



# TrailerMate

## Team Jason

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**Reminder of the project**



**Schedule control & organization**



**Demonstrations**



**Next sprint goals**



**Next sprint organisation**

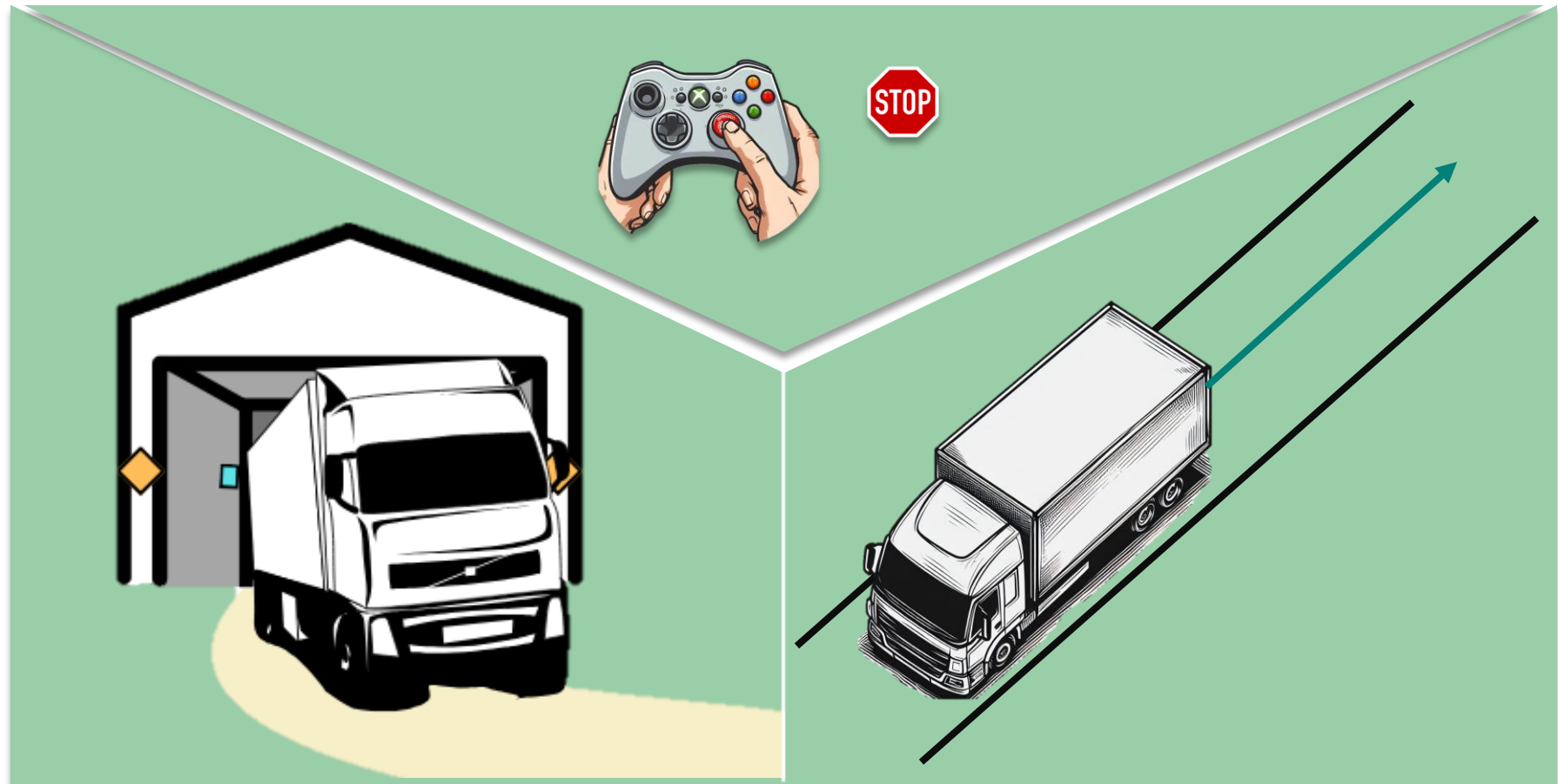


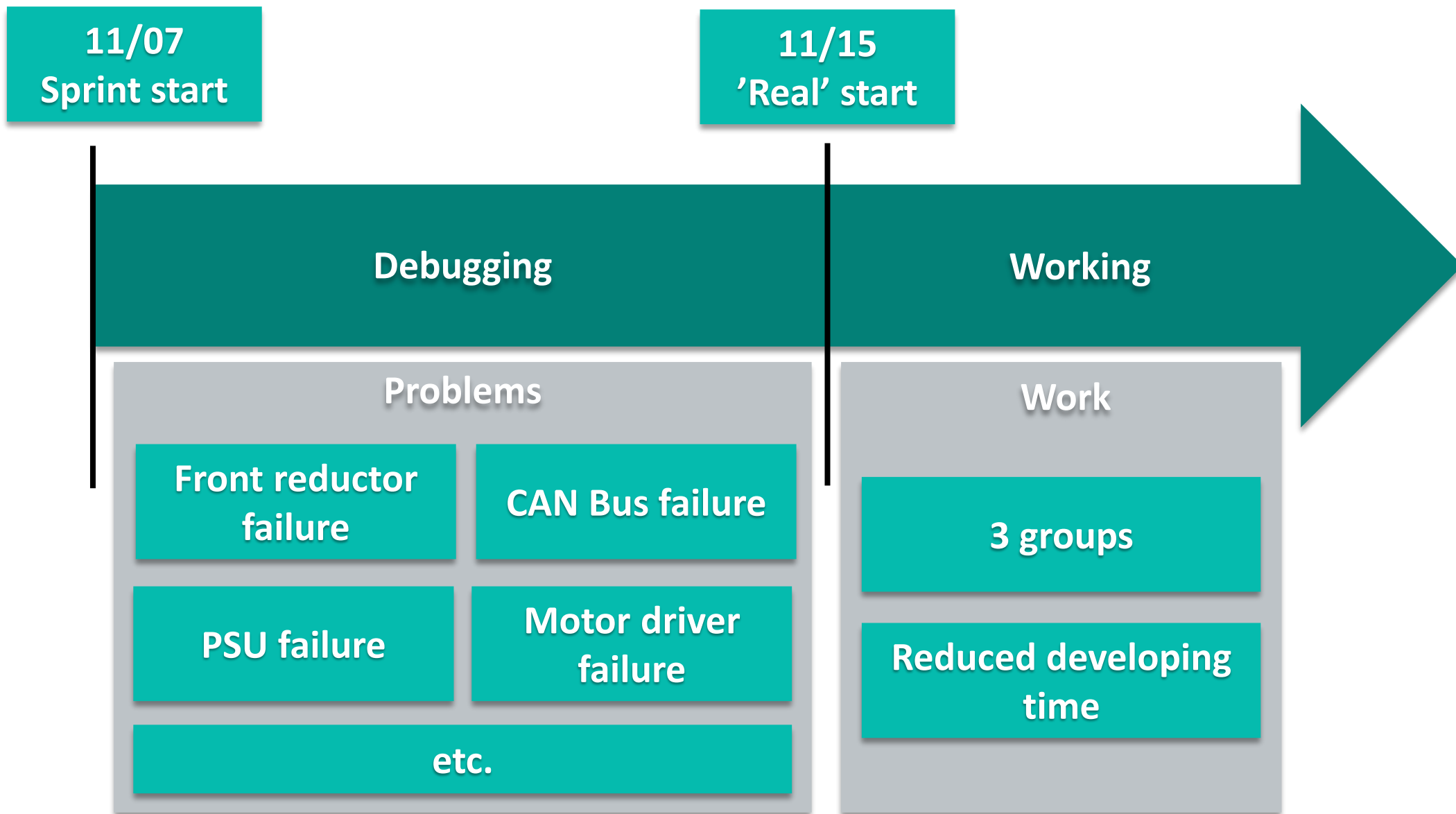
**Next sprint acceptance tests**



**Suggestion & Questions ?**

## Reverse gear library







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## Sprint tasks

Understand existing code <sup>8</sup>

Move forward/backward <sup>1</sup>

Emergency button <sup>1</sup>

Understand ROS2 structure <sup>8</sup>

SoA reverse control loops

Get values from sensor <sup>3</sup>

Closed loop to forward <sup>8</sup>

Car model in Matlab <sup>5</sup>

Wired car connection <sup>5</sup>

