FLL robot

Development documentation
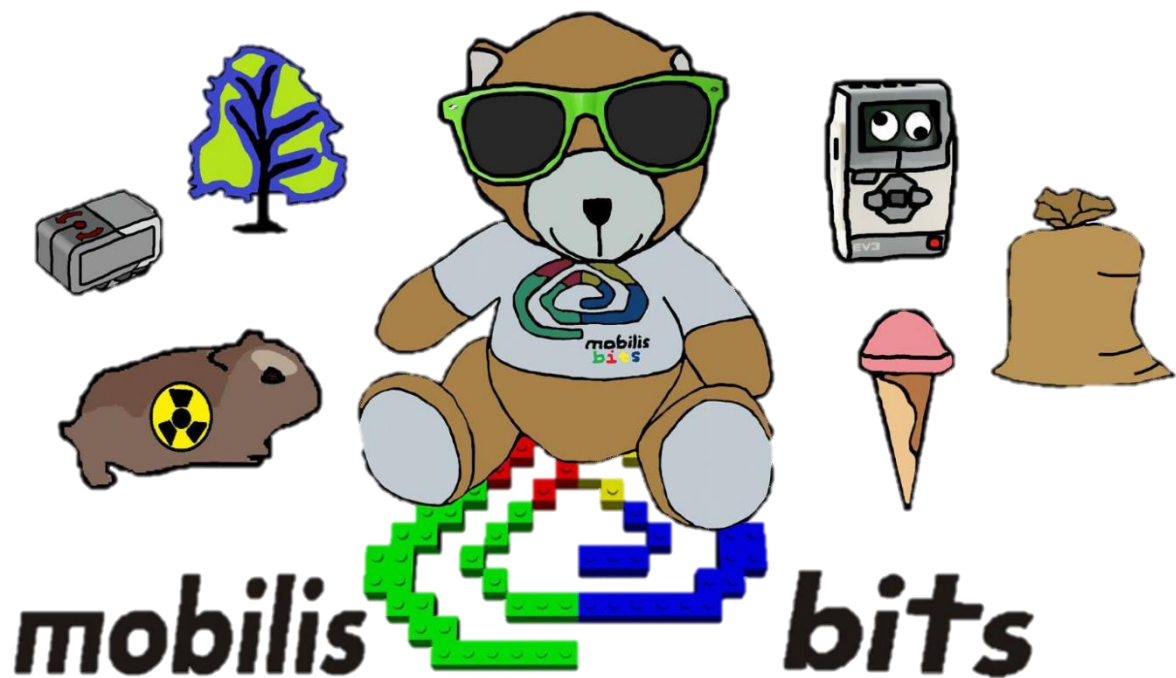
2022-2023

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1. DATAS

The Robot's Name: MRGT

Development Team's Name: Mobilis Bits MRGT

Team Members: Angster Barnabás, Angster Zsófia, Erdélyi Balázs, Nagy Zsombor Péter
Pintér Dániel, Pintér Gábor, Tőrös Gergő

Coaches: Unger-Trescsik Hanna Margit, Boros Norbert

Mentors: Kalocsa Ádám

Start of Development: 2022. 08. 08.

Place of Development: Győr, Mobilis Science Center, Nemak Talent Lab

2. TASKS OF THE ROBOT

2.1.　　Rounds

Number	Round	Arm	Time	Points
1st	Dino Power	Snap-up arm	9 s	55
2nd	Oil export	Lift arm	8 s	25
3rd	Oil car transport	Oil car carrier	14 s	10
4th	Santa Boulevard	Energy dropper arm + 4 in 1 arm	31 s	100
5th	Energy storage	Energy input arm	14 s	35
6th	Solar farm	Energy collector	15 s	90

1st table: Rounds

Altogether: 315 + 70 point

Number	Tasks	Points
1st	Power Plant	25
2nd	Dino	30

2nd table: Dino Power

Number	Tasks	Points
1st	Oil Platform	25

3rd table: Oil export

Number	Tasks	Points
1st	Fueling station target	10

4th table: Oil car transport
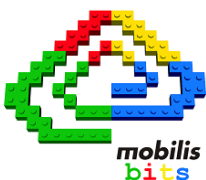
Number	Tasks	Points
1st	Watch television	20
2nd	Hybrid car	10
3rd	Toy factory	20
4th	Wind turbine	30
5th	Hydroelectric dam	20

5th table: Santa boulevard

Number	Tasks	Points
1st	Energy storage	35

6th table: Energy storage

Number	Tasks	Points
1st	Solar farm	20
2nd	Smart grid	20 / 30
3rd	Innovation project model	10
4th	Water Reservoir	15

