

## 0.1 Technical requirements

In order to select certain parts for the project some technical requirements have to be estimated. These include, but are not limited to the mass of the payload, the mass of the vehicle and the desired operating speed of the forklift.

### 0.1.1 Payload

The group agreed that the payload, for modeling purposes, will be cans of soda.

1. Forklift can lift at least a pallet of 4 european standard sized cans. Individual can dimensions: Width:  $66.1mm$  ; Height:  $115.2mm$  ; Volume: 0.33 L.
2. Forklift can lift 3.5 kg of mass. This includes 8 cans and a pallet.
3. Dimensions of the pallet should be  $150mm$  by  $150mm$ .
4. Payload can be lifted at least  $150mm$ .
5. Two pallets can be stacked on top of each other.
6. Lifting speed reaches  $10\frac{mm}{s}$ .

### 0.1.2 Movement

1. Vehicle can travel at  $50\frac{mm}{s}$ .
2. Vehicle can turn at least  $18\frac{deg}{s}$ .
3. Vehicle can accurately track its position - criterion depends on navigation method to be chosen
4. Vehicle can drop of a pallet by lifting it up at a start position and drop it at any field specified
5. Vehicle is able pick up a pallet by inserting the forks into the pallet.

### 0.1.3 Mass of the vehicle

1. Vehicle should weigh less than 10 kg including the payload.