## Organization

3 working teams

Good sprint organization  
with Trello

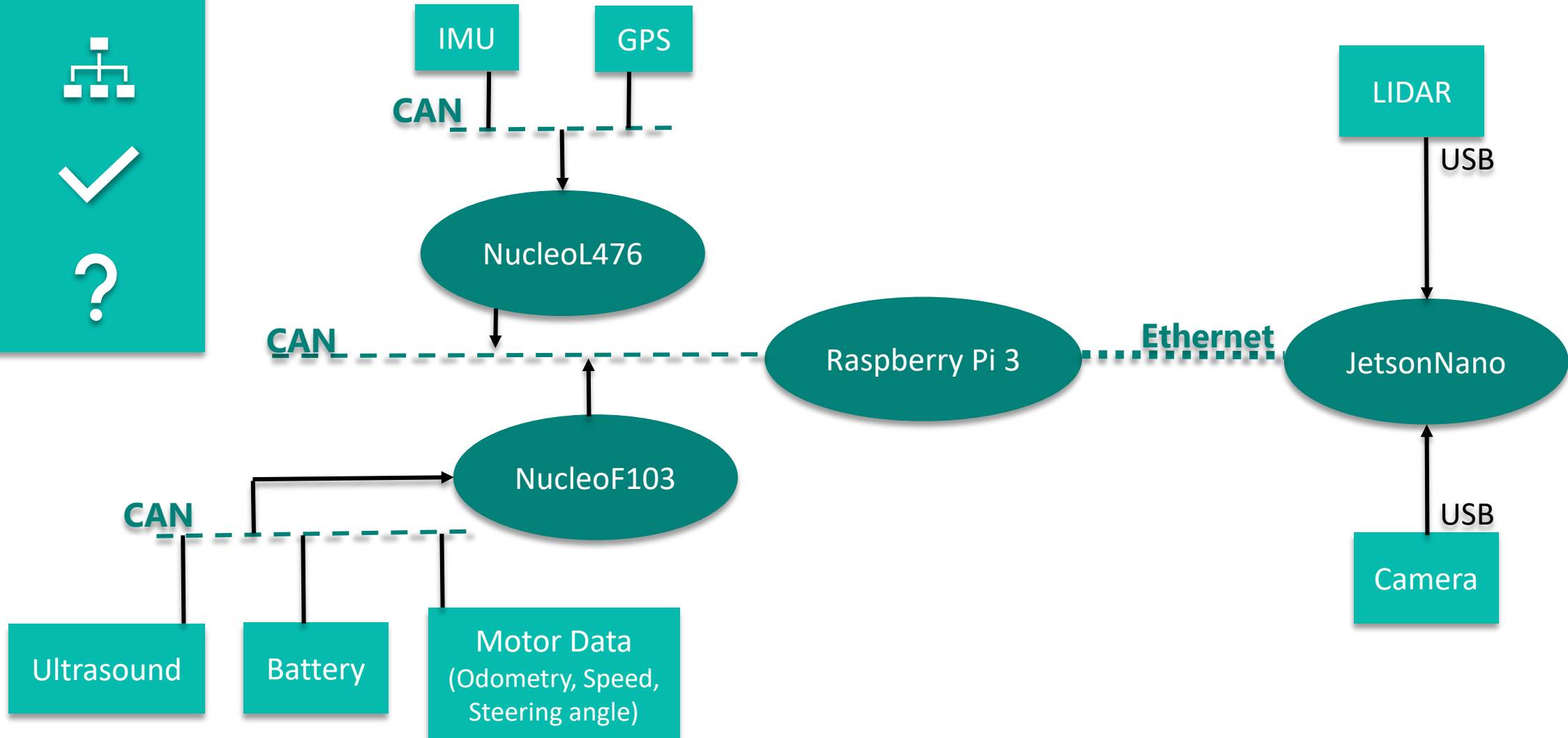
Lack of communication

Xprogramming approach

Work evenly splitted

Difficulty to start the  
project

## Architecture:



2

## Example of data :

### LIDAR

```
jetson@geicar:~$ ros2 topic echo /scan
header:
  stamp:
    sec: 1663252954
    nanosec: 116424035
  frame_id: laser
angle_min: -3.1241393089294434
angle_max: 3.1415927410125732
angle_increment: 0.008714509196579456
time_increment: 0.00010080377978738397
scan_time: 0.07247791439294815
range_min: 0.15000000596046448
range_max: 16.0
ranges: [0.40700000524520874, 0.40700000524520874, 0.4099999964237213, 0.
19999999040094, 0.42500001192092896, 0.42800000309944153, 0.43099999427791
.inf, .inf, 1.5679999589920044, 1.5679999589920044, .inf, .inf, 1.598000
32983, 1.6460000276565552, 1.6519999504089355, 1.6619999408721924, 1.6619
00095367432, 1.7400000095367432, 1.75, 1.75, 1.7580000162124634, 1.76800
162124634, 1.7280000448226929, 1.7280000448226929, 1.7280000448226929, 1.
842, 1.5540000200271606, .inf, .inf, 1.559999942779541, 1.559999942779541,
40000200271606, 1.5579999685287476, 1.5779999494552612, 1.572000026702886
, 0.7459999918937683, 0.7400000095367432, 0.7319999933242798, 0.727999985
7, 0.7080000042915344, 0.7080000042915344, 0.7099999785423279, 0.71200000
intensities: [47.0, 47.0, 47.0, 47.0, 47.0, 47.0, 47.0, 47.0, 47.0, 47.0, 47.0,
0, 47.0, 47.0, 47.0, 47.0, 47.0, 47.0, 47.0, 47.0, 47.0, 47.0, 47.0, 47.0,
0, 47.0, 47.0, 47.0, 0.0, 0.0, 47.0, 47.0, 47.0, 47.0, 47.0, 47.0, 47.0,
47.0, 47.0, 47.0, 47.0, 47.0, 0.0, 0.0, '...']
---
```

