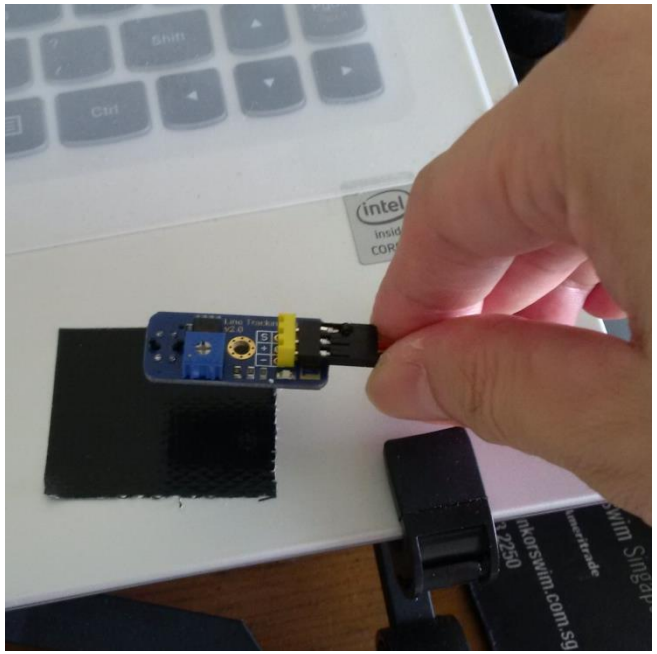
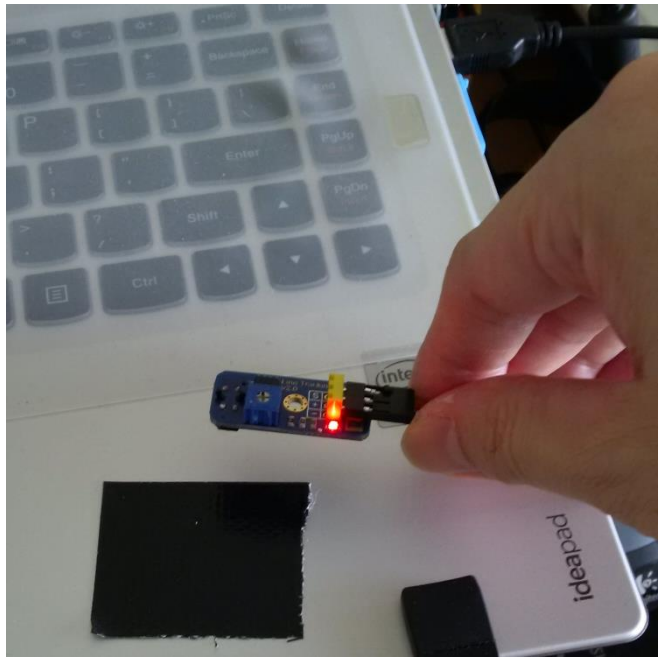
Line Tracing Sensor

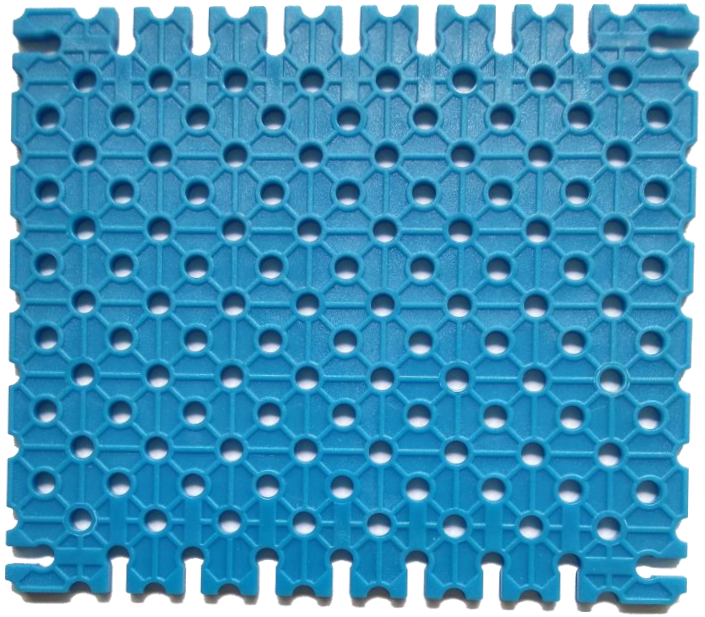
-**Must** calibrate the Infrared Sensor
-When the IR is on the black surface (non reflective), the output is TRUE (1) - LED on IR sensor board is OFF
-When the IR is on a reflective surface, the output is FALSE (0) - LED on IR sensor board is ON

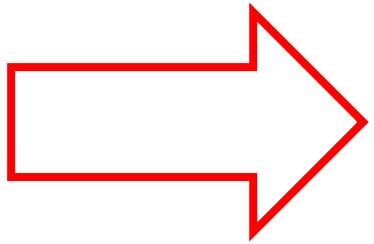
Black surface (non reflective)	LED (on board) OFF	1
White surface (reflective)	LED (on board) ON	0

