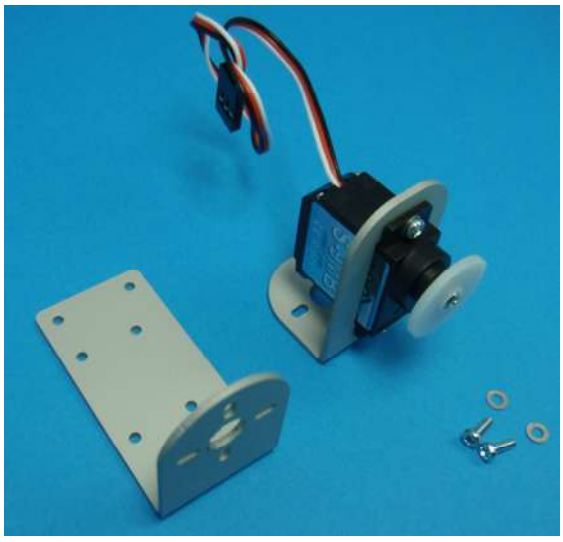
STEP 10

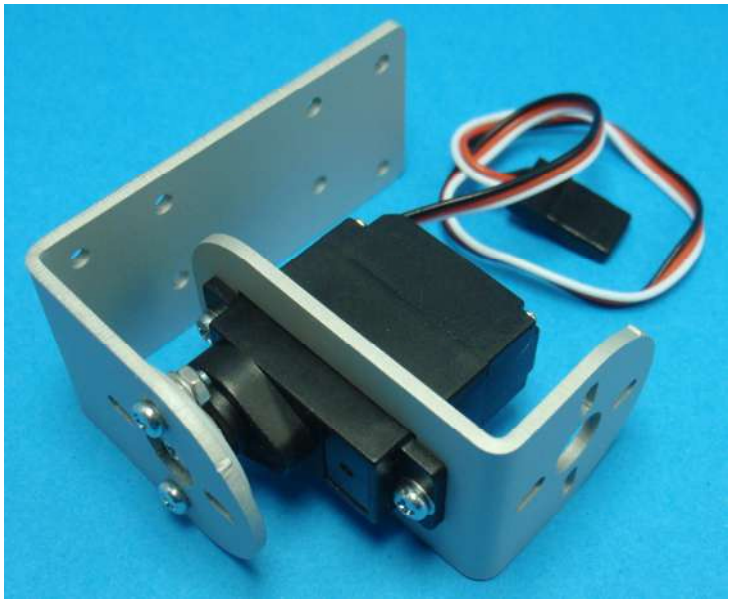
Sensor Pan/Tilt Kit (with two servos)