### Camera

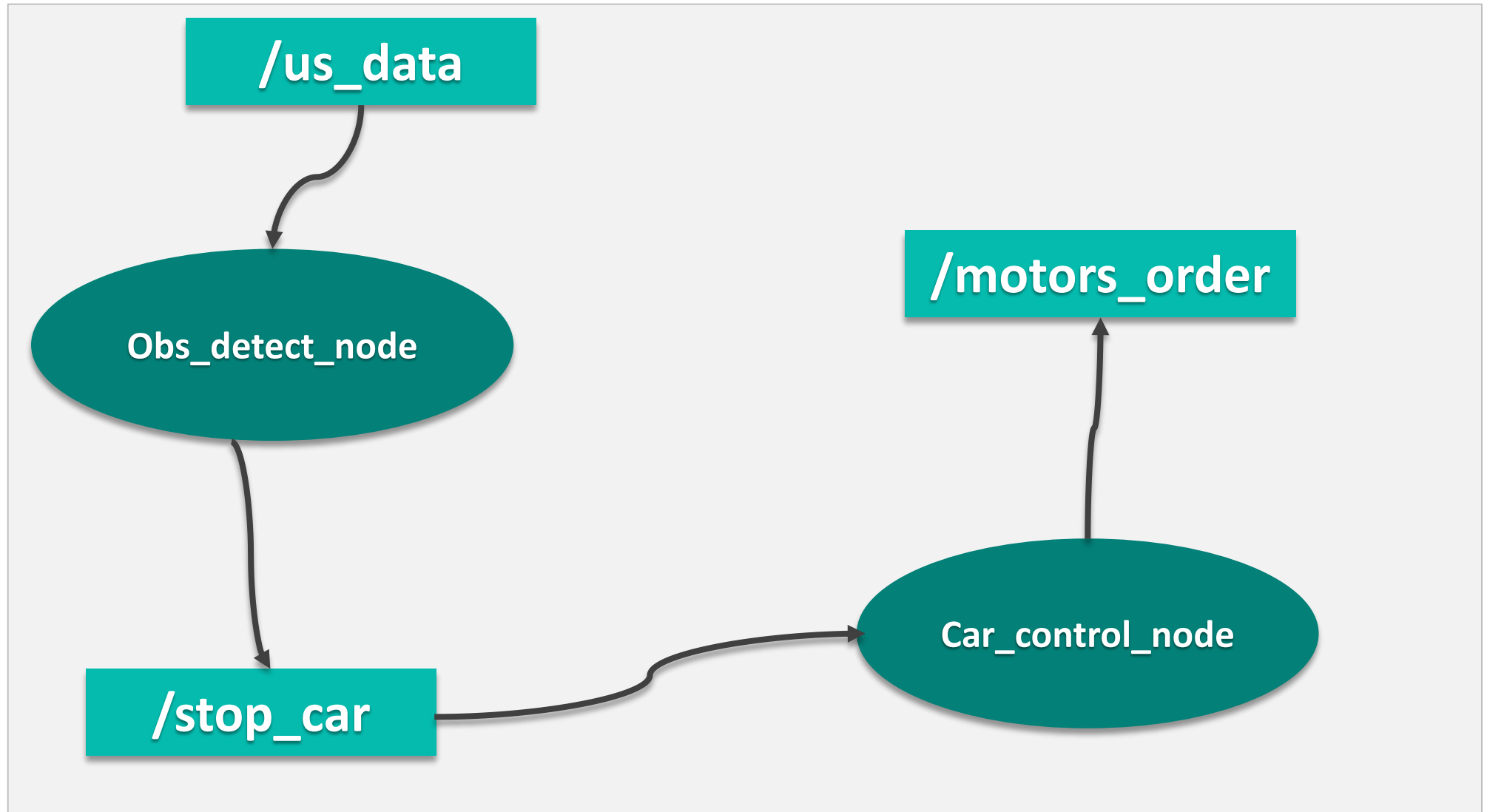
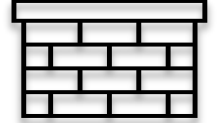
```
jetson@geicar:~$ ros2 topic echo /image_raw
header:
  stamp:
    sec: 1663252816
    nanosec: 400617523
  frame_id: default_cam
height: 480
width: 640
encoding: rgb8
is_bigendian: 0
step: 1920
data: [67, 74, 85, 65, 72, 83, 65, 72, 81, 67, 74, 83, 71,
66, 72, 58, 67, 66, 59, 68, 67, 61, 67, 65, 62, 68, 66, 6
1, 24, 23, 21, 24, 23, 21, 24, 23, 21, 24, '...']
---
```

### GPS

```
pi@geicar:~$ ros2 topic echo /gnss_data
latitude: 43.57053633333332
longitude: 1.4666725
altitude: 208.9
quality: 1
hacc: 35120.0
vacc: 25364.0
---
latitude: 43.57054233333333
longitude: 1.466687833333333
altitude: 208.9
quality: 1
hacc: 35120.0
vacc: 25364.0
---
```

