





Lausanne, Switzerland



Robotics club

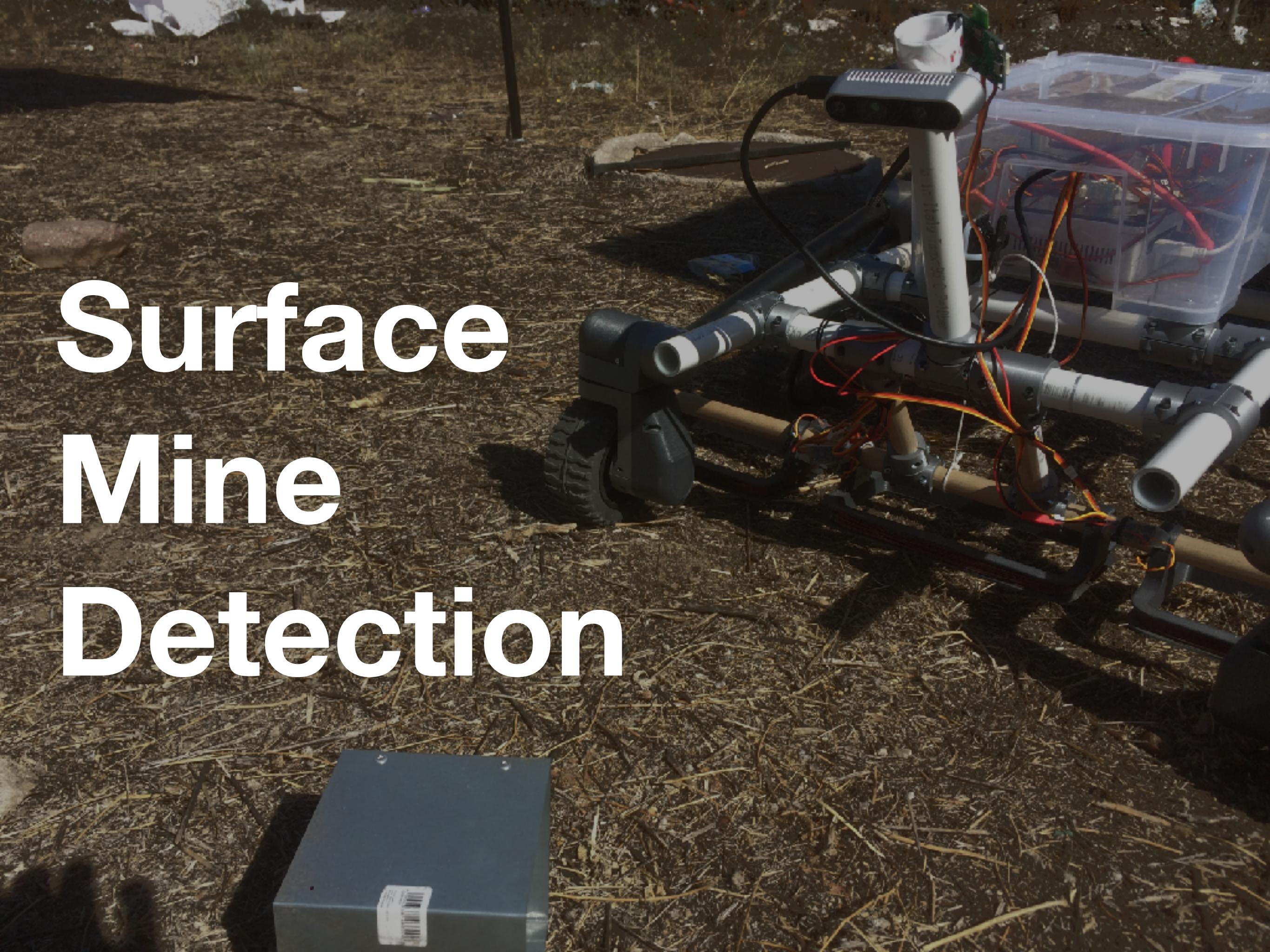
9 members



Mechanical Design



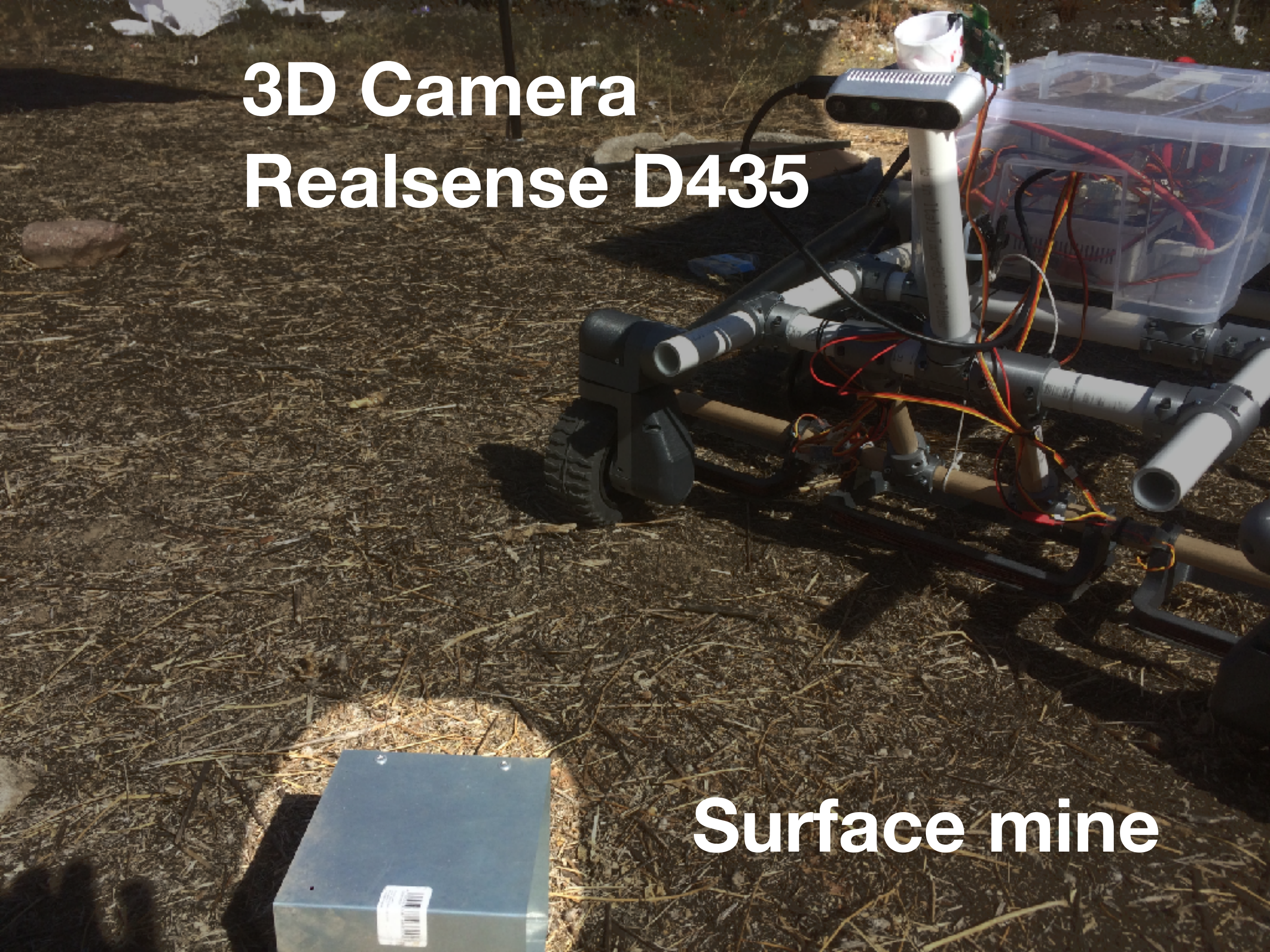
Buried Mine Detection

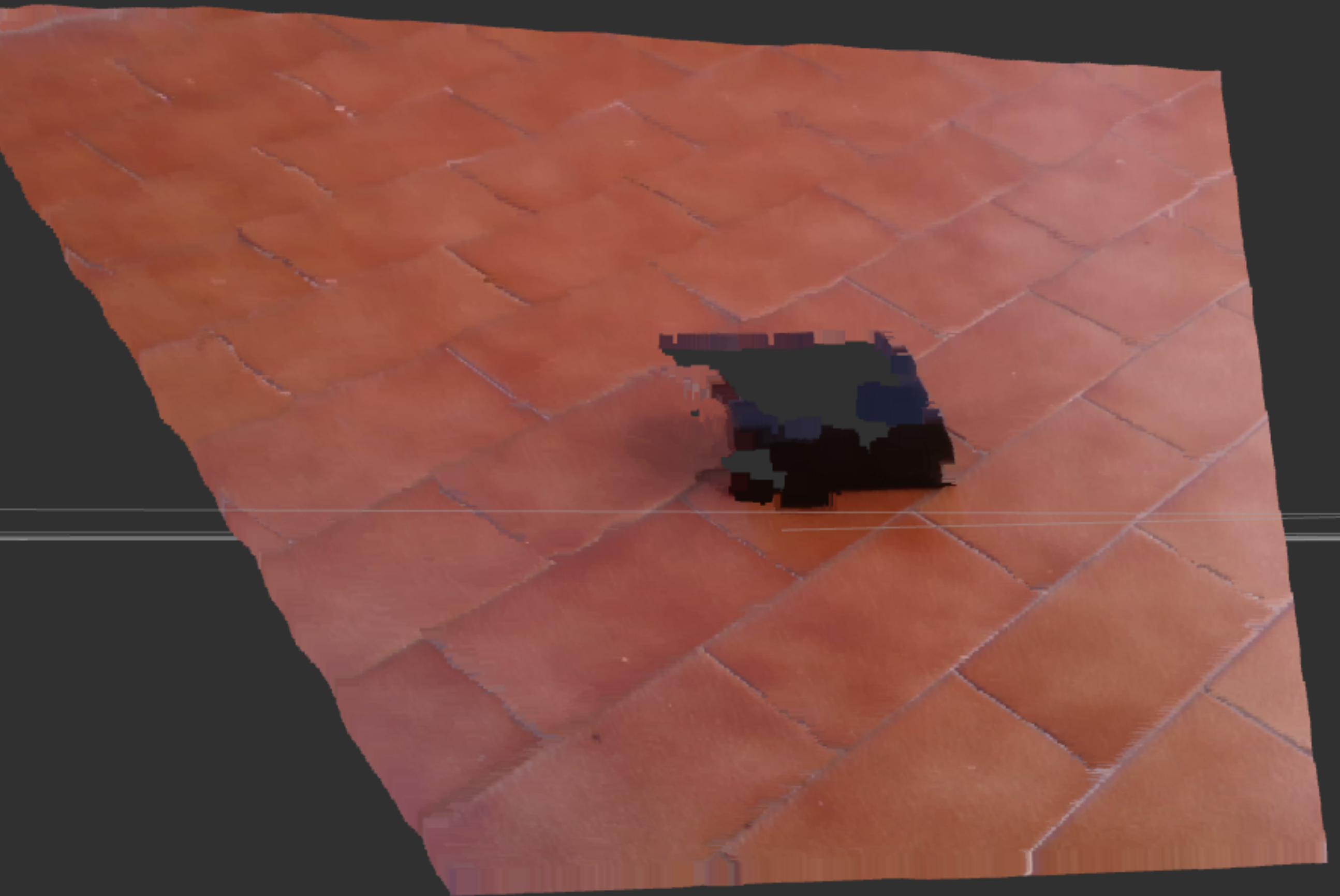


Surface Mine Detection