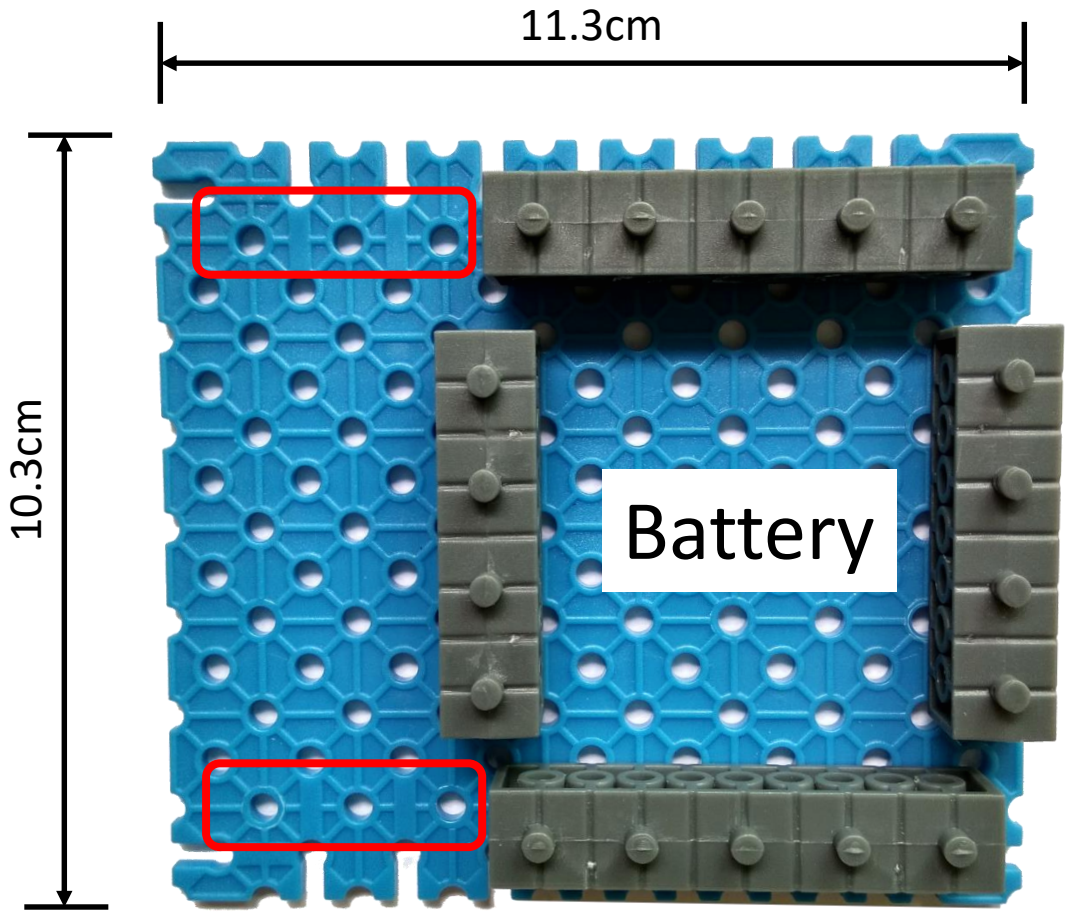




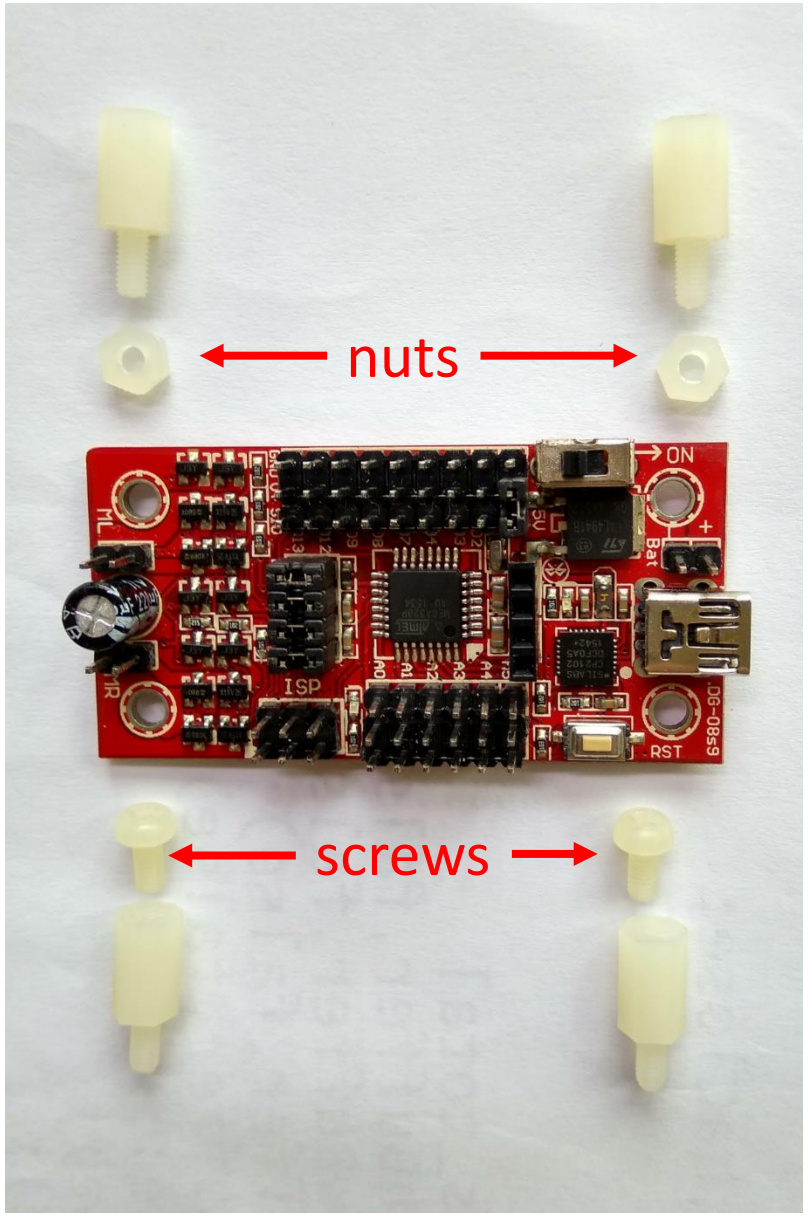
Smart Vehicle Construction – Base

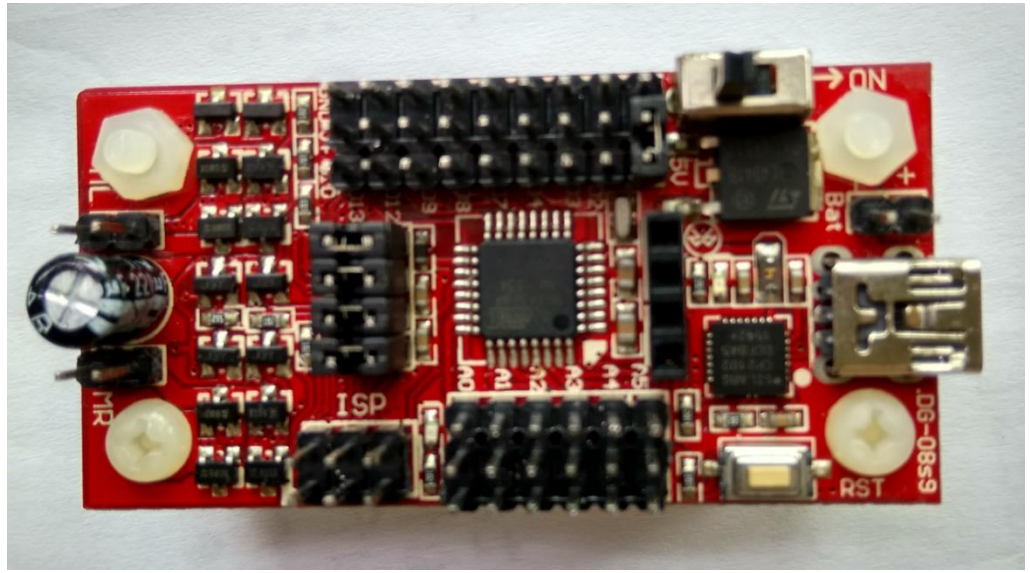


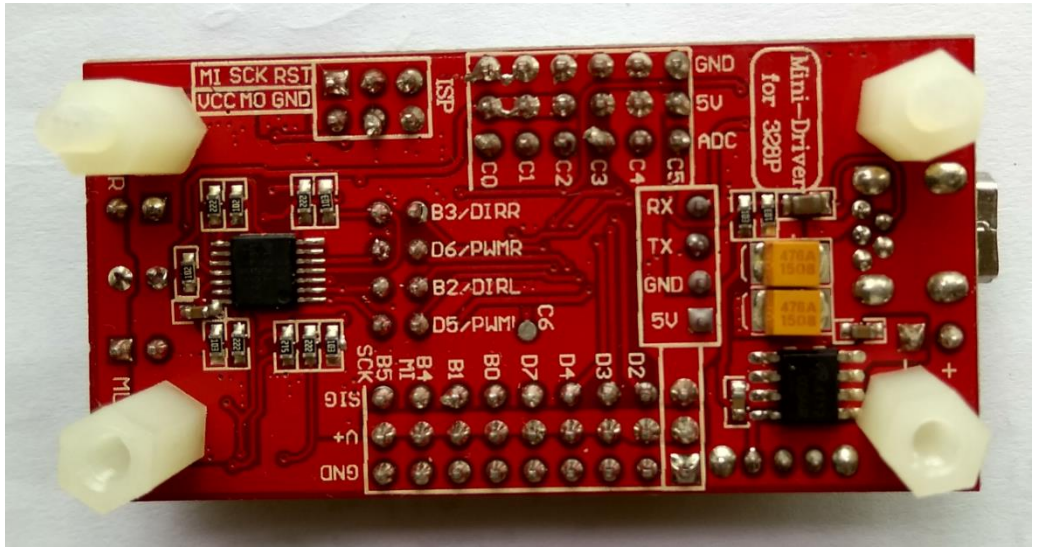




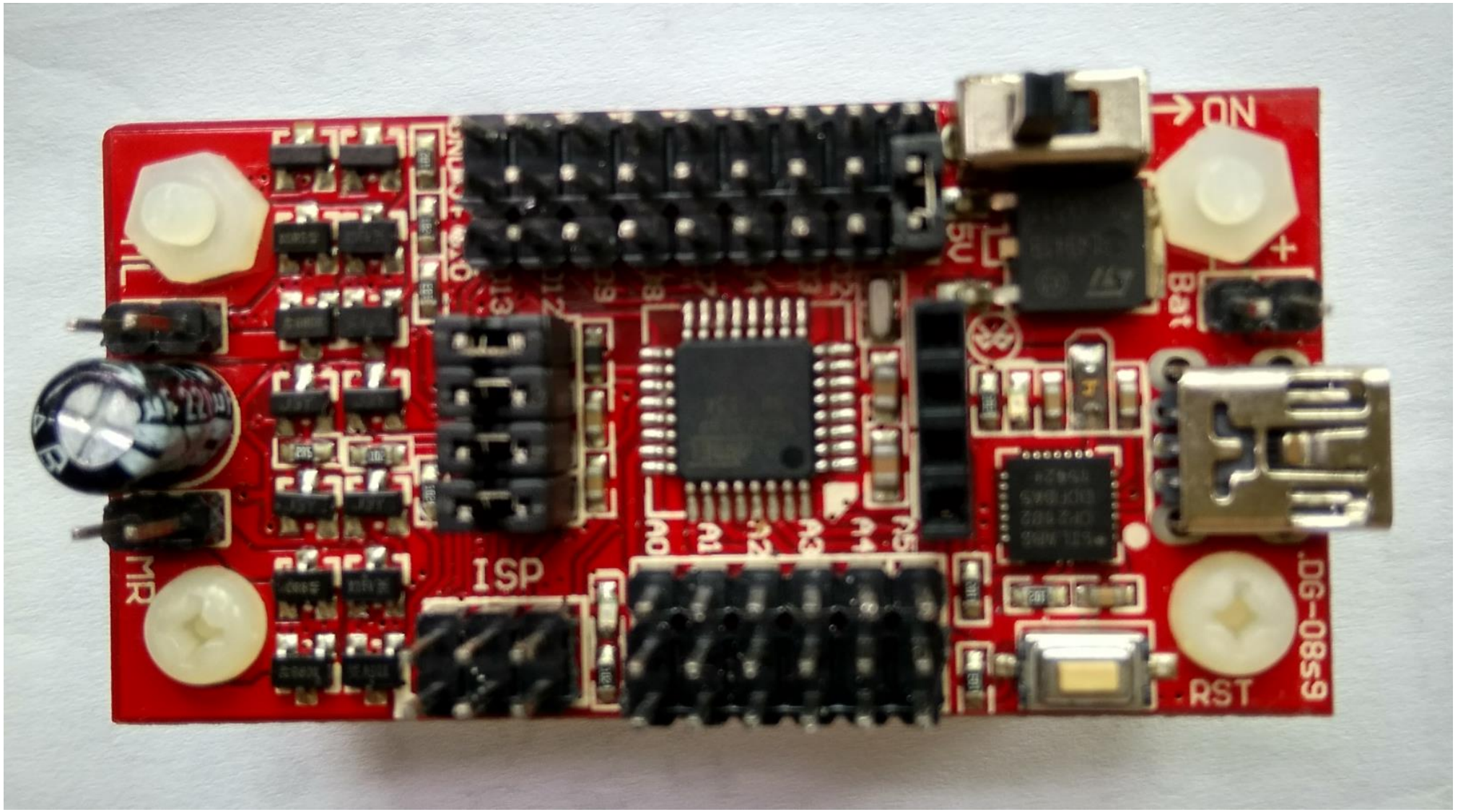
Vehicle Construction - Board