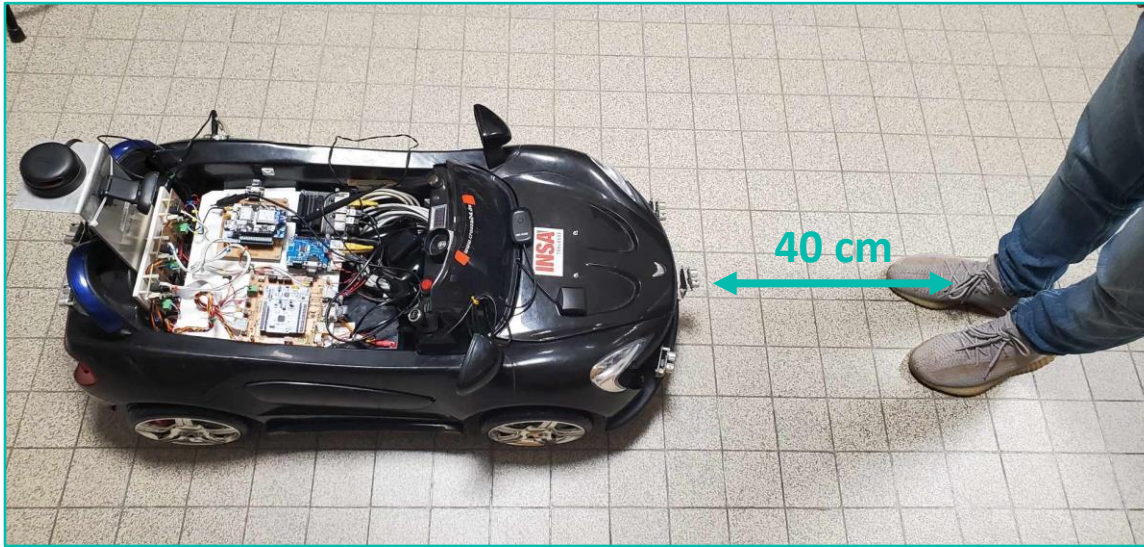
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## Obstacles detection :

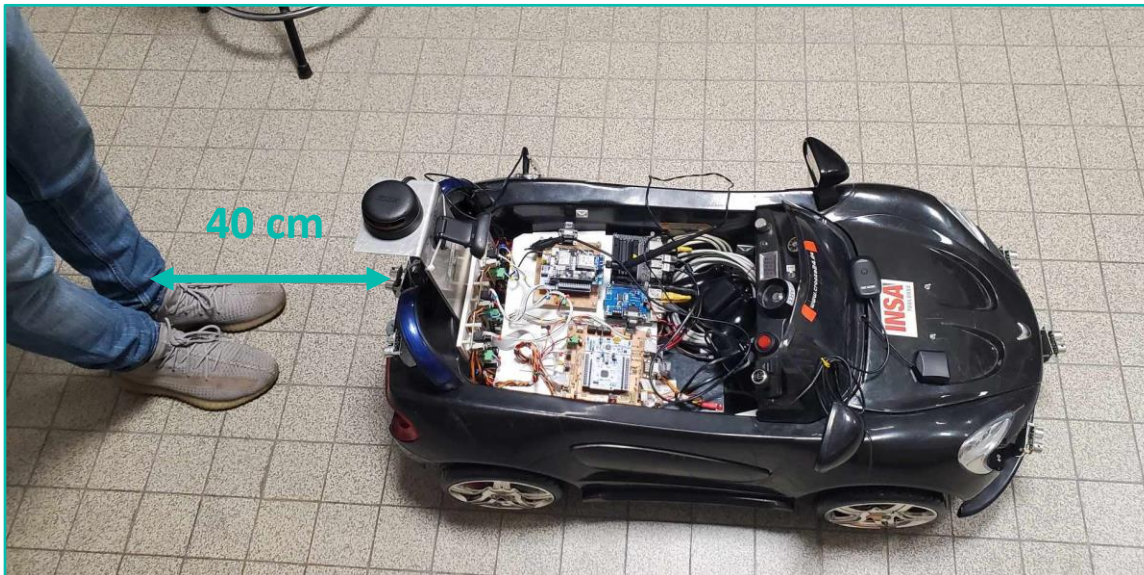




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```
---  
stop_car_rear: false  
stop_car_front: true  
---
```