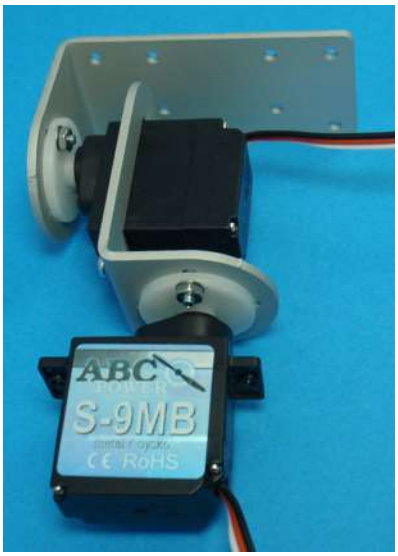





ABC
S-9MB

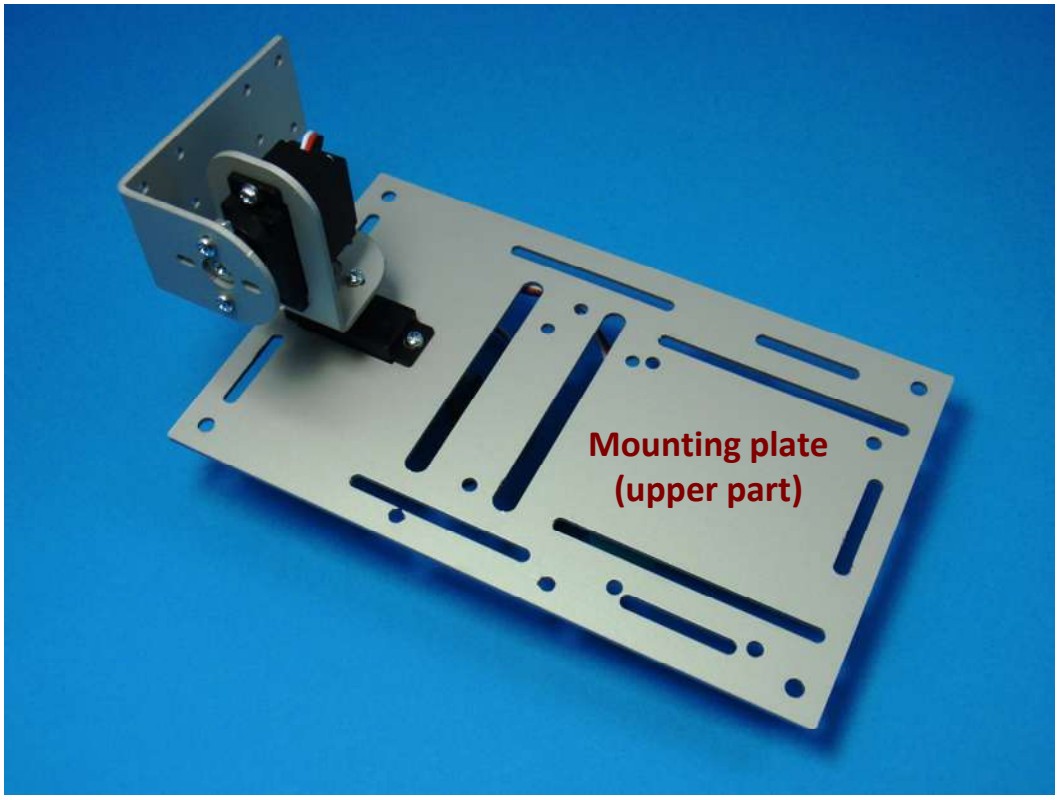


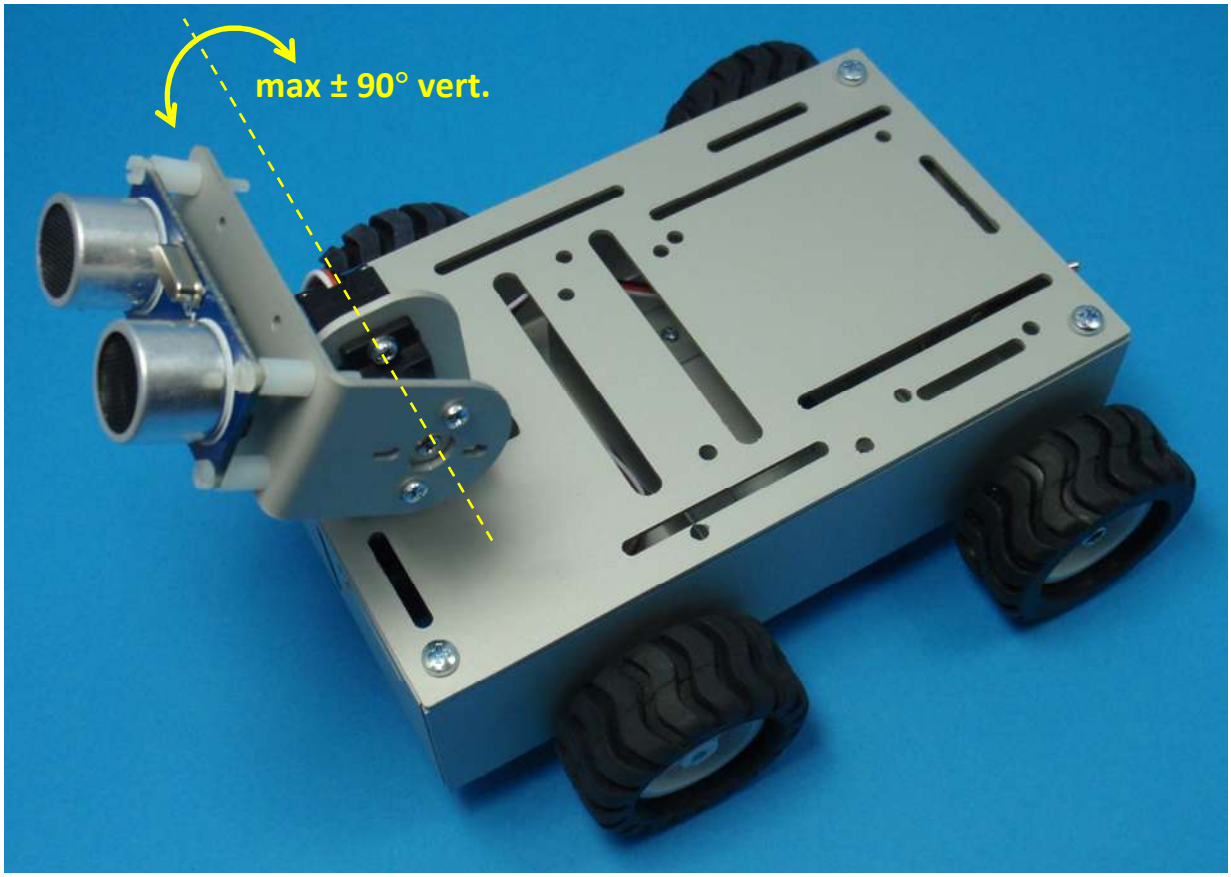



ABC
POWER
S-9MB
CE RoHS

S-9MB
CE RoHS

S-9MB
CE RoHS


Mounting plate
(upper part)