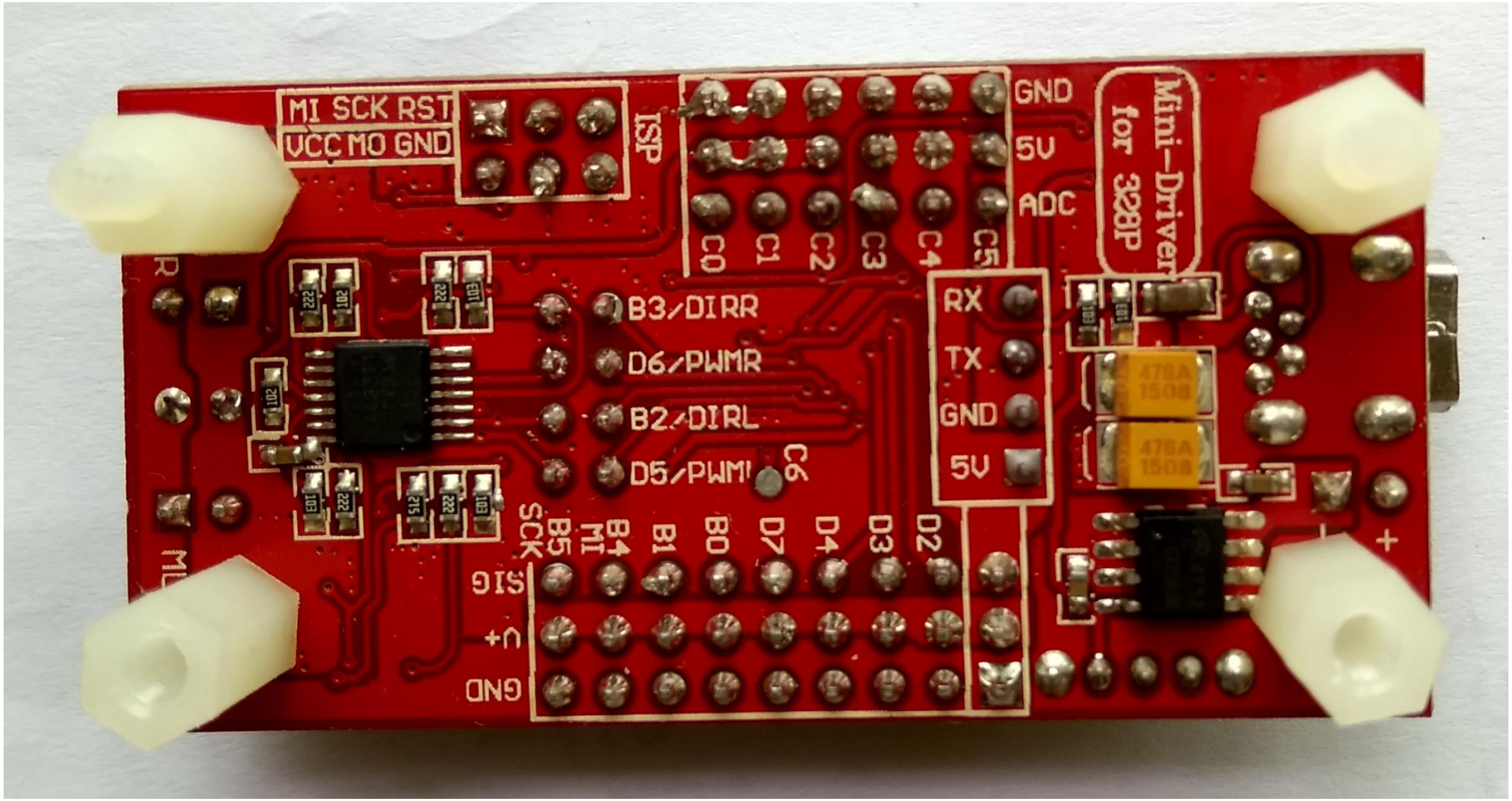




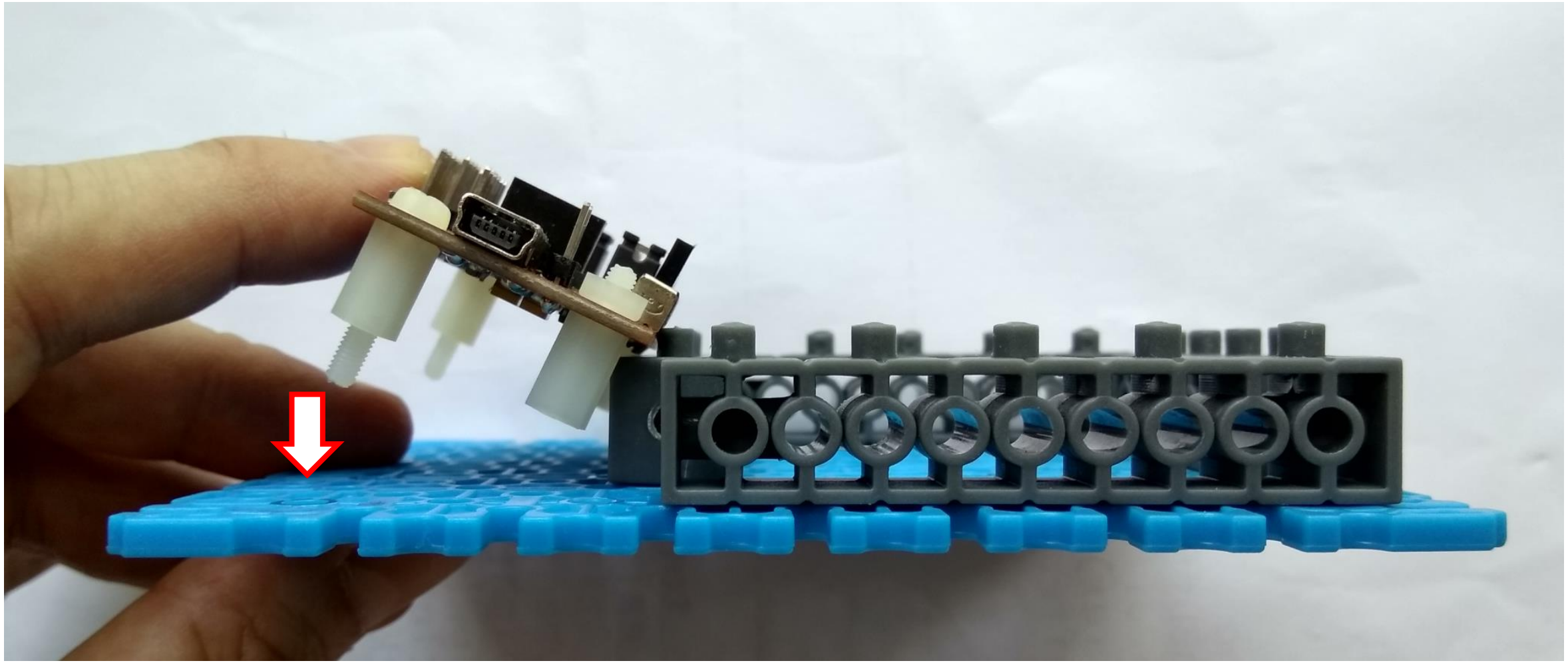
Vehicle Construction – Front of Arduino



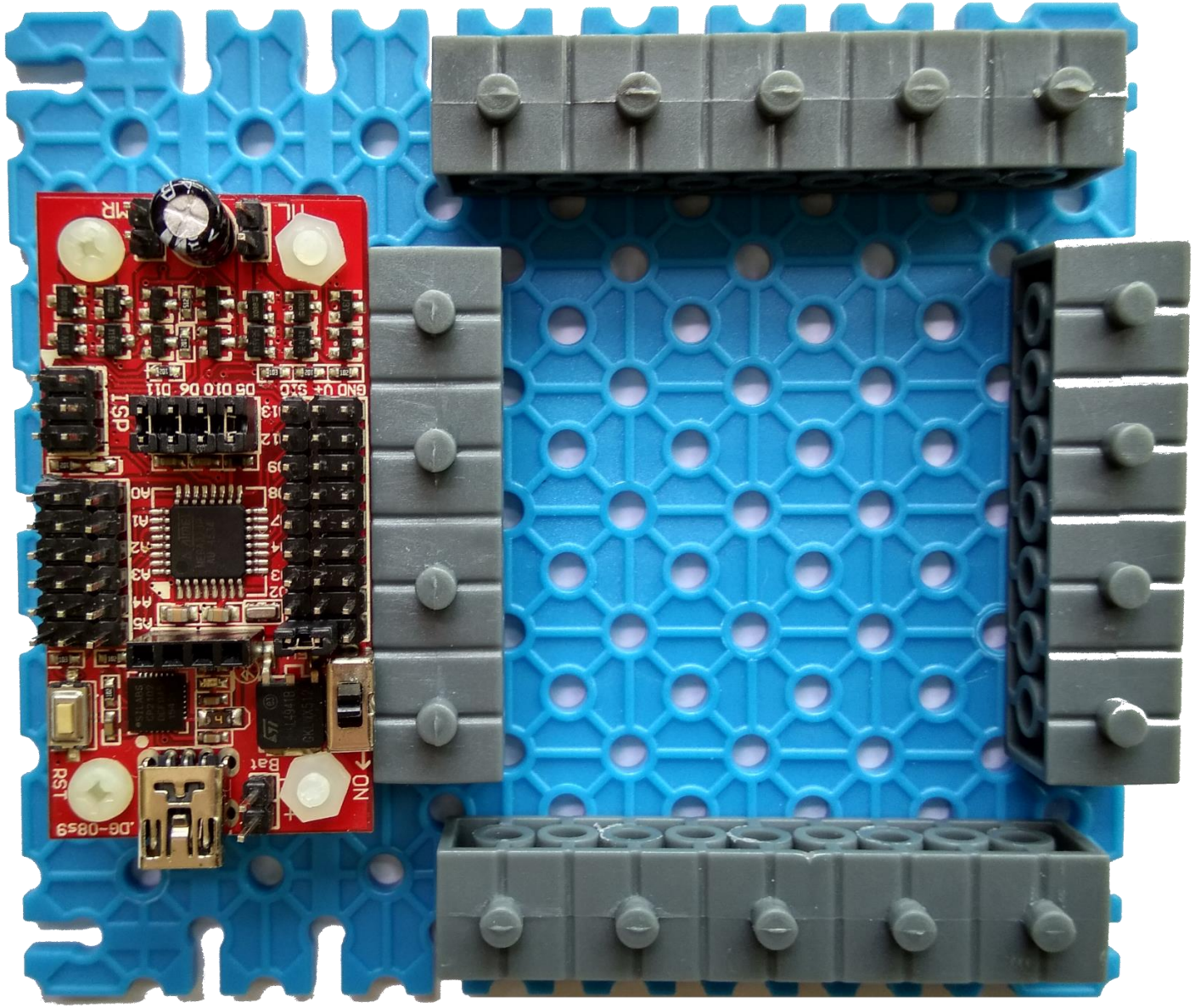
Vehicle Construction – Back of Arduino



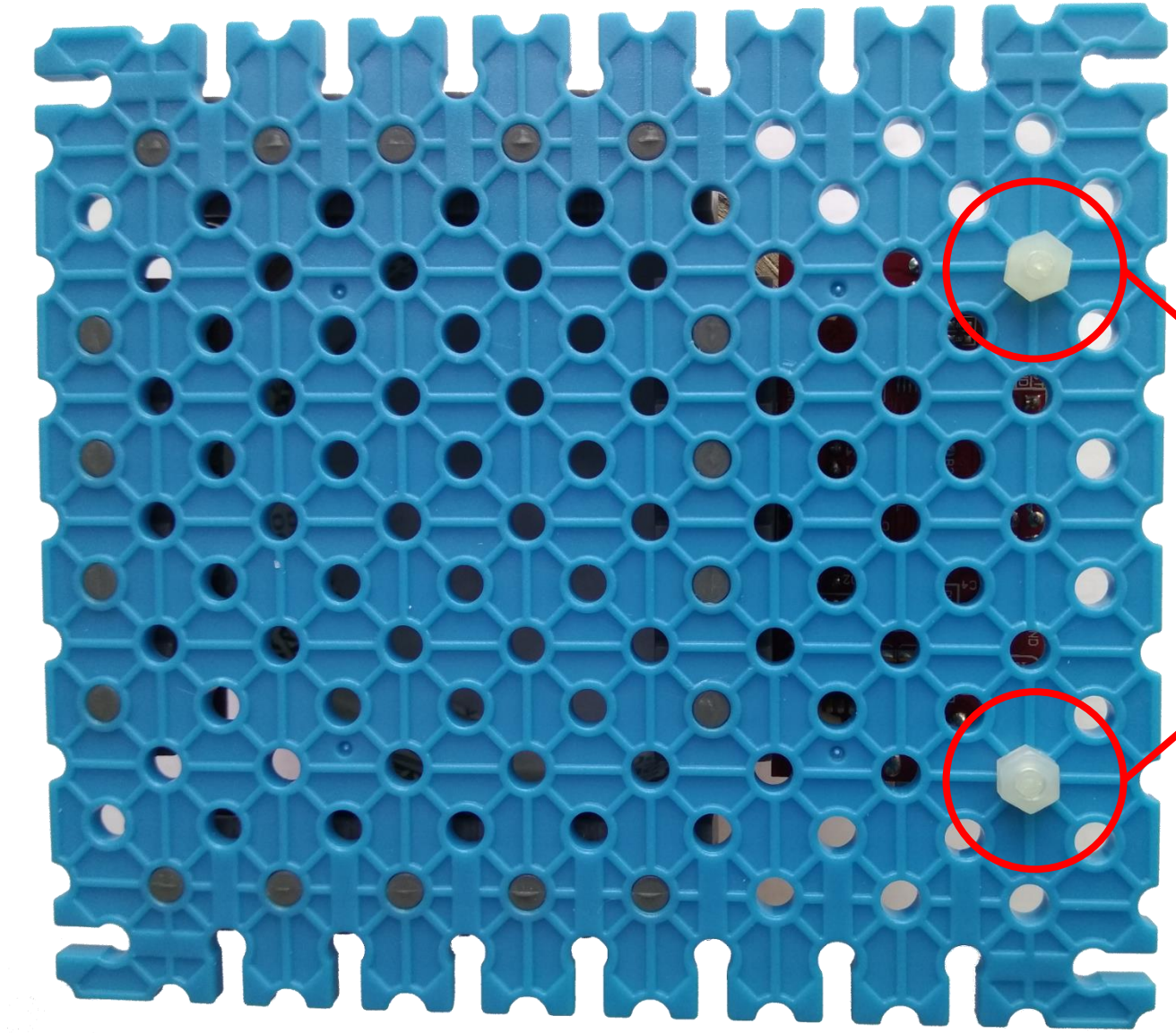
Vehicle Construction – Place Arduino to Base



