Project Materials

Each team will receive a set of materials in Tutorial 1, from which they will build their robot: a Tools Kit, a Materials Kit, and two identical Electronics Kits. Their contents are listed below.

Students may only use the materials provided in the production of their robots. The **three exceptions** to this rule is that students may supplement their robots with (1) paper clips provided by the lab, (2) outside adhesive material (specifically glues or tapes), and (3) paper. No other outside structural mechanical or electrical components should be used. You are also allowed to write or draw on parts that do not need to be returned (e.g., you may draw on your cardboard, or print paper to paste on your robot). Additional hot glue sticks, jumper wires, and cardboard are available from lab staff while supplies last. All items must be returned to lab in Tutorial 6, except for items marked with a ($\star$).

Some parts have been used previously by past EG1311 teams, and even some new parts may have manufacturing defects. As such, it is possible that some parts you receive may be broken. **If you think a part is broken, please consult the Lab Staff to request an exchange for replacement**. Students are responsible for maintaining their team's materials outside of lab time, and for bringing materials back to lab during their tutorial session. GP Rechargeable Batteries can take a long time to fully charge (like 10–15 hours), so please charge them **before** coming to lab.

Laser Cutting

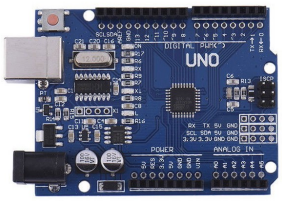
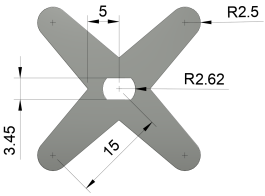
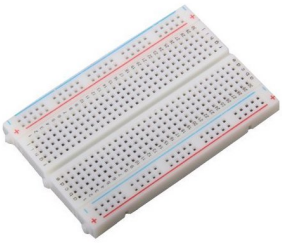
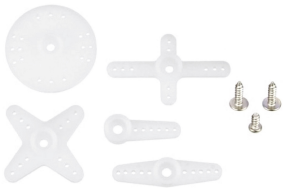
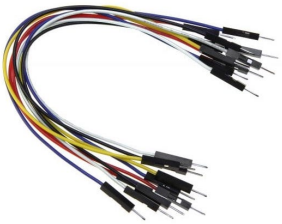
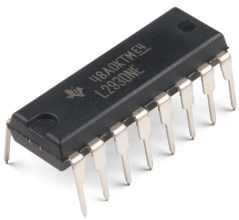
Students may request to have parts laser cut from 3mm Black Acrylic during Tutorials 2, 3, and 4. Students must submit DXF files exported from Fusion 360 to their section's submission folder on Canvas by the **start of tutorial**, using the following naming convention:
`BXX_teamY_fileZ_printQ.dxf`, where:

- `XX` and `Y` correspond to the student's section number and team number respectively;
- `Z` represents the number of files submitted by the team so far (first submission is `1`); and
- `Q` represents the number of prints that should be made of the file.

Peer tutors will cut your parts after reviewing your submitted files with you. Teams are limited to printing within one 20cm $\times$ 20cm square per tutorial session. Please plan accordingly.

Tools Kit	Qty	Materials Kit	Qty
GP Universal Battery Charger	1	($\star$) 50cm $\times$ 50cm 2mm Cardboard	1
GP 9V Rechargeable Battery	2	($\star$) A4 2mm Polypropylene	1
GP AA Rechargeable Battery	8	($\star$) A4 5mm Foamcore	1
Hot Glue Gun	1	($\star$) Anti-slip mat sheet	1
A4 Cutting Mat	1	($\star$) Roll of masking tape	1
Retractable Pen Knife	1	($\star$) Popsicle Sticks	20
30cm Steel Ruler	1	($\star$) 3" diameter rubber bands	10
Ping Pong Ball	1	($\star$) Glue Sticks	3

Electronics Kit $\times 2$

Image	Part	Image	Part
	Arduino Uno Qty 1 Datasheet		USB Cable Qty 1 USB-B to USB-A
	Geared Motor Qty 2 120:1 gear ratio 3-9V volts CAD Drawing		9V Battery Holder Qty 1
	Motor Coupler Qty 2		4 x AA Battery Holder Qty 1
	Servo Motor (SG90) Qty 1 Datasheet		Breadboard 400-Tie-Point Qty 1 How to use
	Servo Motor Coupler Pack Qty 1		(⋆) 40cm Jumper Wires Qty 20 Male-Male Qty 10 Male-Female
	Ultrasonic Sensor (HC-SR04) Qty 1 Datasheet		H-Bridge (L293DNE) Motor Driver Qty 1 Datasheet