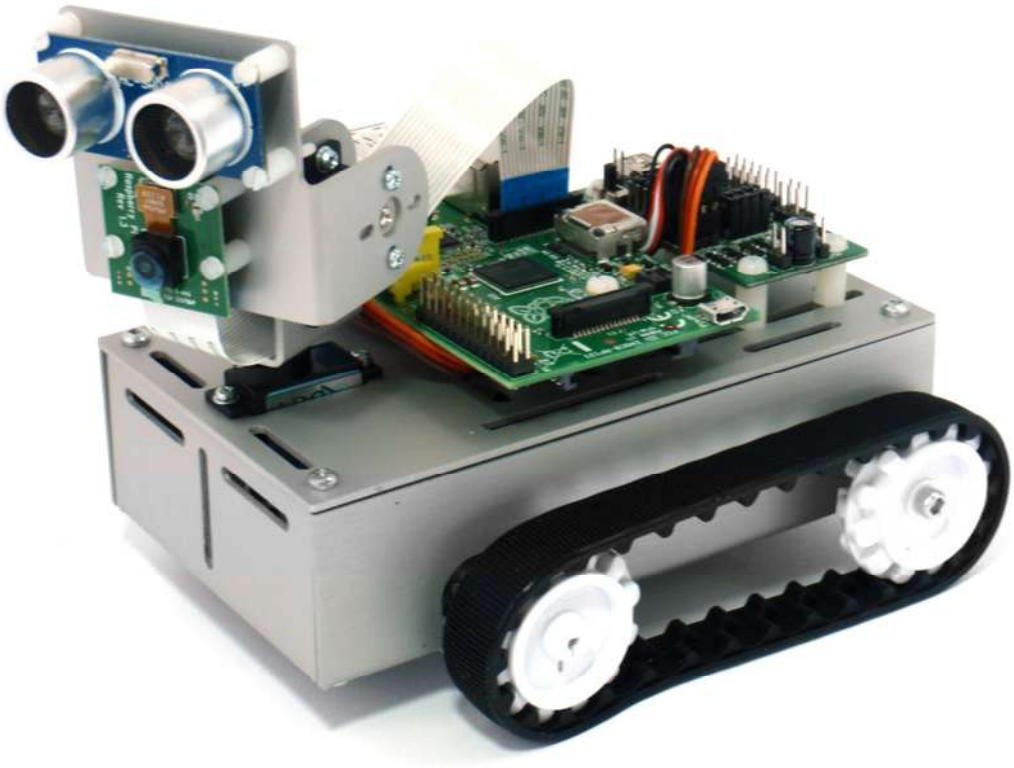


Optional version of pan/tilt head (for Raspberry Pi camera and ultrasonic distance sensor) - can be mounted together or separately on the head