Vehicle Construction – Front View



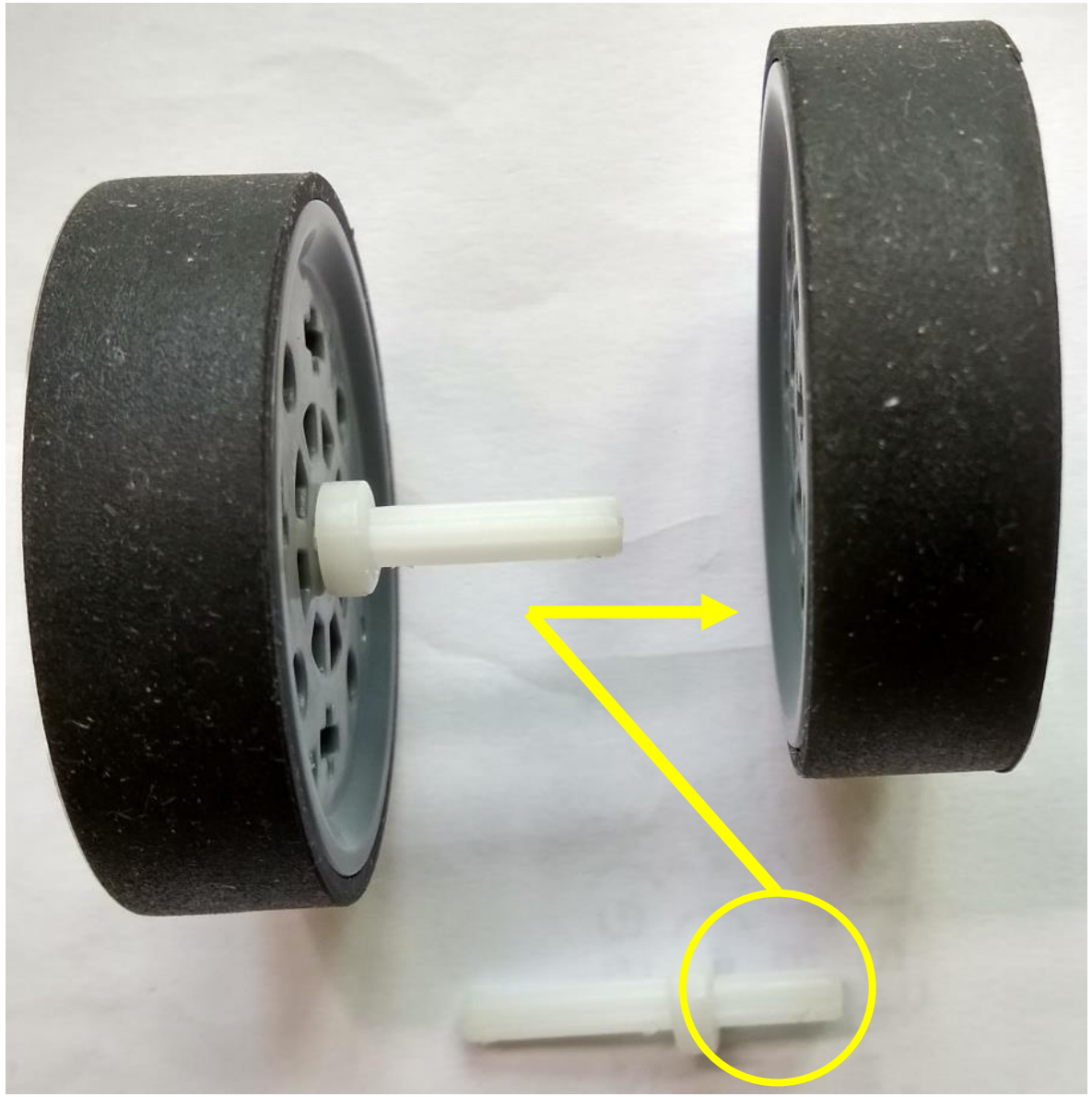
Vehicle Construction – Back View



Use 2 plastic nuts to tighten the screws in order to secure the Arduino board

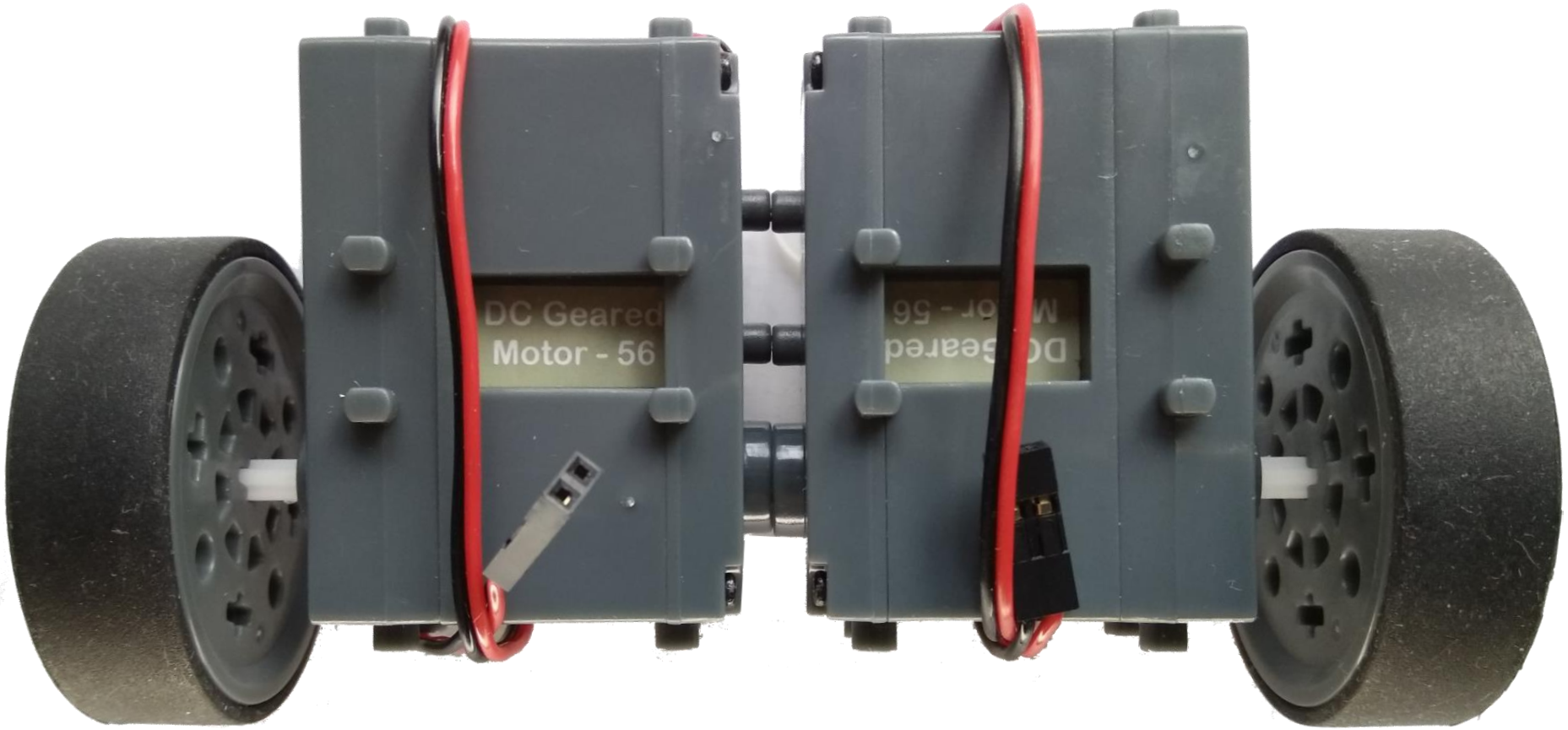
Vehicle Construction – Wheels & Motors

Vehicle Construction – Wheels & Motors



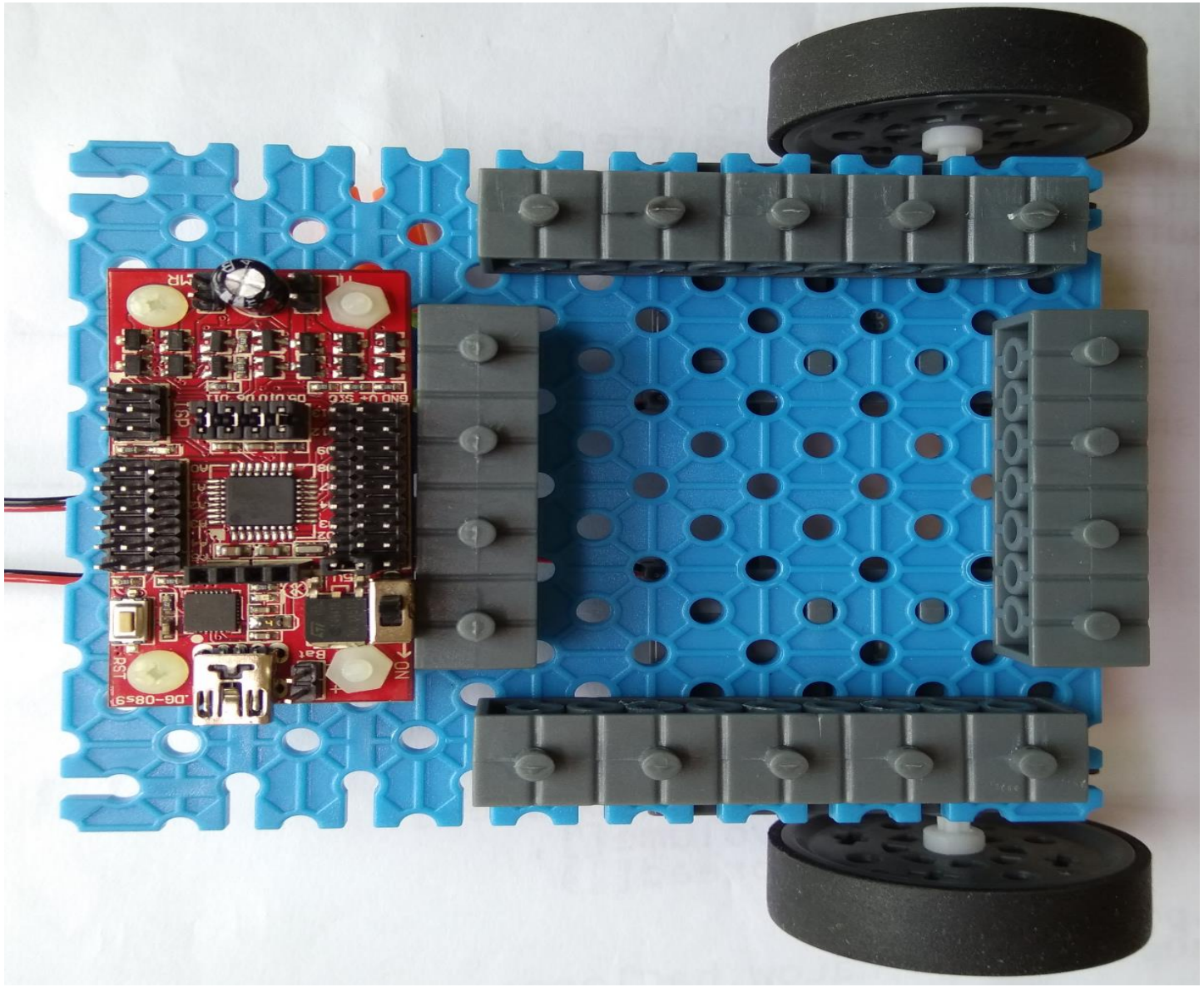
Insert the short side of the axle into the wheel

Vehicle Construction – Wheels & Motors



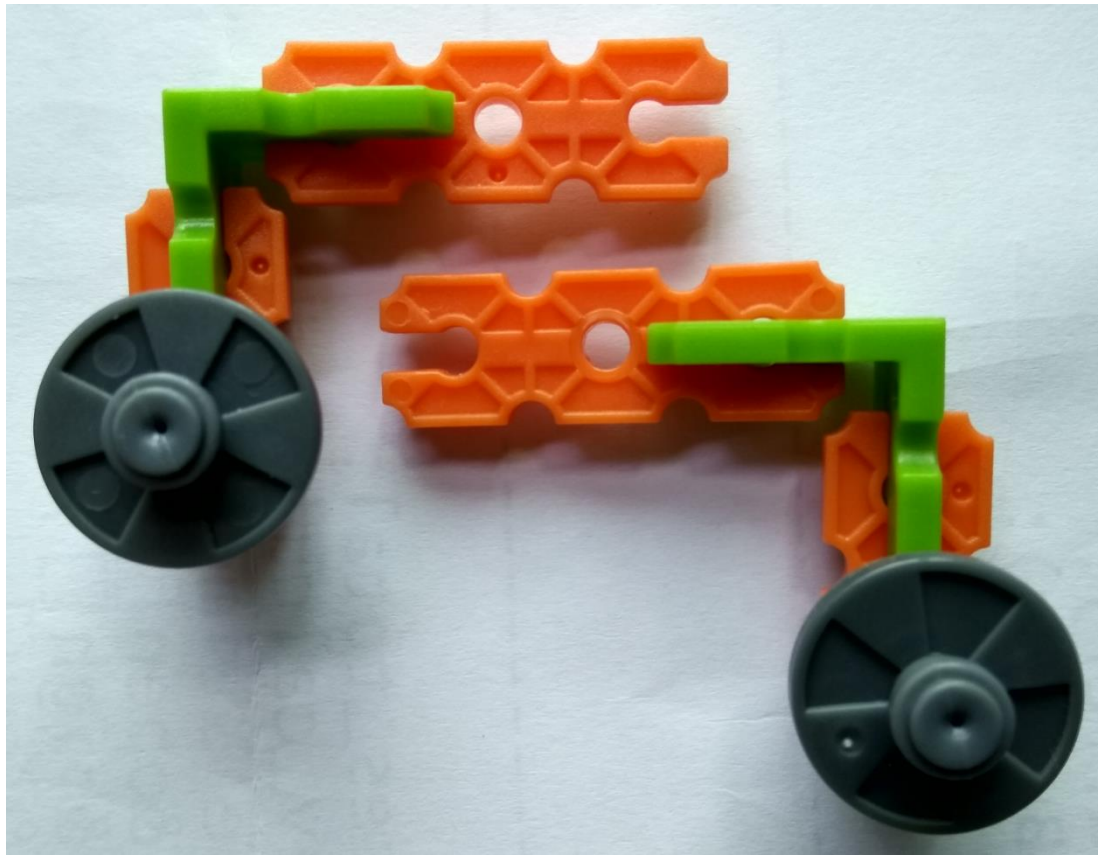
Insert the left and right wheels into the motors.