```
---  
stop_car_rear: true  
stop_car_front: false  
---
```

2

Story: The car moves forward and maintains a set speed in automatic mode

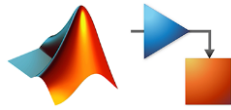
Example:

I want my car's wheels to round 50 RPM (Revolution Per Minute)

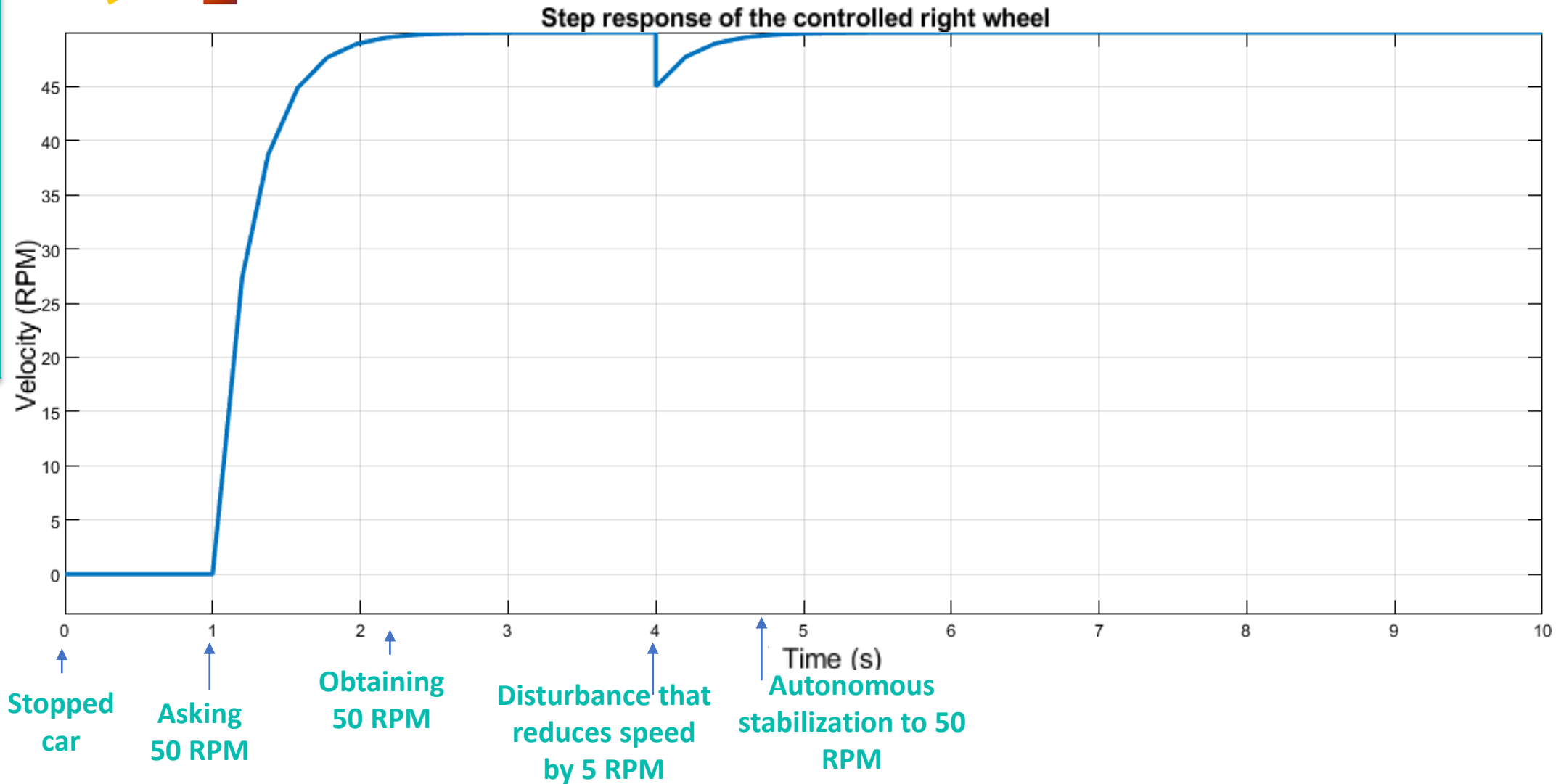


Thanks to my automatic mode, I will be able to maintain this velocity!

2

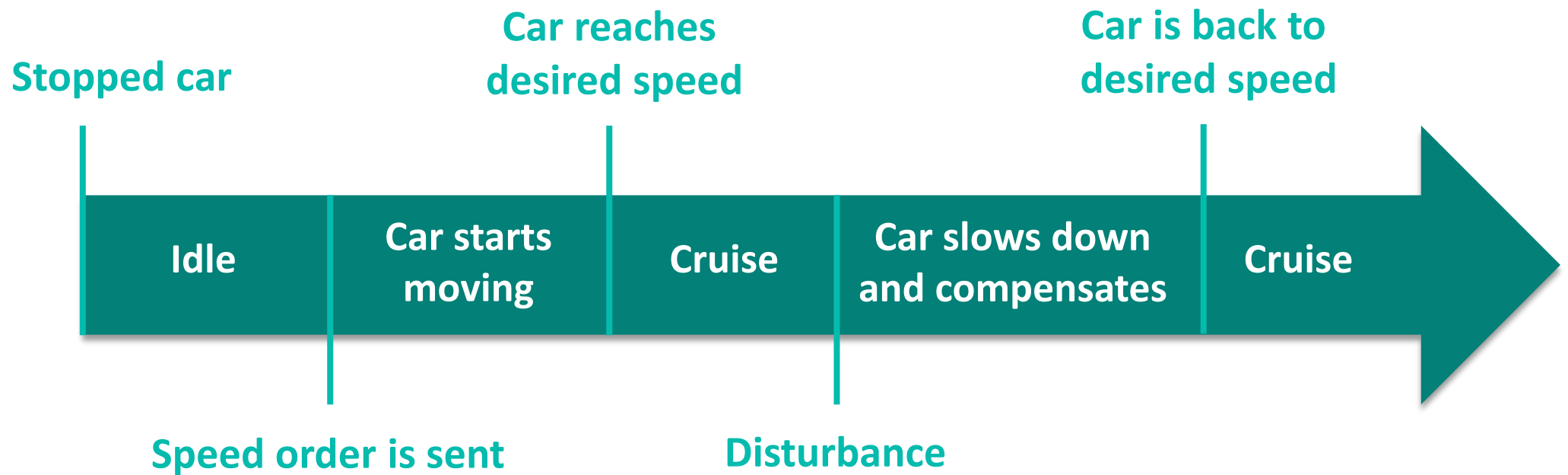


Before the demonstration, the modelization:



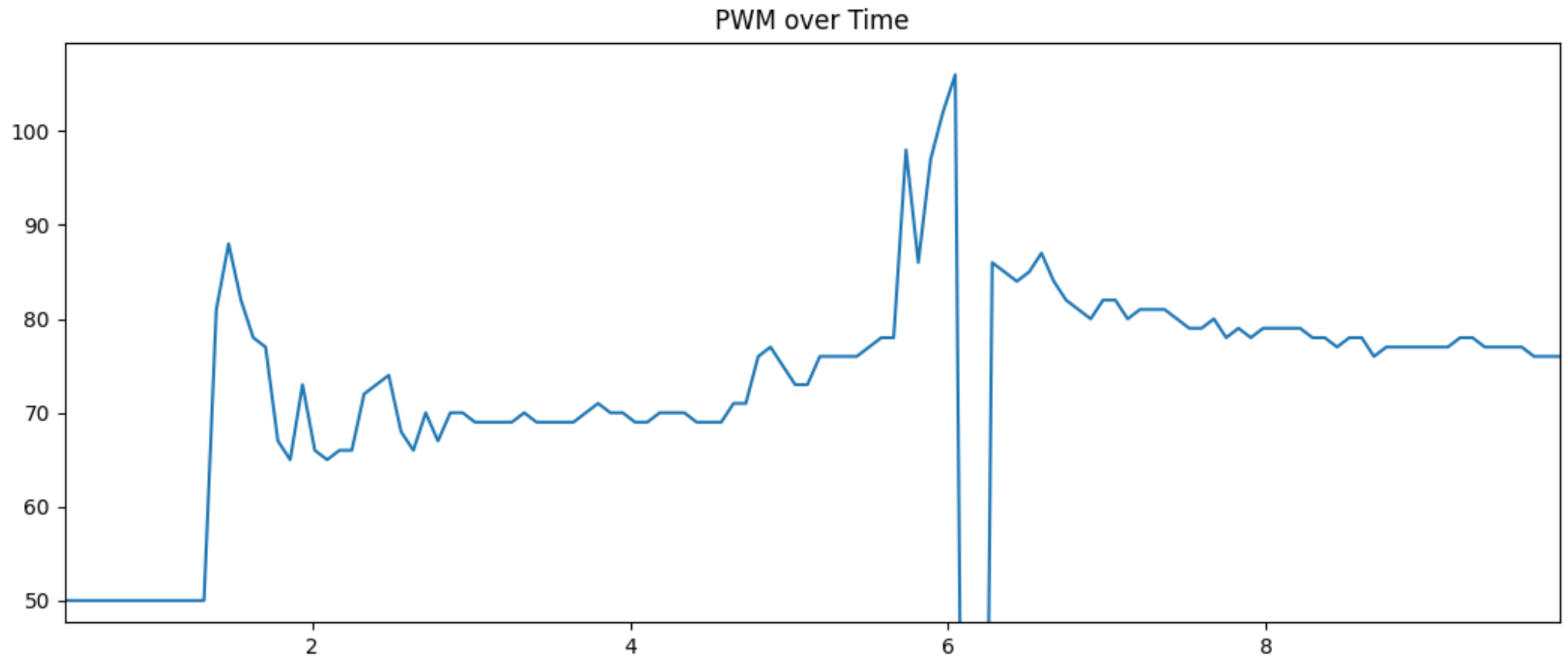
2

## Demonstration sequence



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Let's see the demonstration!





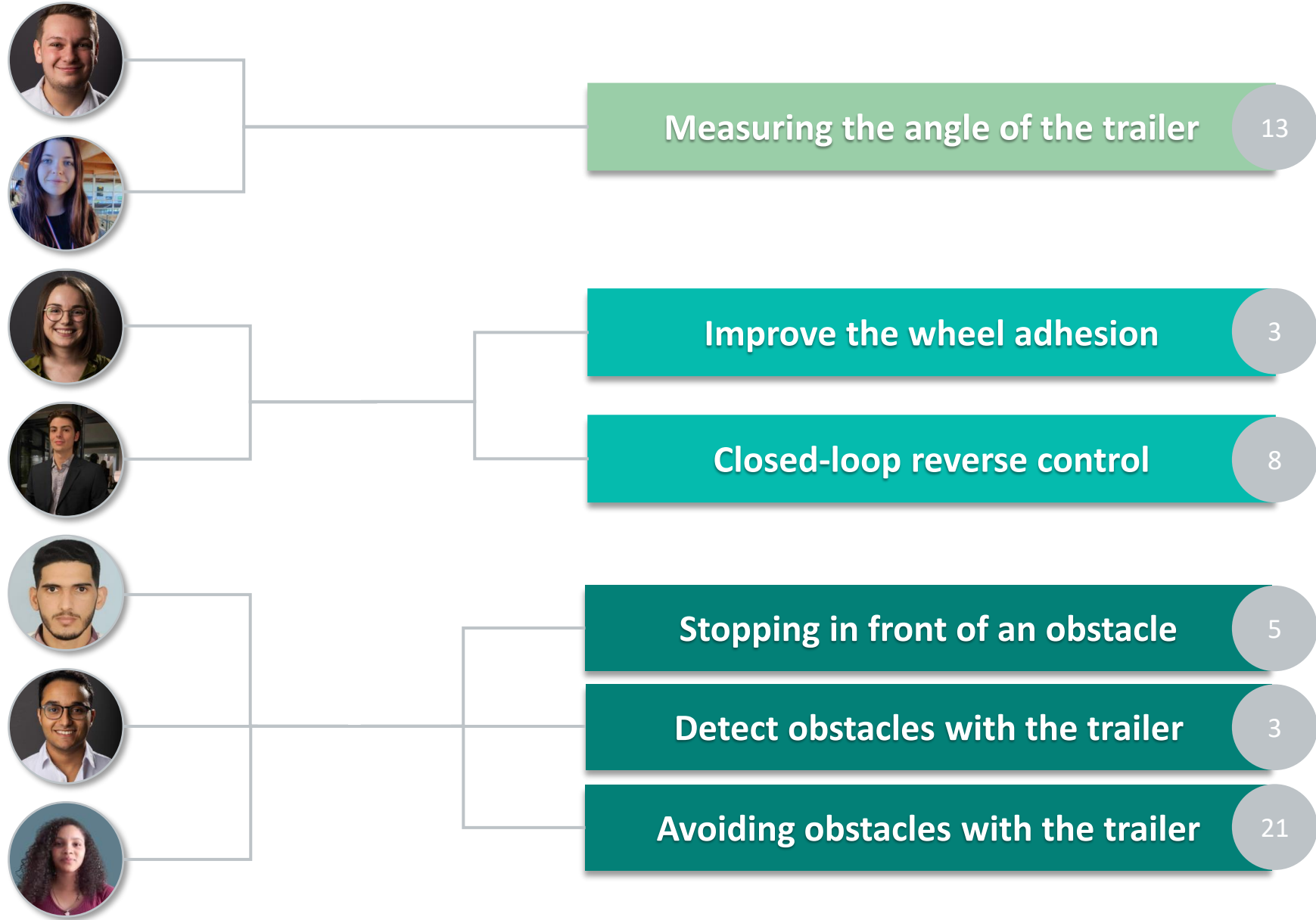
**SCRUM Master : Emilie Fraumar**

**3 Goals**

**Trailer angle**

**Car automation**

**Obstacles detection**





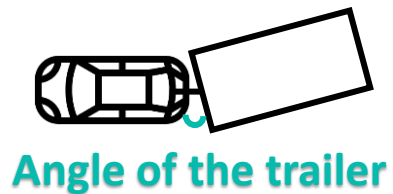


## Trailer angle

**Initial state:** The car is stopped.

**Action:** Turn the trailer manually.

**Result:** The sensor post the right angle of the trailer.

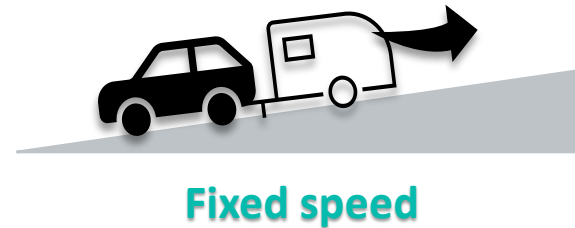


## Car automation

**Initial state:** The car is stopped.

**Action:** Run automatic mode.

**Result:** The car go backward with fixed speed.

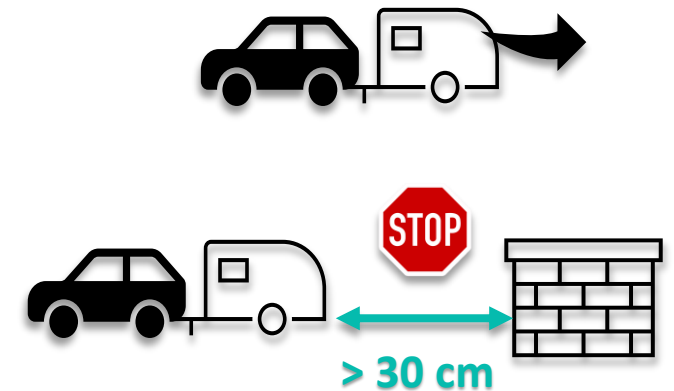


## Obstacles detection

**Initial state:** The trailer is moving.

**Action:** Put an obstacle in its path.

**Result:** The trailer stops before hitting the obstacle.







# Suggestion & Questions ?

TrailerMate – Review 1

17/17