AMRobot

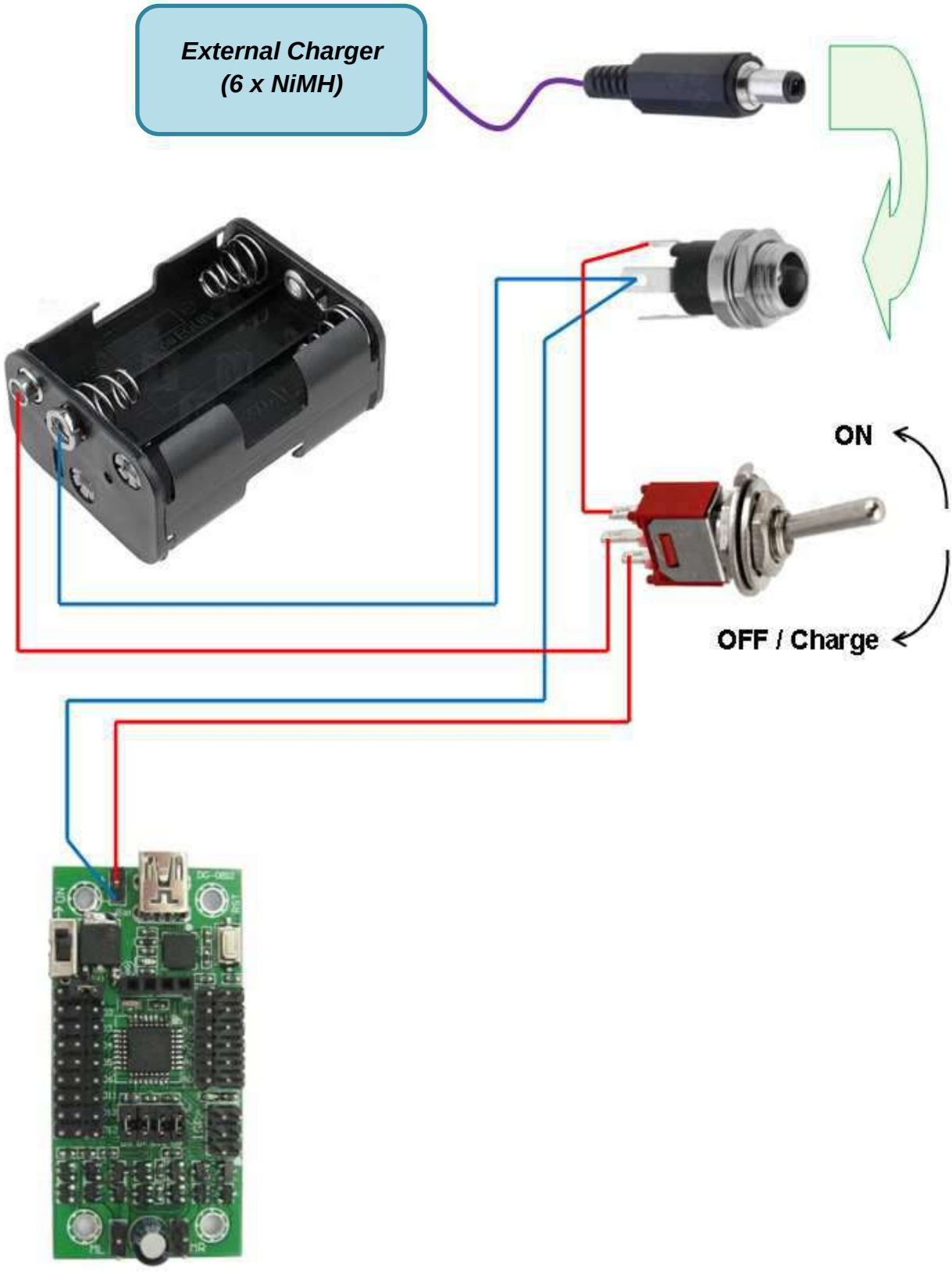
Educational mini-robot platform

with the Raspberry Pi computer, camera and ultrasonic distance sensor



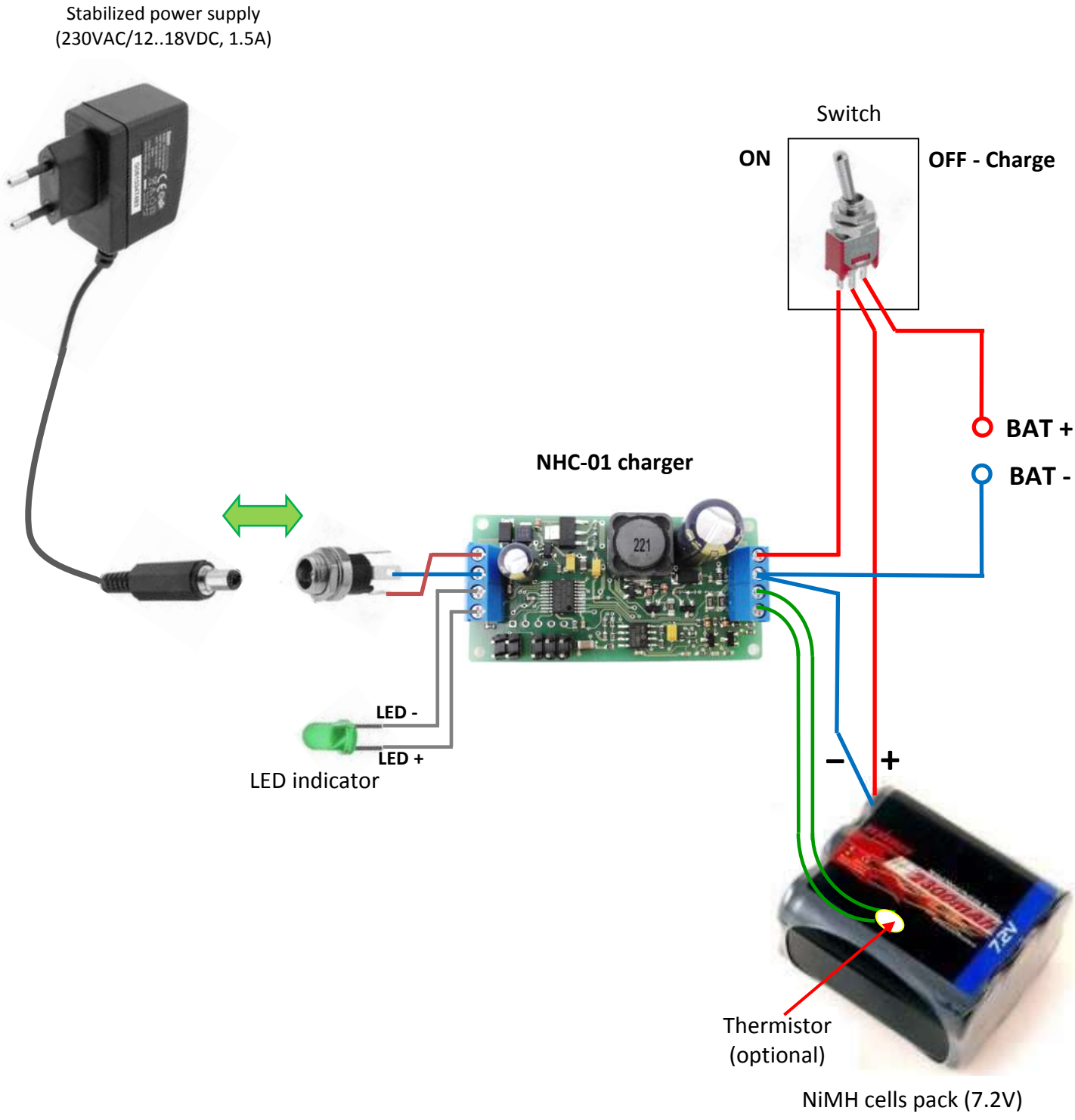
AMRobot

Schematic diagram of DAGU Mini Driver and external Charger