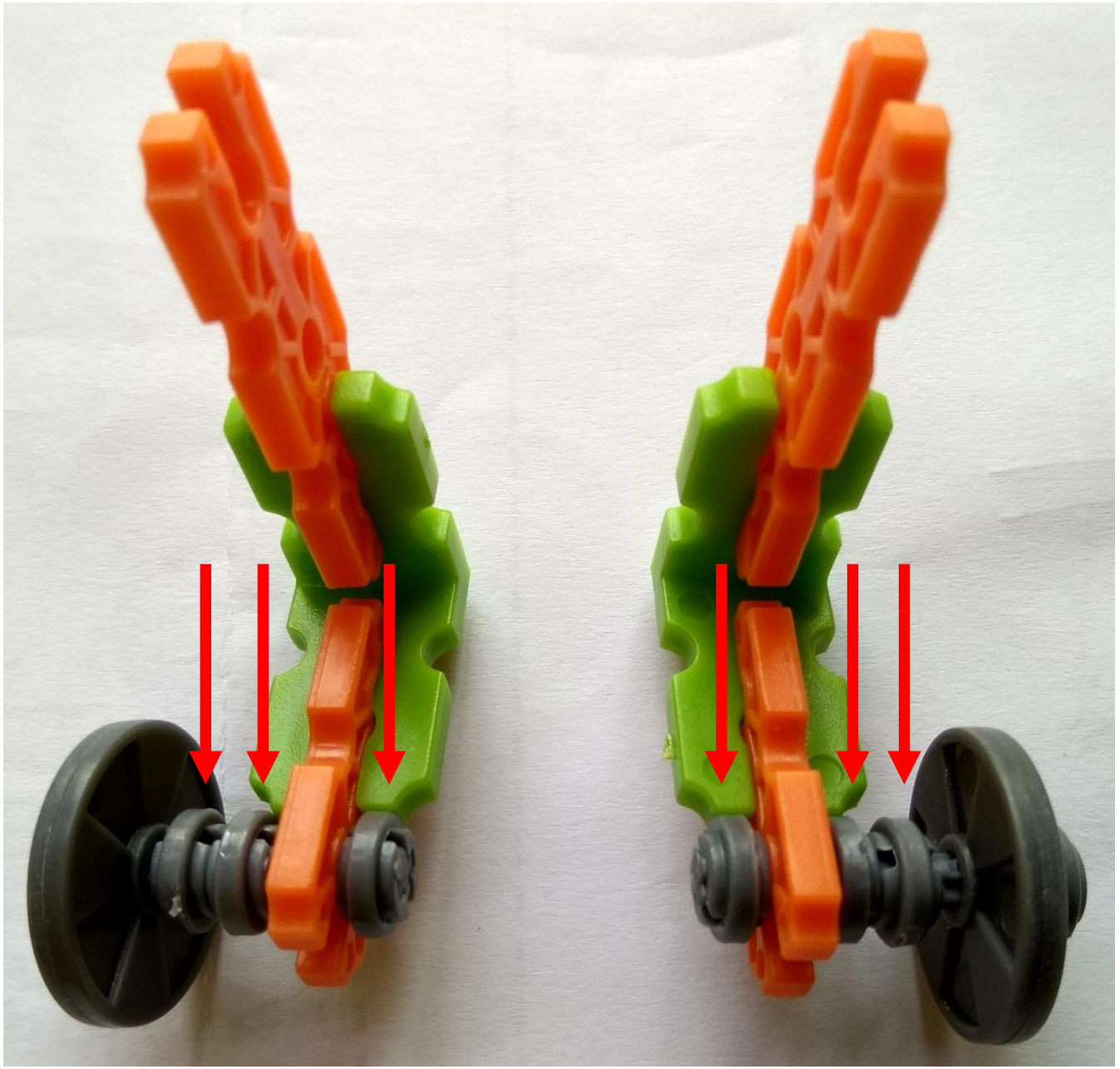
Vehicle Construction – Attach wheels to Base



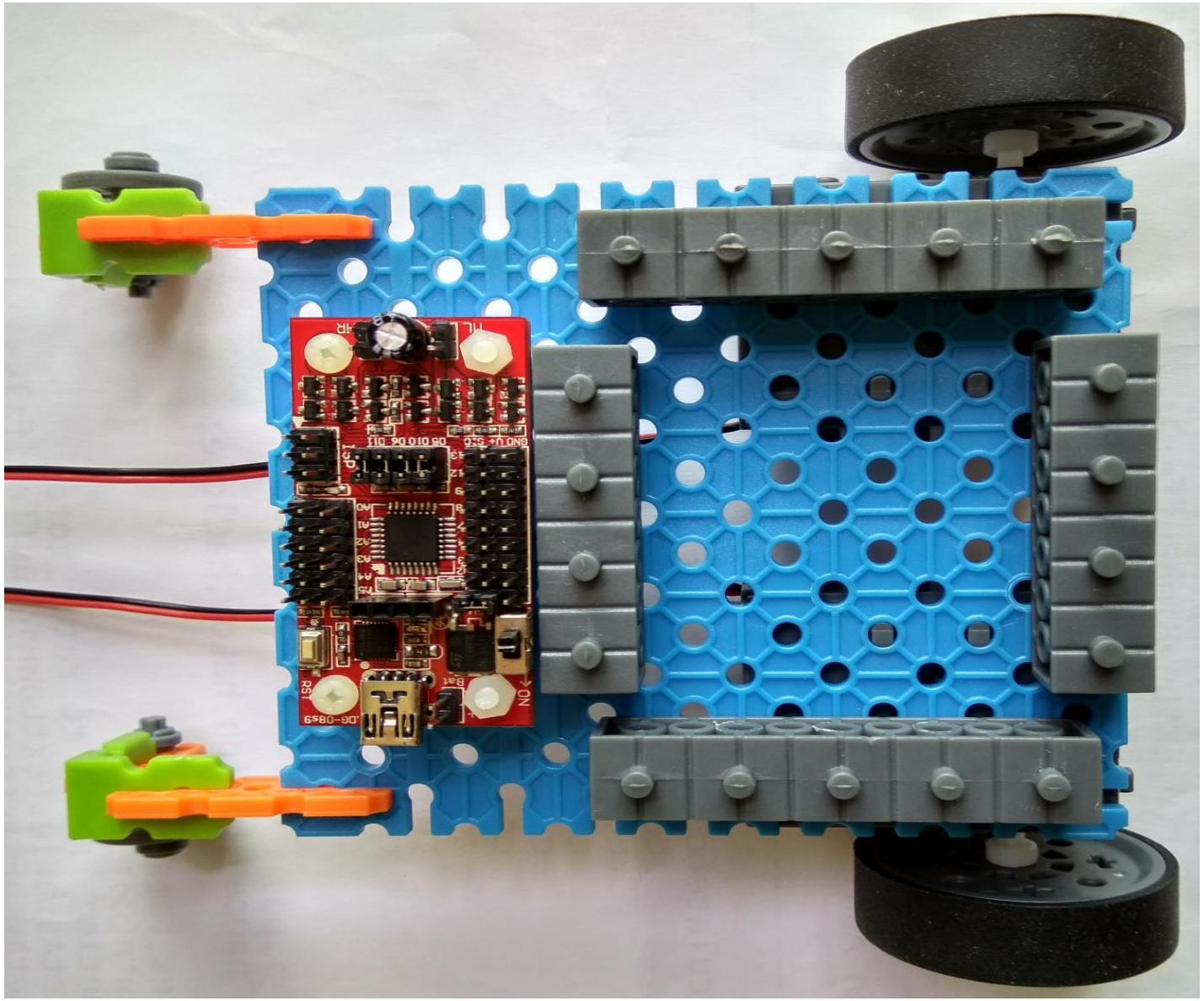
Vehicle Construction – Parts of Front Wheels