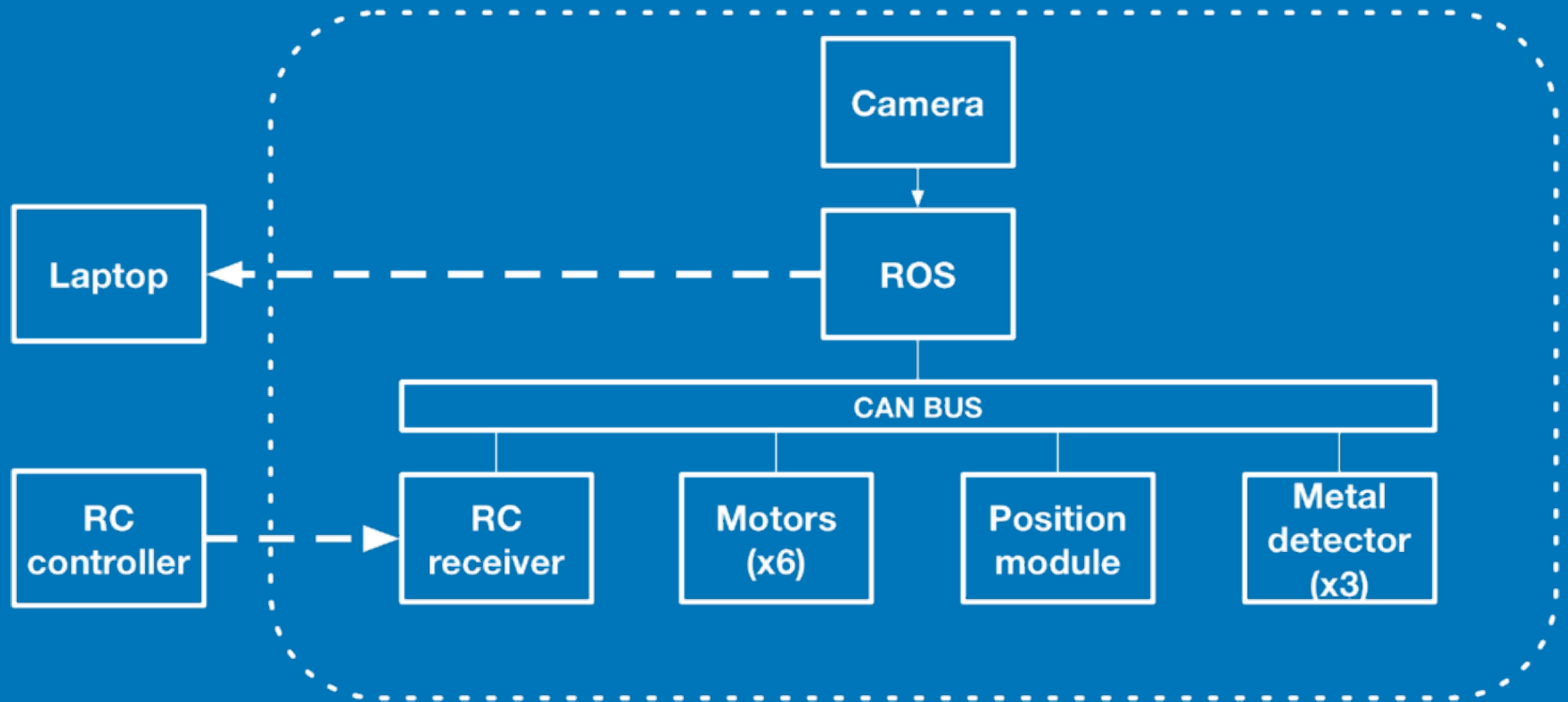
3D Camera Realsense D435

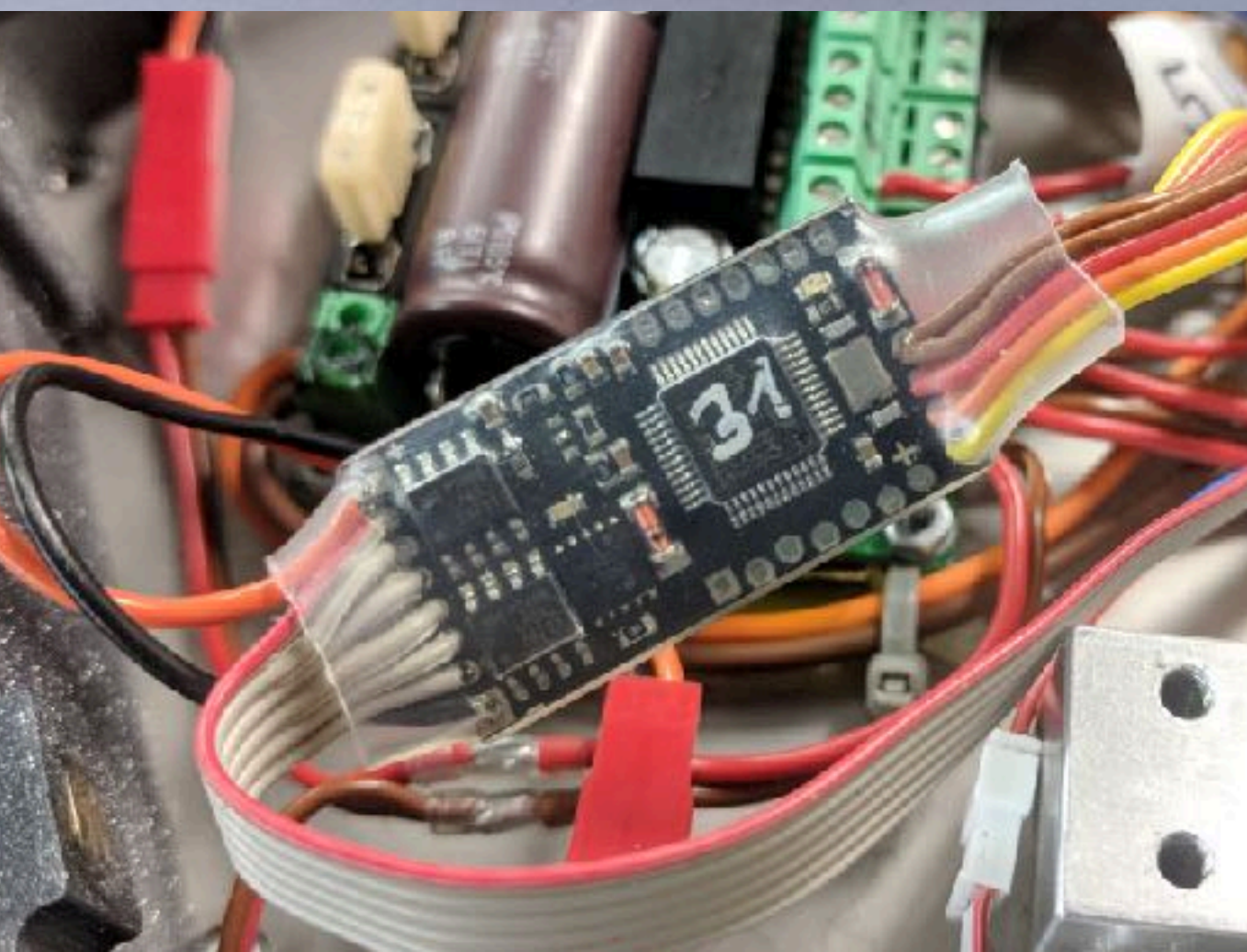
Surface mine

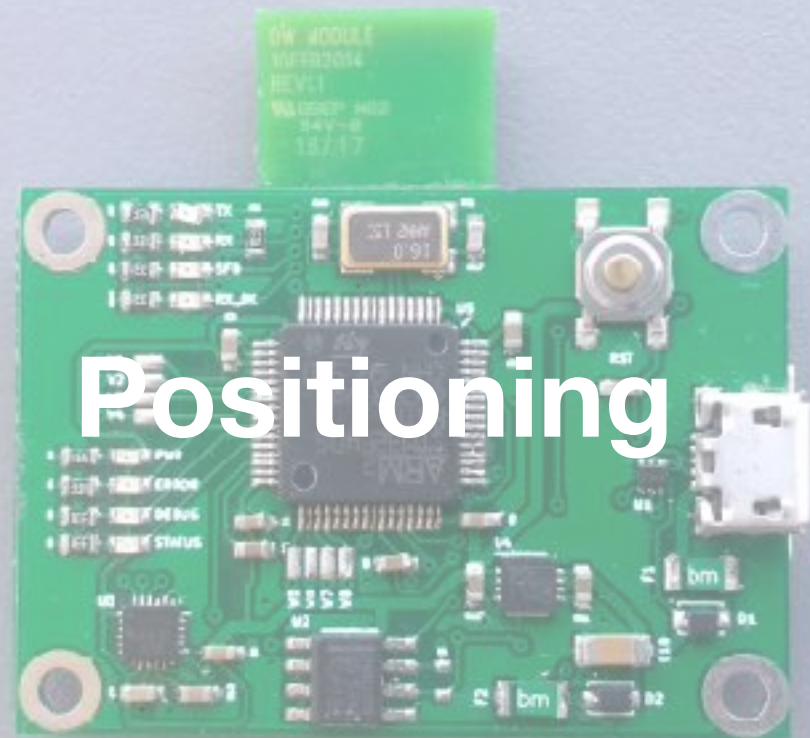




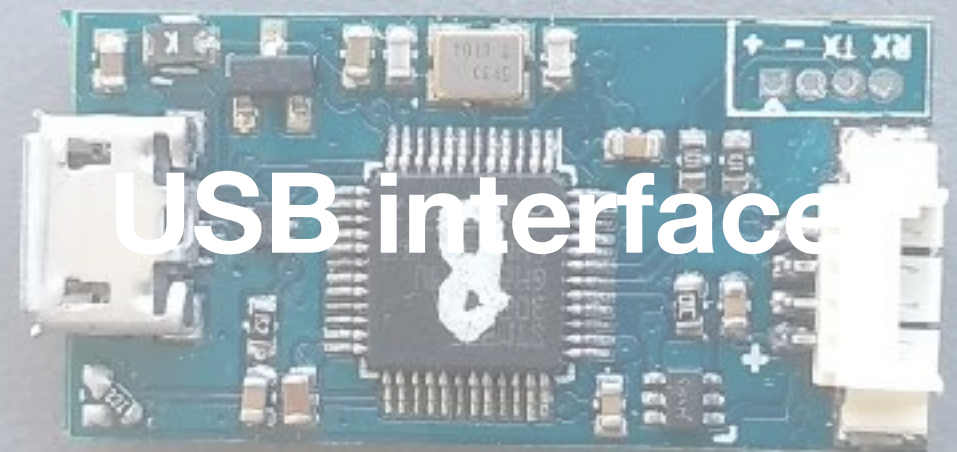




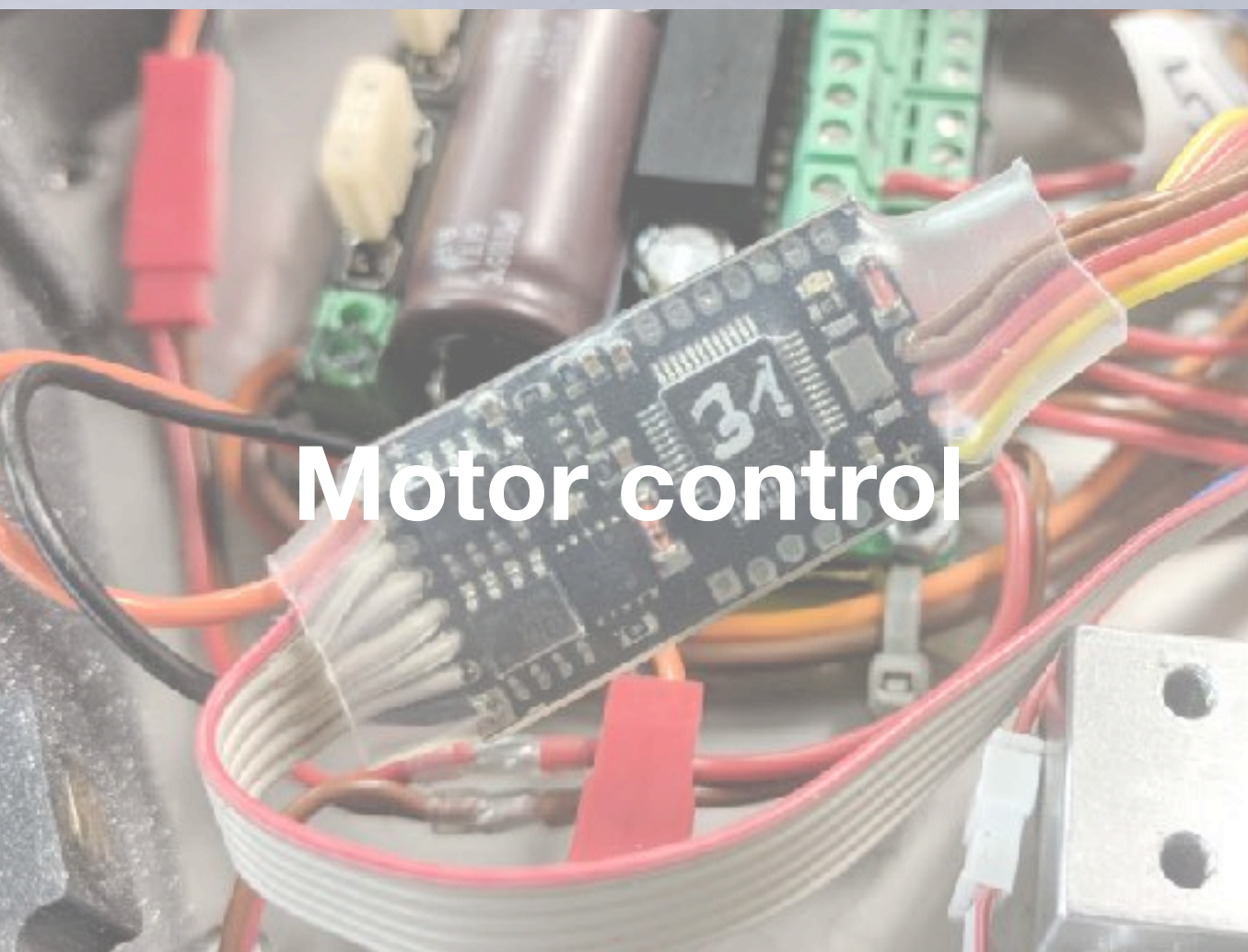