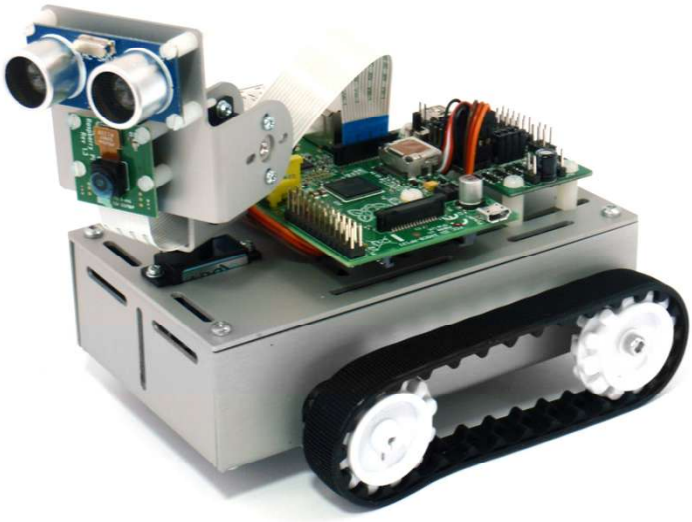


AMRobot

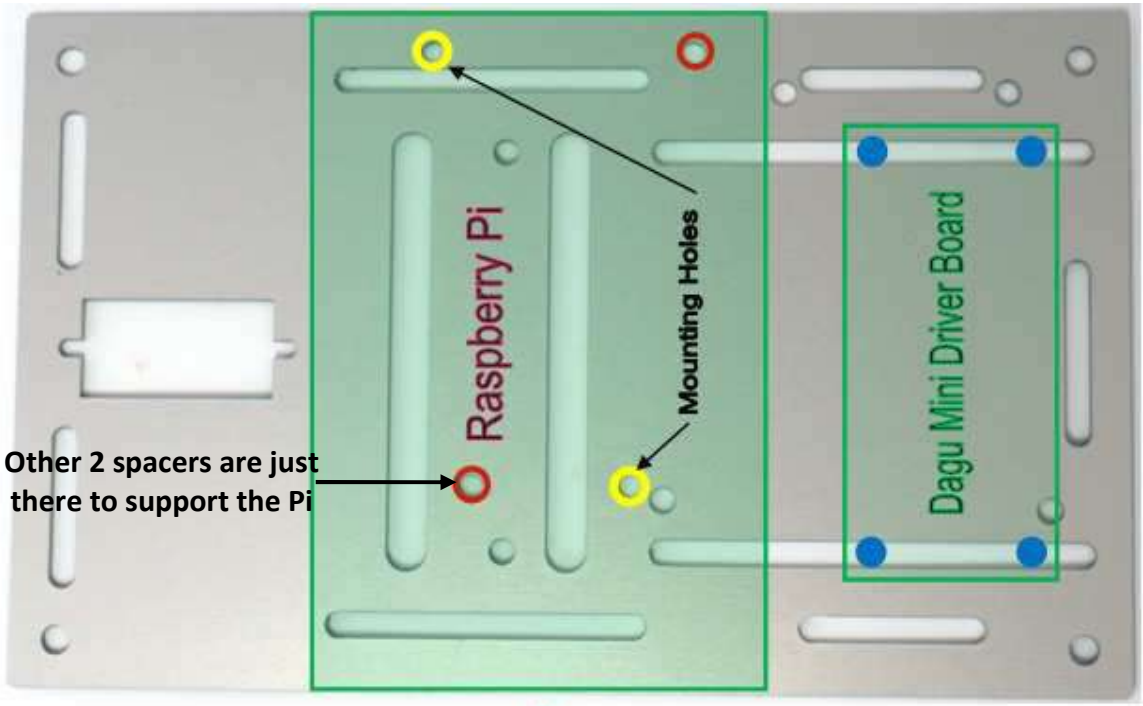
Schematic diagram of the charger (embedded to AMRobot), external power supply, power supply connector, NiMH battery pack, thermistor, LED diode and a switch



