

# ScraphEEp 2020 Brief

## Challenge

Build a WiFi-controlled contraption to collect aliens and deliver them to the finish line. Along the way you will encounter various obstacles that you will need to overcome.

Each team has 5 and a half hours to build a contraption that will complete the task quickly and accurately. There are no limits (except for safety) to what we will allow you to build - but think about how best to complete the task.

## Plan for the Day

11:00-11:30	Briefing
11:30-17:00	Build
17:00-17:30	Food/Final Tweaking
17:30-18:30	Contest
18:30-18:45	Awards

## Safety

**Safety is number one priority!**

## Scrap

The electrical scrap pile is a real scrap pile! Be aware that things may be sharp (glass, sharp edges etc). Take care with any capacitors in the pile, as they may still be charged.

**Don't plug anything into mains!**

## LiPo (Lithium-Polymer) Batteries

LiPo batteries are great as a nice, stable power supply. However, they are also dangerous. So please keep the following in mind:

- **LiPo batteries will explode if punctured!** Please handle the batteries with care and ensure they are kept away from sharp objects/materials.
- Do not connect the terminals of the battery together, or short them. Before we provide you with a LiPo you must demonstrate to us that there are no short circuits by powering your system from a bench supply.

- Do not charge the batteries yourself or otherwise connect them to a bench supply. Only authorised people (committee and lab staff) may charge batteries. This is in the interests of safety.
- Do not cut the wires connected to the battery.
- Do not heat up the batteries - this may cause damage.
- Never draw more than the maximum specified current from the batteries (20A). It should be very hard to do this.

### If something goes wrong:

- If you notice any swelling, outgassing or damage to the batteries - inform us **immediately**.
- If something goes wrong whilst you are using the battery - disconnect if it is safe to do so.
- Step back from the battery.
- **DO NOT** throw water on the battery. The cells contain lithium, which reacts with water. This will just make it worse.

## Judging Criteria and the Challenge

There are 3 aliens to collect. You don't have to collect all (or any) of them in order to successfully complete the challenge, but you will lose out on potential points for each one missed.

Teams will also be awarded points based on how fast they completed the challenge relative to other teams.

Category	Judged On	Points Available (Max)
Aliens collected	Number of aliens collected during the challenge	6 (1 point for collecting an alien, 1 point for delivering it)
Speed	How fast the challenge was completed	6 (6 points for fastest team, 5 for the next fastest etc.)
Originality	Approach to the problem and design	5
Scrappiness	How much like scrap does it look?	5
Entertainment Value	How entertaining the attempt was to watch. (No fire or explosions)	5