# **Hardware Documentation**

**Components:**

* 1x Arduino Uno Microcontroller
* 1x H-Bridge
* 2x Gearbox DC Motors with their wheels
* 5x TCRT5000 IR Sensors
* 5x 10K Ohm Resistors
* 5x 330 Ohm Resistors
* 3x 3.7V Li-ion Batteries
* 1x Switch
* 1x Front wheel
* 1x BreadBoard
* 1x PCB BreadBoard
* 1x Car Chassis
* M2M & M2F Jumpers

**Connections:**

* The 5 **TCRT5000 Sensors** were welded along to the **PCB BreadBoard** along with their needed **resistors** at the front of the car and near the ground in order to read black line.
* The 2 **Gearbox DC Motors** where placed at the back of the car and connected to the **H-Bridge** which was placed at the top of the **car chassis**.
* The 3 **3.7V Li-ion Batteries** were placed in a 3-Batteries Holder at the back of the car and connected to the **BreadBoard**.
* The sensors readings were connected first to the **BreadBoard** then to the **Arduino Uno**’s Analog Pins (A0, A1, A2, A3, A4).
* The **switch** was placed on the **BreadBoard** and connceted with the **Batteries’** source in order to control the power supplied to the **H-Bridge**.
* Finally, the **H-Bridge**’s control pins (in1, in2, in3, in4, enA, enB) were connected to the **Arduino Uno**’s PWM Pins to control the speed and direction of the **DC Motors**.