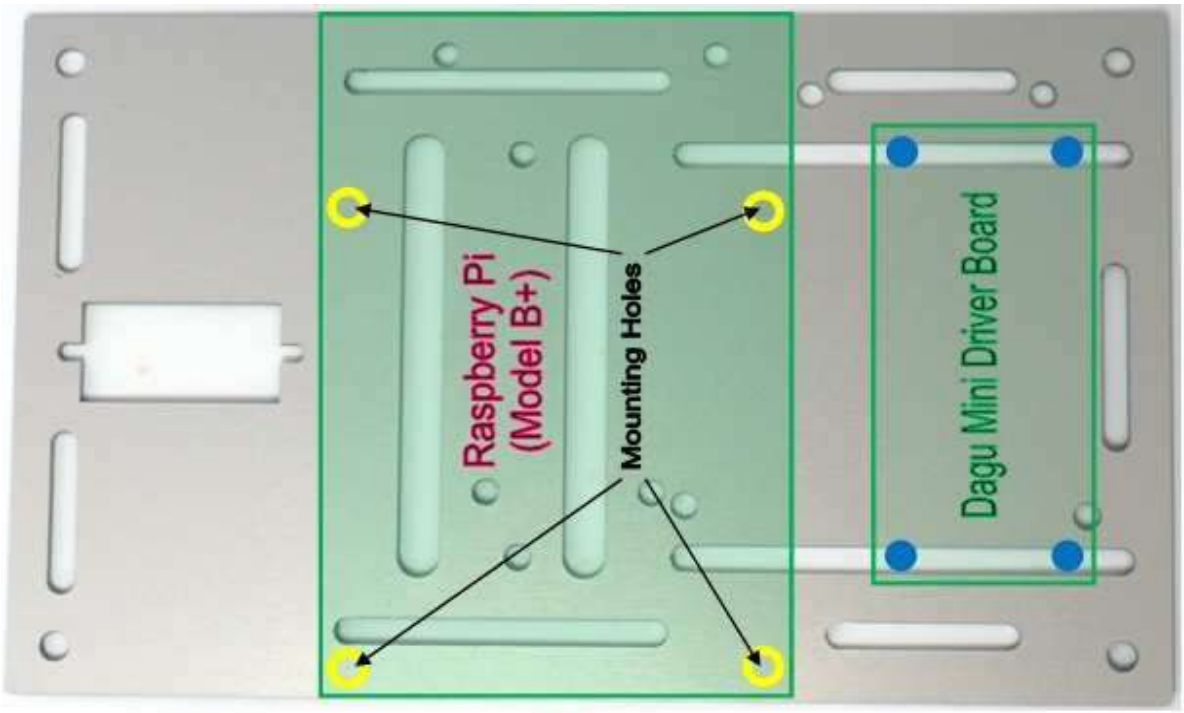
AMRobot chassis with the Raspberry Pi (Model B and Model B+) and other Modules