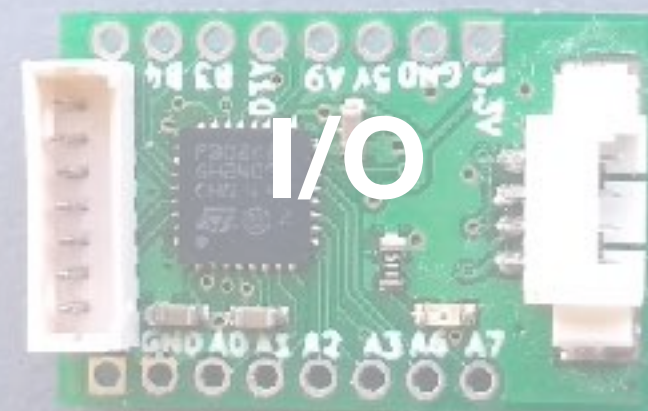
Positioning



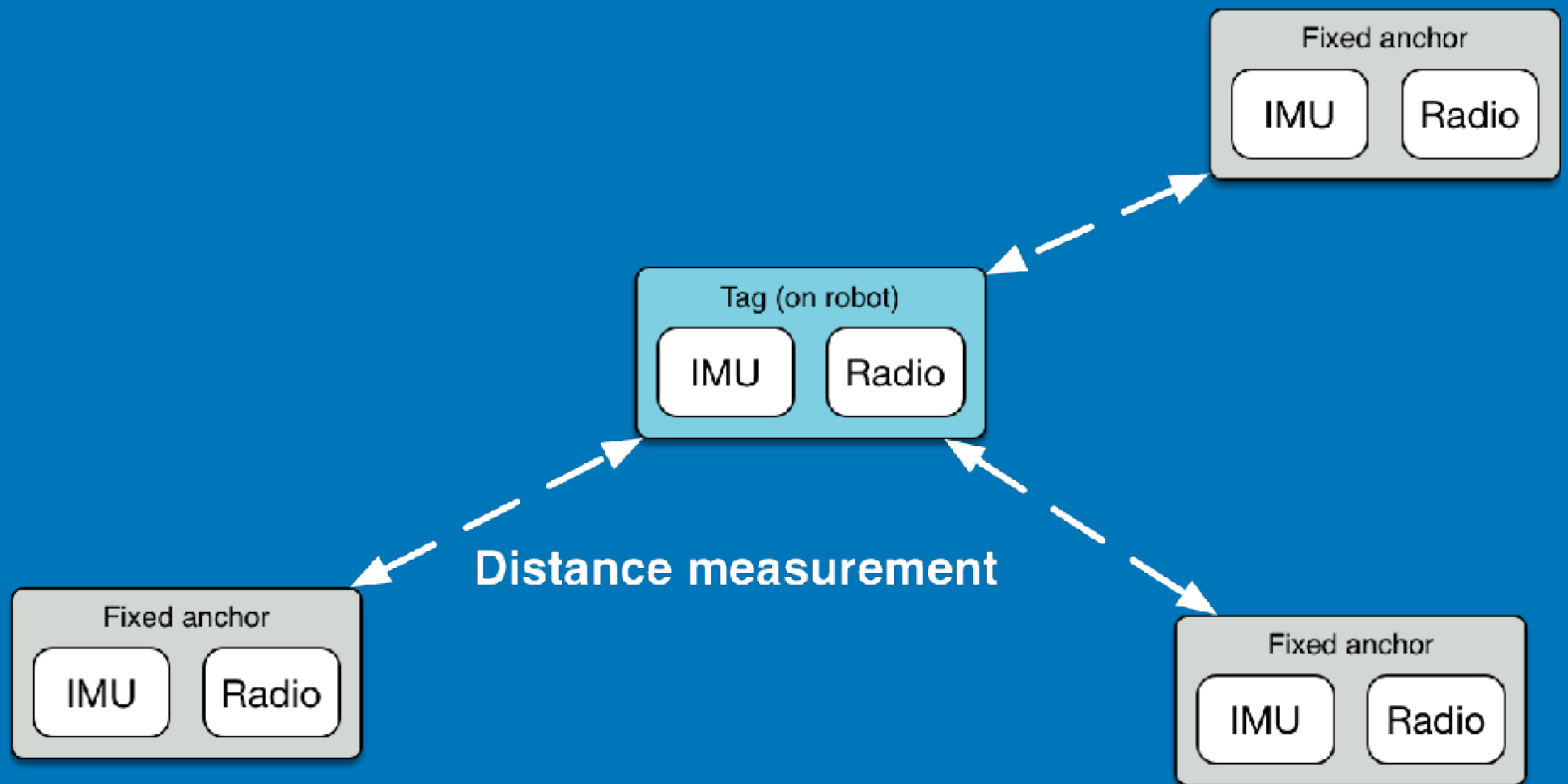
USB interface



Motor control



I/O





Accuracy: 5 cm

Up to 4 robots

Up to 50 Hz





github.com/cvra

BUDGET TIMELINE

3 Months

4 Persons

500 € + parts

