Driverless

Perception: Cone Filtering

Green innovation meets performance

Our Project

Formula Electric Belgium is a team of engineering students who build a **Formula-Student racecar** to compete in international competitions. We design and build a brand-new car every year and compete with other teams in multiple worldwide competitions during the summer months. Formula Student is by far the biggest **engineering competition** in the world and continues to grow. From next year on, we will be competing in both the **electrical** and **driverless** competition. You can join the project as a volunteer, this allows you to contribute to the next race car whilst keeping a flexible schedule.

Tasks

To be able to let a car **drive itself** through a track of **cones**, the first step will be the detection of these cones. Each different cone has its meaning in the track, so it is crucial to record every single cone and tell which type of cone it is without having any **false positives** as the area where the track is driven is **not a flat smooth surface**, but can include walls, bushes, lights, rails, etc.

We use a **LiDAR** system that lets us drive a track even at night. We use **complex filtering** followed by a light-intensity map. This allows us to differentiate yellow cones, blue cones, and big orange cones but the small orange cone is not yet detected. Adapt this complex filtering so that only cones are recognized.

Profile

- C++ knowledge
- Out-of-the-box thinker (creativity)
- Team player with a goal to learn

Returns

- A unique engineering experience
- Contact with companies at the leading edge of technology
- Applying your engineering skills in the real world
- Developing your hard– and soft-skills in a company-like environment
- Work in a team with young motivated engineers

Up for the challenge?

Want to do a similar case within the team? Submit your **resume** and **motivation letter** (one page) to volunteers@formulaelectric.be