Vehicle Construction

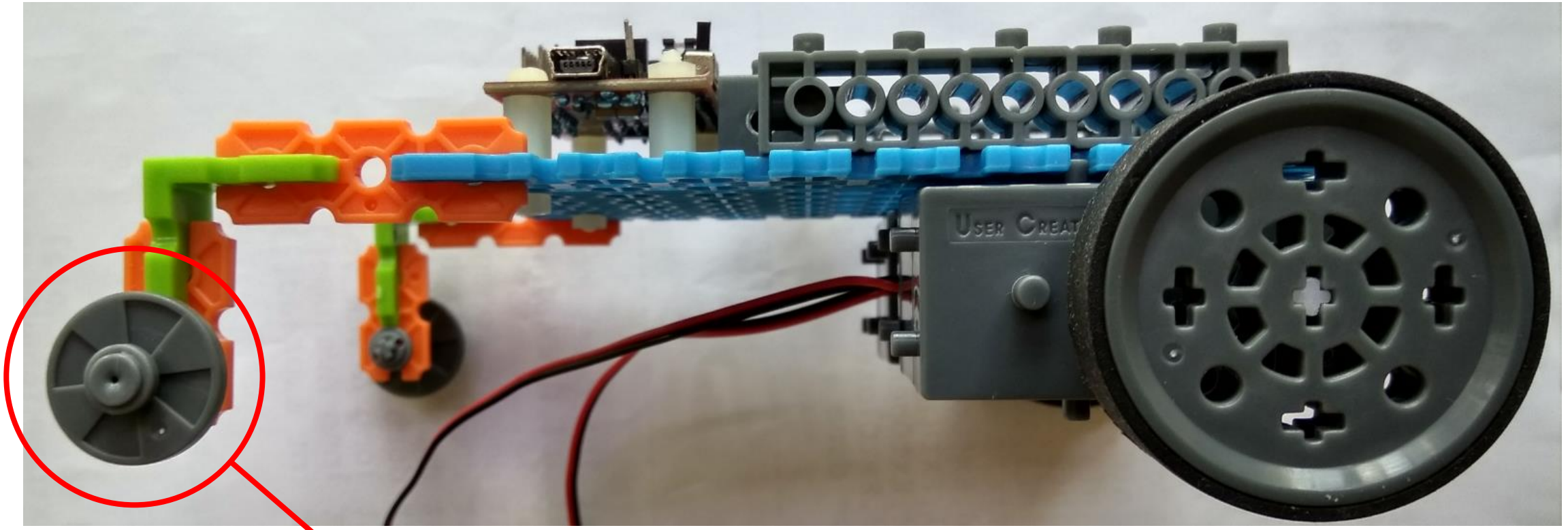




Vehicle Construction – Attach Both Front Wheels

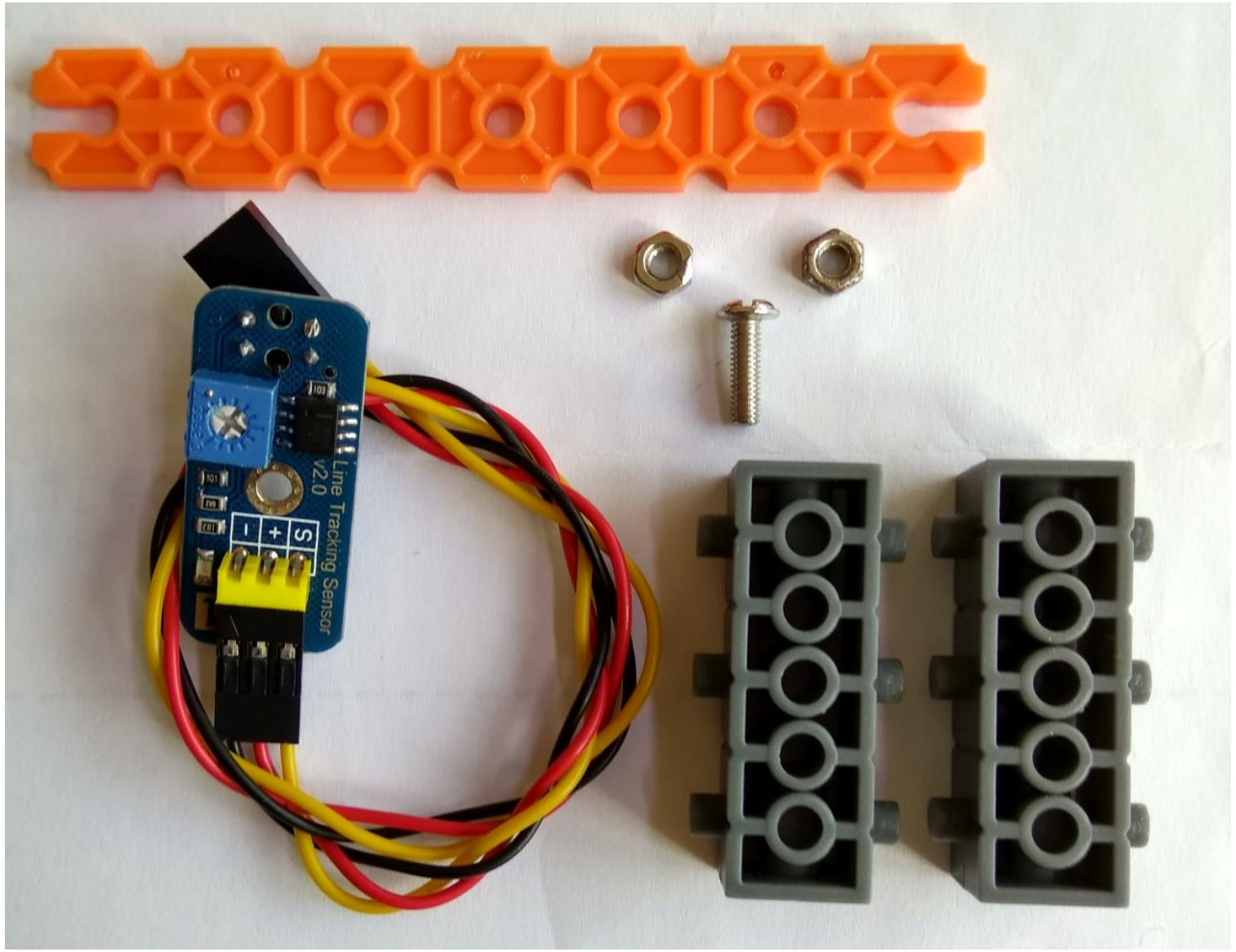


Vehicle Construction

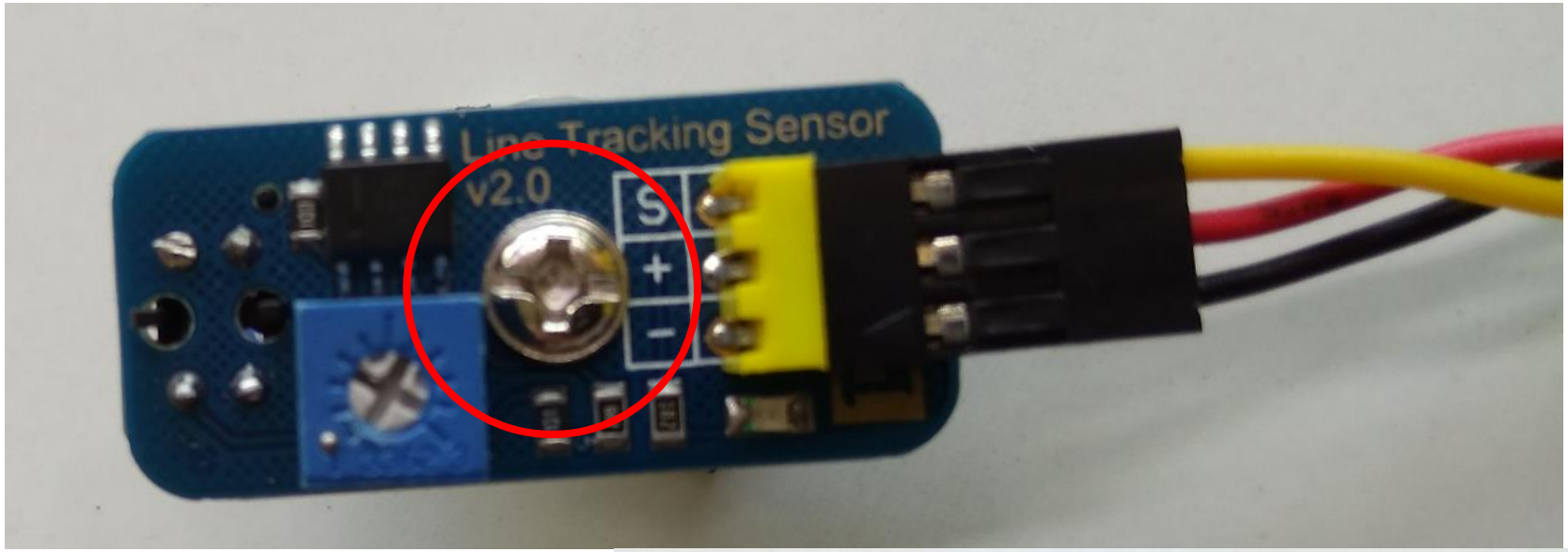


The wheels are facing you.

Vehicle Construction – Line Tracing Sensor



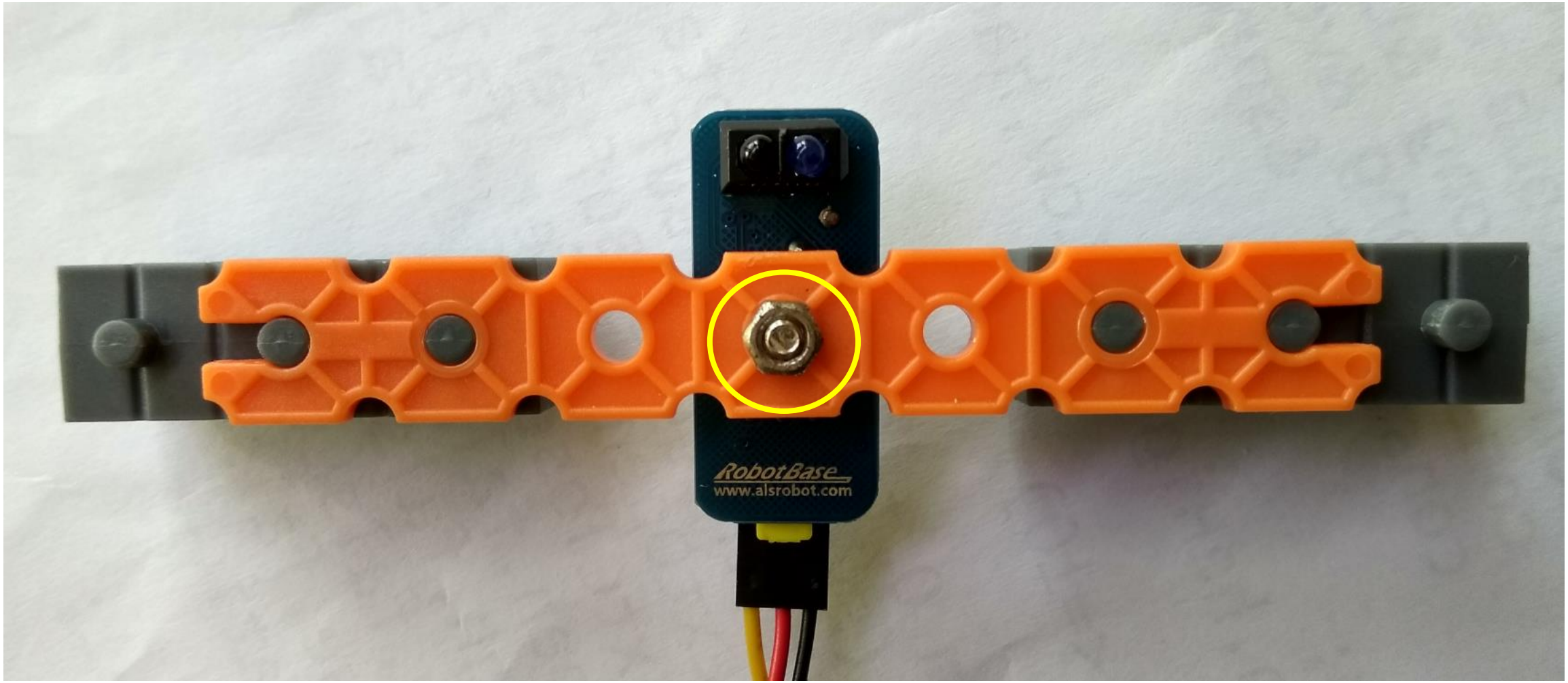
Vehicle Construction – Setup Line Tracing Sensor