Rocker bogie Materials (ABS)



DESIGN EVALUATION

Good

- Modular design
- 3D printing
- 3D Camera

Bad

- Coil system
- Mechanical issues
- Late integration
- Lack of testing



Questions?

cvra.ch



10.0.0.1/?ip=10.0.0.1 x

Not secure | 10.0.0.1/?ip=10.0.0.1

Live map of detected mines

Legend:

- B = Buried mine
- S = Surface mine

I see 31 mines

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A																			
B																			
C											S	S							
D											S								
E																			
F								S	S										
G																			
H																			
I																S			
J																			
K																			
L																			
M					S														
O																			
P																			
Q												S							
R												S						S	
S																		S	
T																			

Salah

ector/nodes/emi_mine_detector.py (robot-software) - Sublime

er_alarm_display.py x metal_mine_detector.launch x rgbd_min

cvra@rover:

Edit View Search Terminal Help

```
8.3214392662
-0.120001473464
-0.127791061997
: 0
```

```
tion:
8.58333808184
-1.40830105543
0.349518686533
: 0
```

```
tion:
8.54557669163
-1.65290492773
0.328102499247
: 0
```

```
tion:
8.55385041237
-1.42421463132
0.355827778578
: 0
```

```
id=args.detector_can_id,
et=args.uwb_to_detector_offset)
```