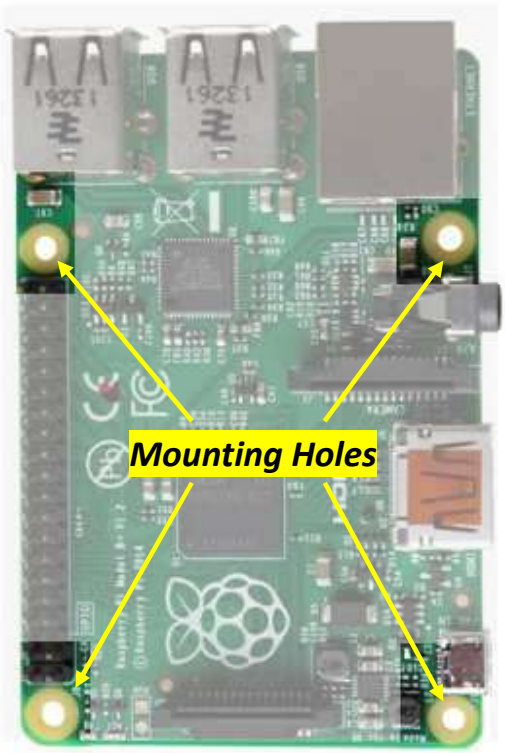


1. RASPBERRY Pi (model B), DAGU Mini Driver Board

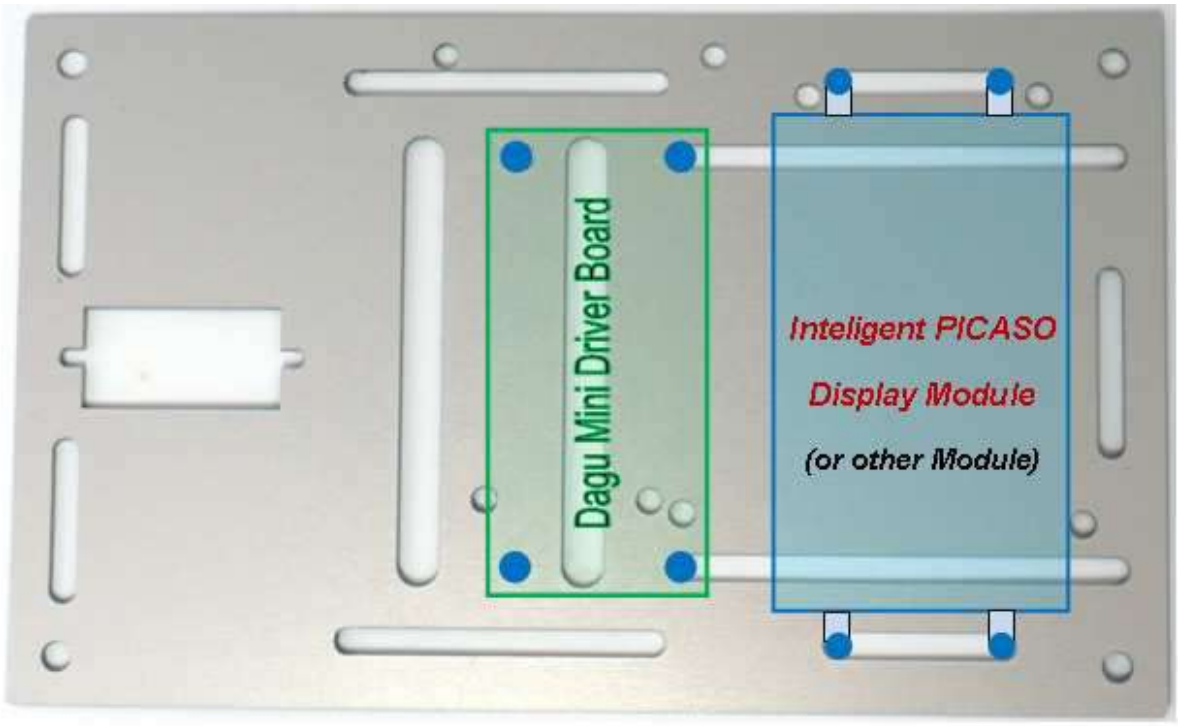


2. RASPBERRY Pi, (model B+), DAGU Mini Driver Board

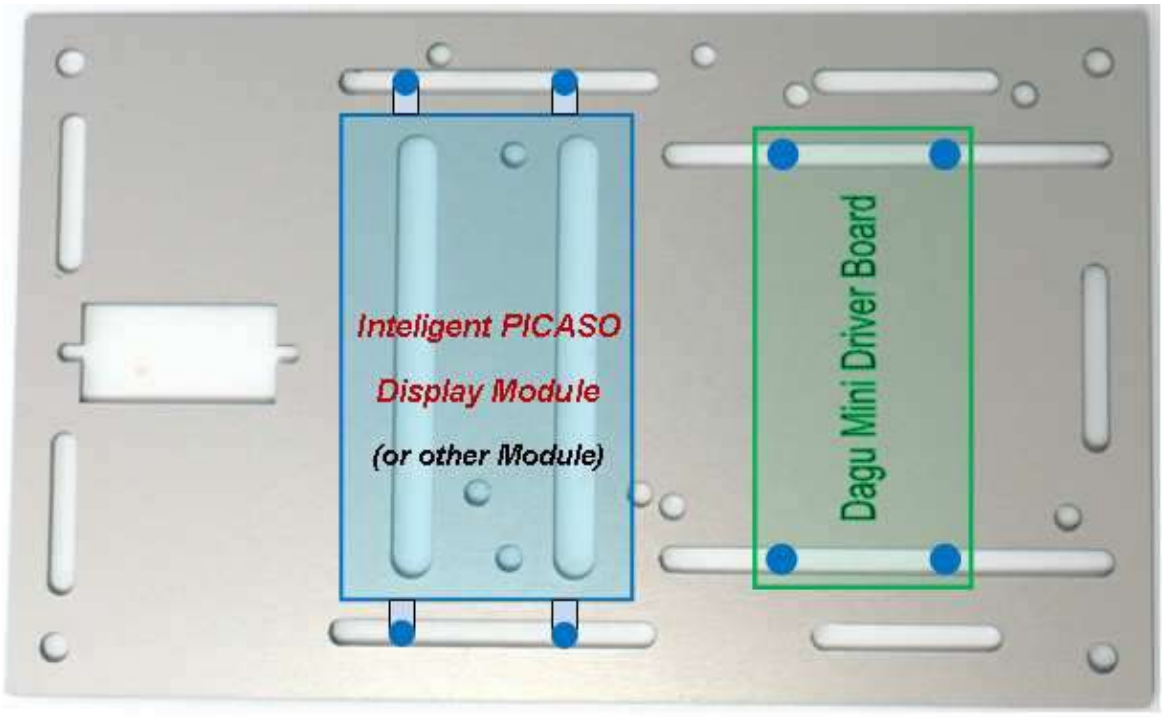
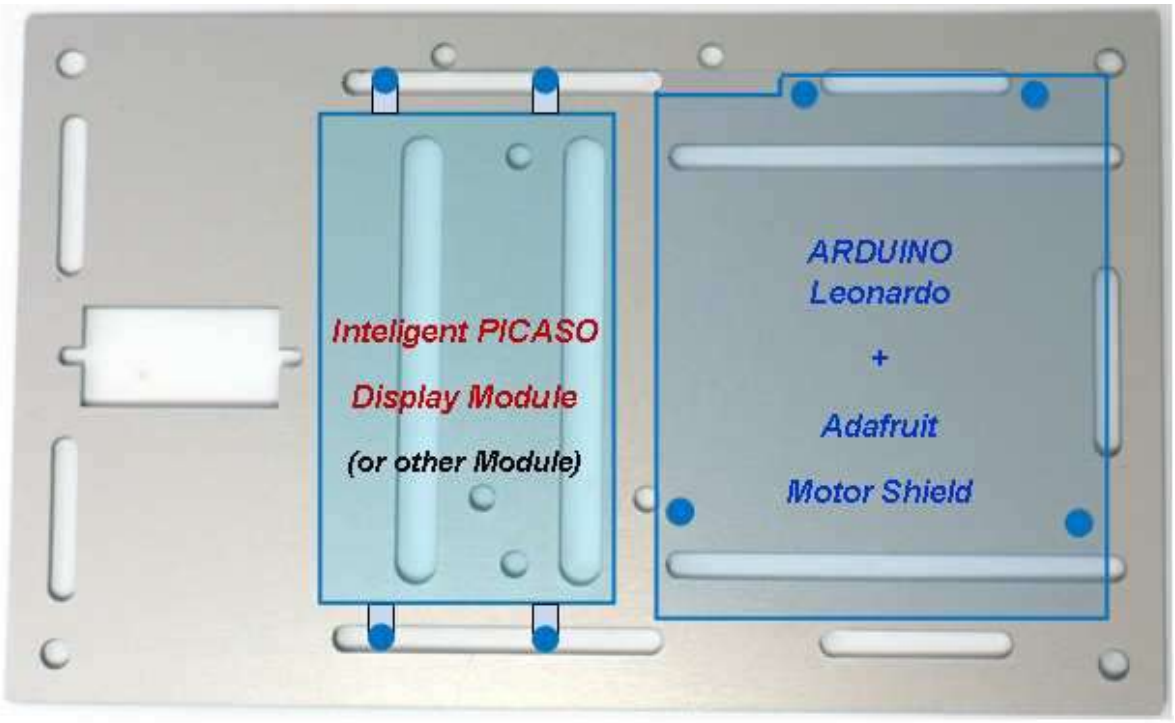
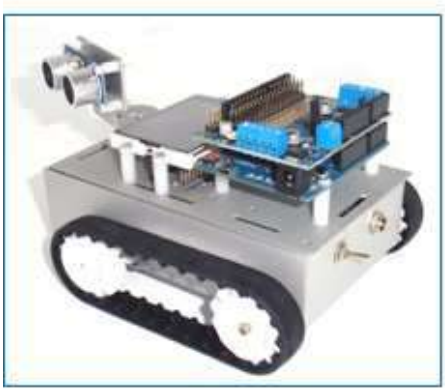




3. DAGU Mini Driver Board, Intelligent PICASO Display Module (v.1)



4. DAGU Mini Driver Board, Intelligent PICASO Display Module (v.2)



5. ARDUINO Leonardo + ADAFRUIT Motor Shield, Intelligent PICASO Display Module