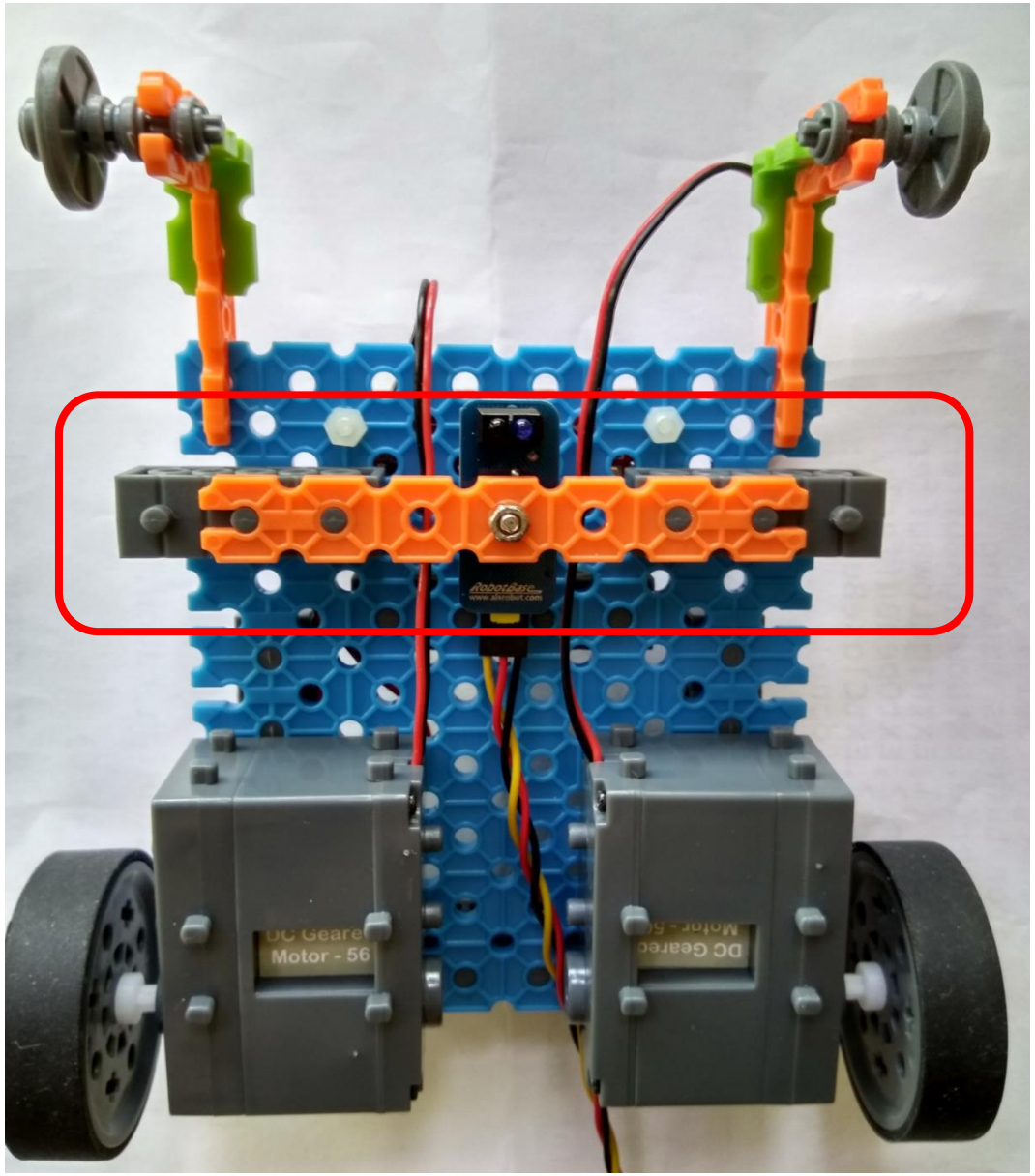
Front

Back

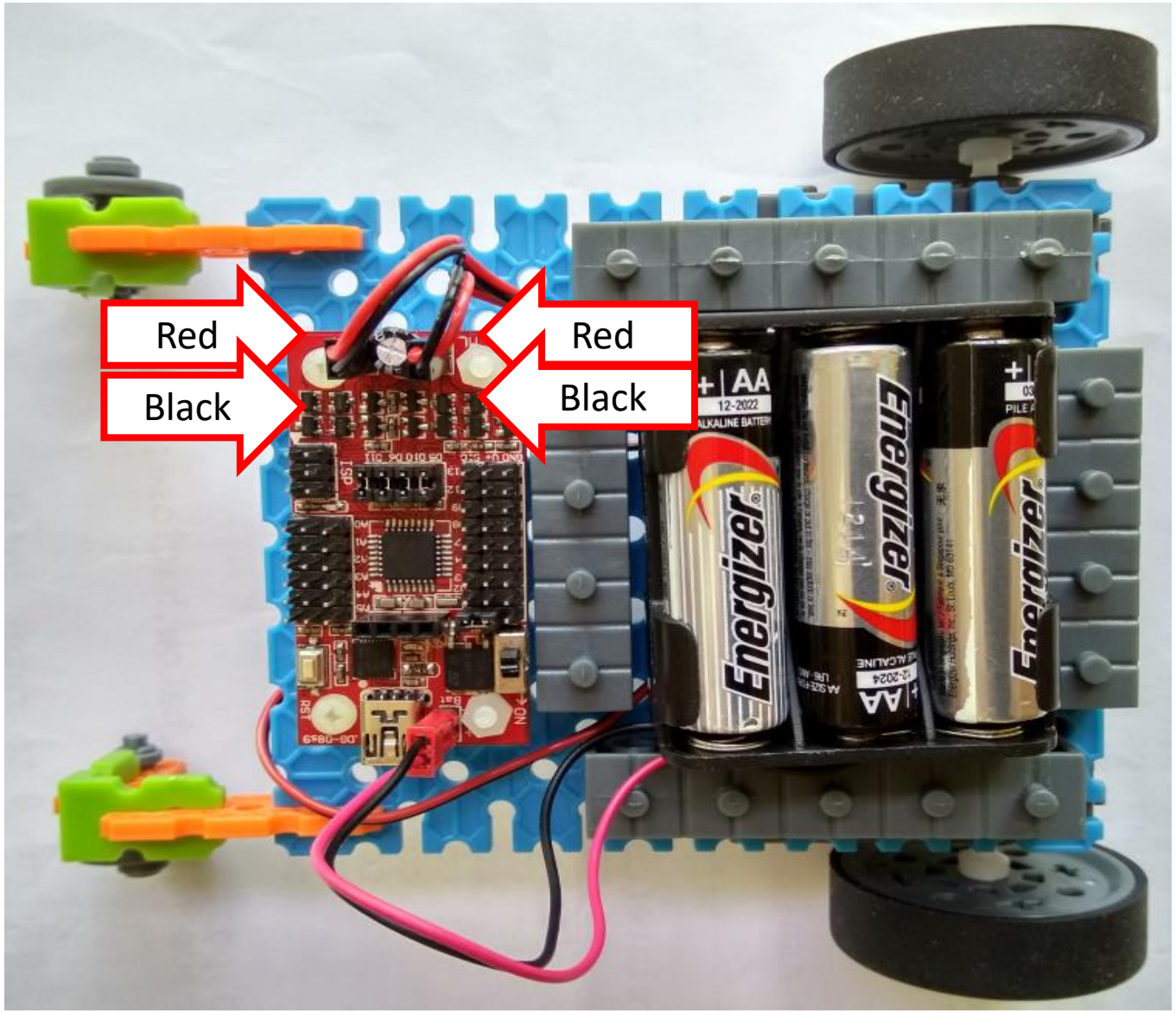
Vehicle Construction – Setup Line Tracing Sensor



Vehicle Construction – Attach Line Tracing Sensor

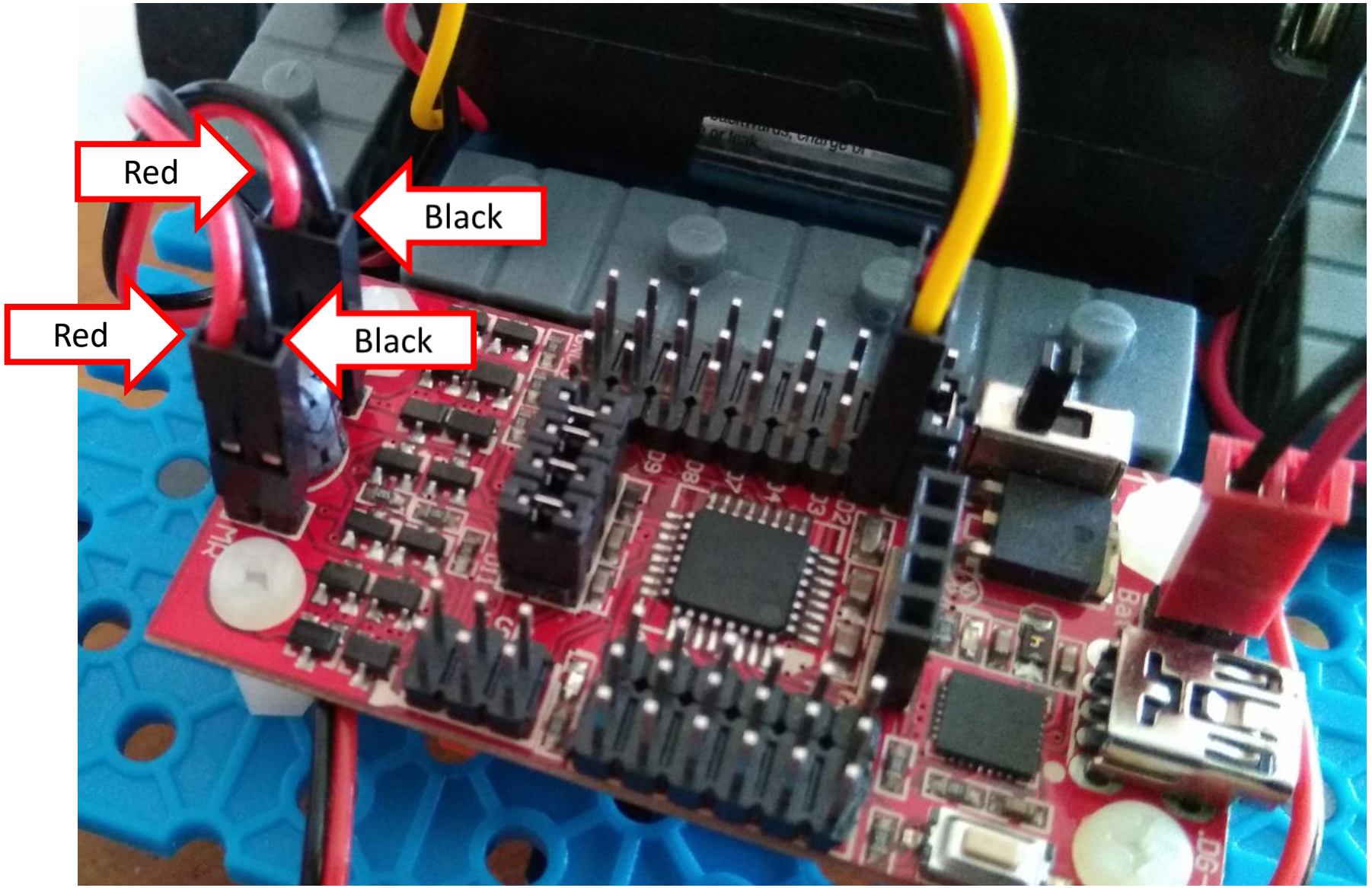


Vehicle Construction – Connect motors

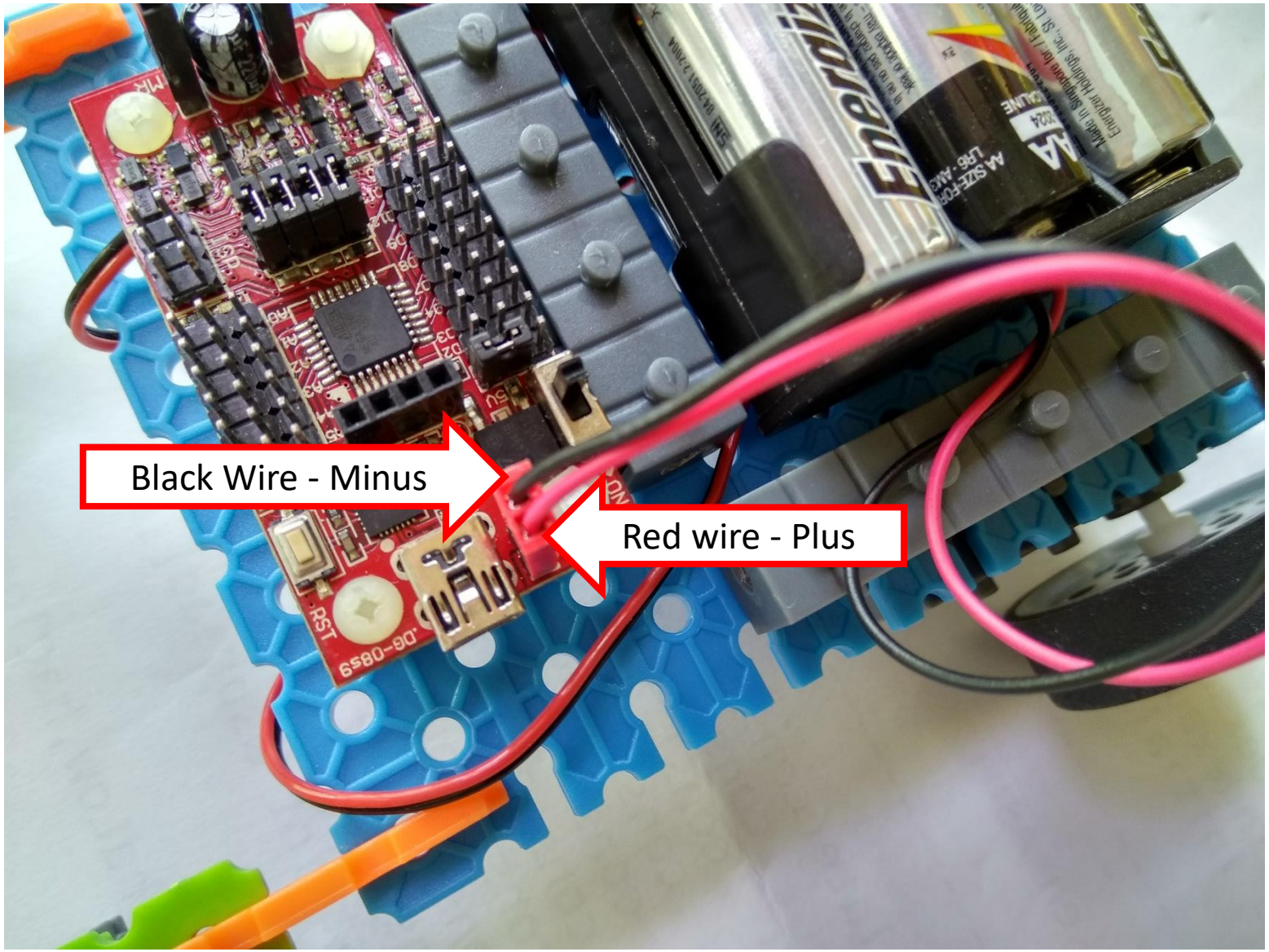


	Arduino ML	Arduino MR
Left Motor		X
Right Motor	X	

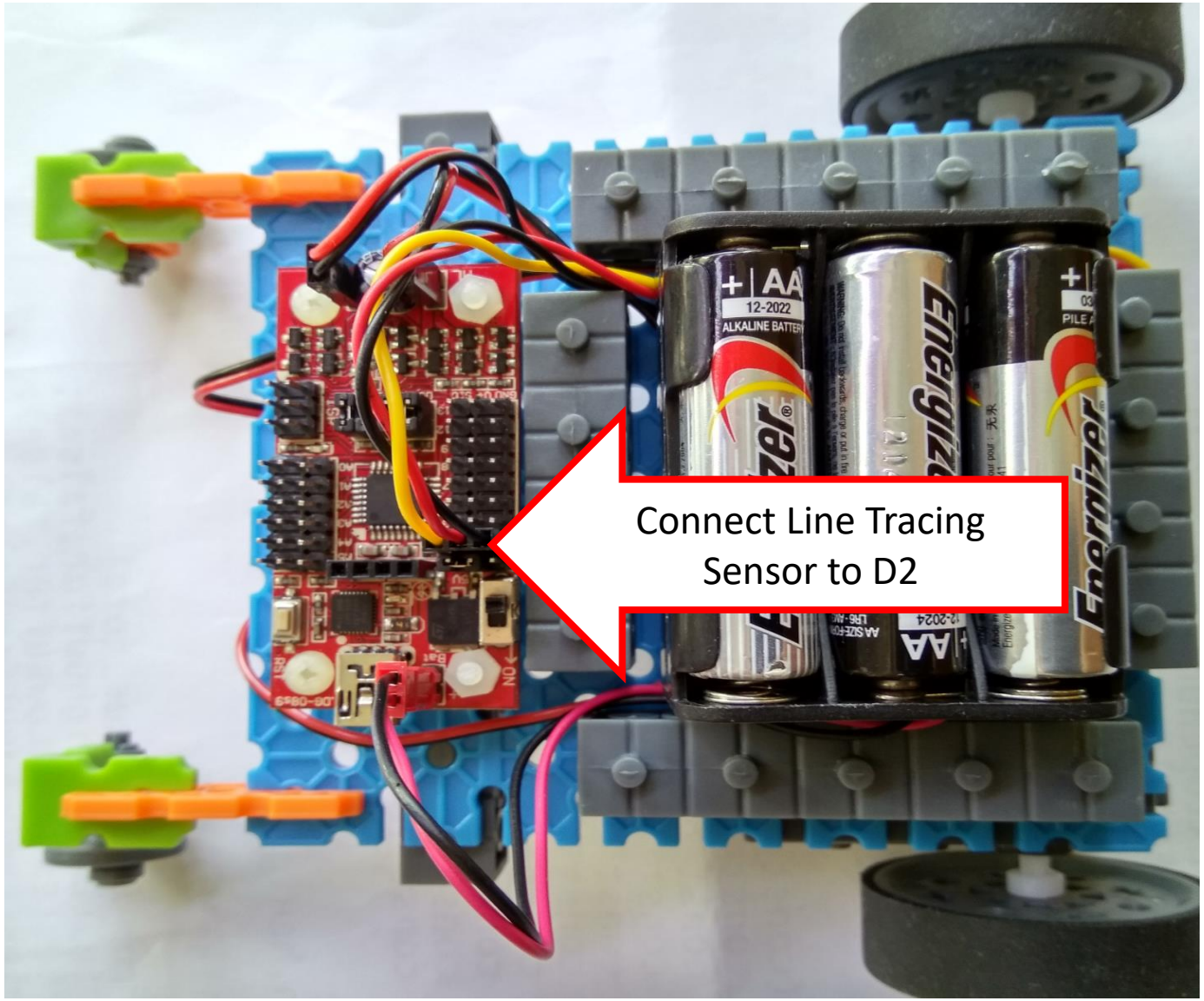
Vehicle Construction – Connect Motors



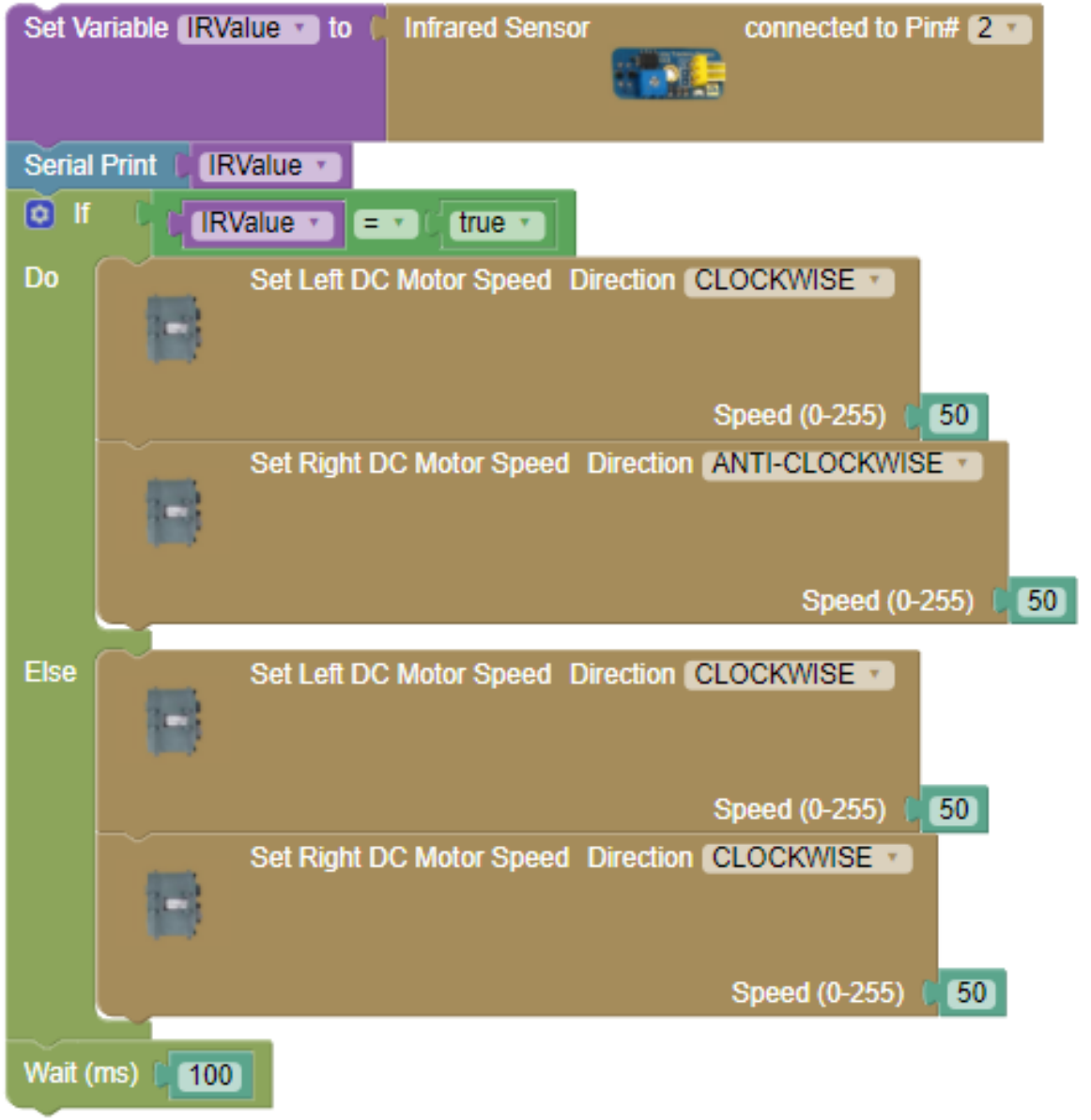
Vehicle Construction – Connect Battery Pack



Vehicle Construction – Connect to D2



Vehicle Construction – Code for 1 Line Tracing Sensor



Vehicle Construction – Code for 1 Line Tracing Sensor

```
int IRValue;

void setup()
{
  pinMode(2, INPUT);
  Serial.begin(9600);

  pinMode(5, OUTPUT);
 pinMode(10, OUTPUT);
  pinMode(6, OUTPUT);
 pinMode(11, OUTPUT);
}
```

```
void loop()
{
  IRValue = digitalRead(2);
  Serial.println(IRValue);
  if (IRValue == true) {
    analogWrite(5, 50);
    digitalWrite(10,HIGH);
    analogWrite(6, 50);
    digitalWrite(11,LOW);

  } else {
    analogWrite(5, 50);
    digitalWrite(10,HIGH);
    analogWrite(6, 50);
    digitalWrite(11,HIGH);

  }
  delay(100);

}
```

Move anti-clockwise

Video (1 Line Tracing Sensor)

Motor Configuration

USB Connector	
(ML – On Arduino)	(MR – On Arduino)
Red	Black
Black	**Red**

If the red and black cables are swapped, the turnings (left or right) will be swapped too

Left-Motor Code	Right-Motor Code	Direction
Clockwise	Clockwise	Forward
Anti Clockwise	Anti Clockwise	Backward
Clockwise	Anti Clockwise	Turn Right
Anti Clockwise	Clockwise	Turn Left