7th table: Solar farm
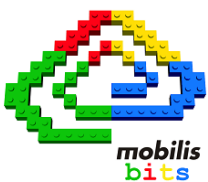
2.1.1. Dino Power
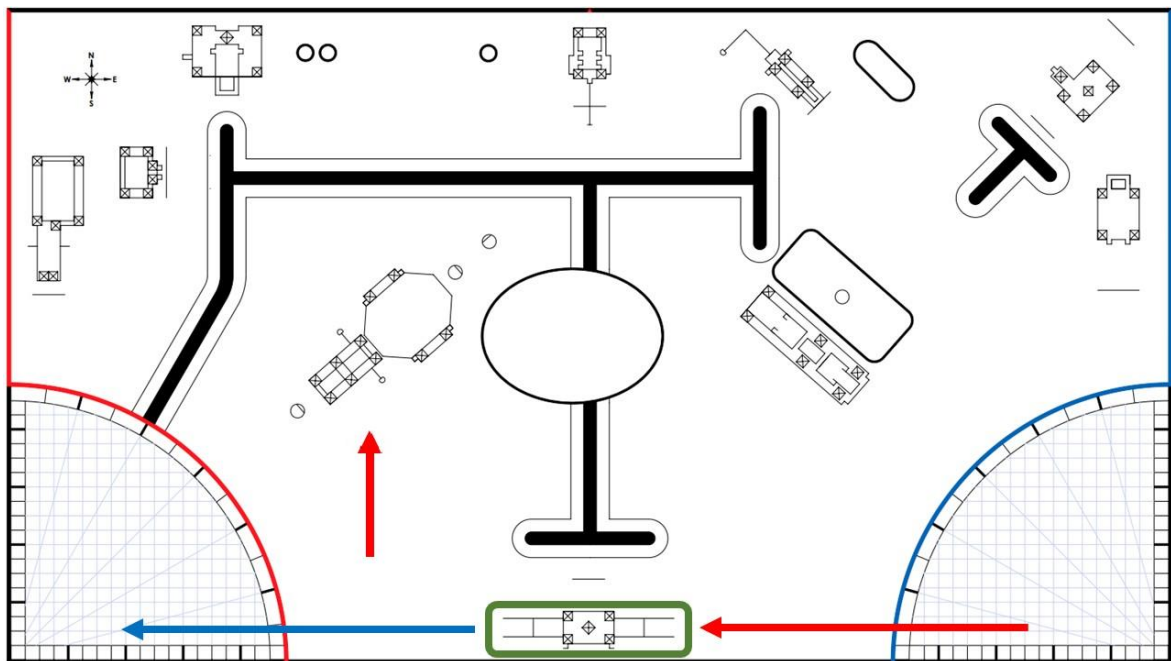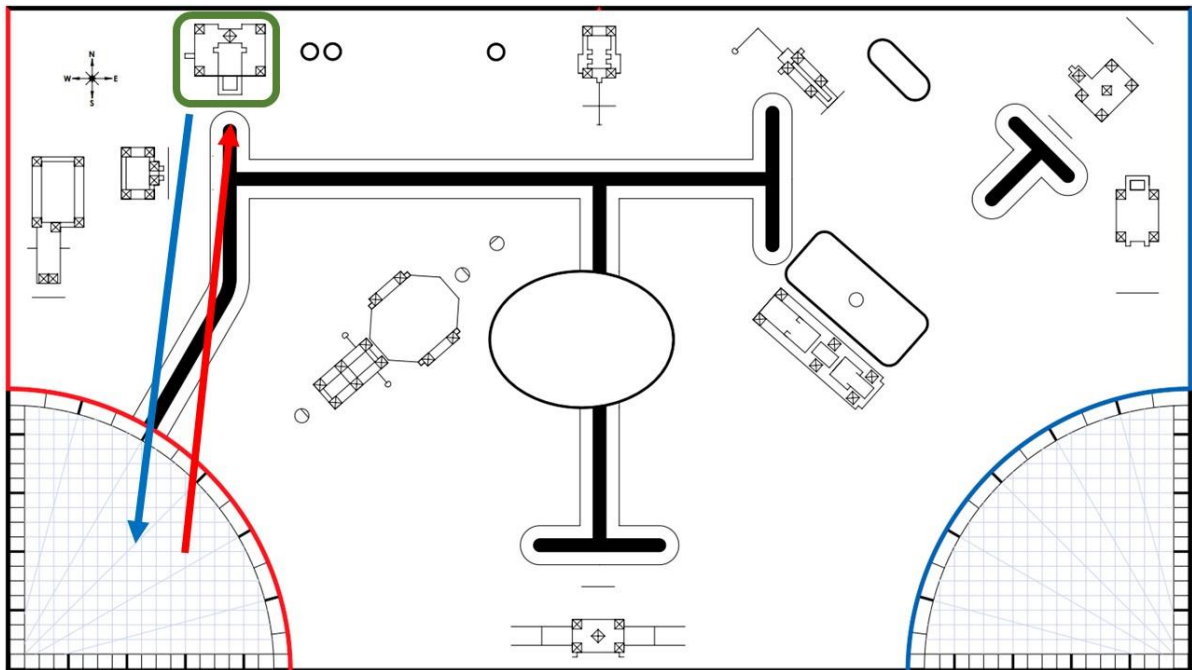

2.1.2. Oil export
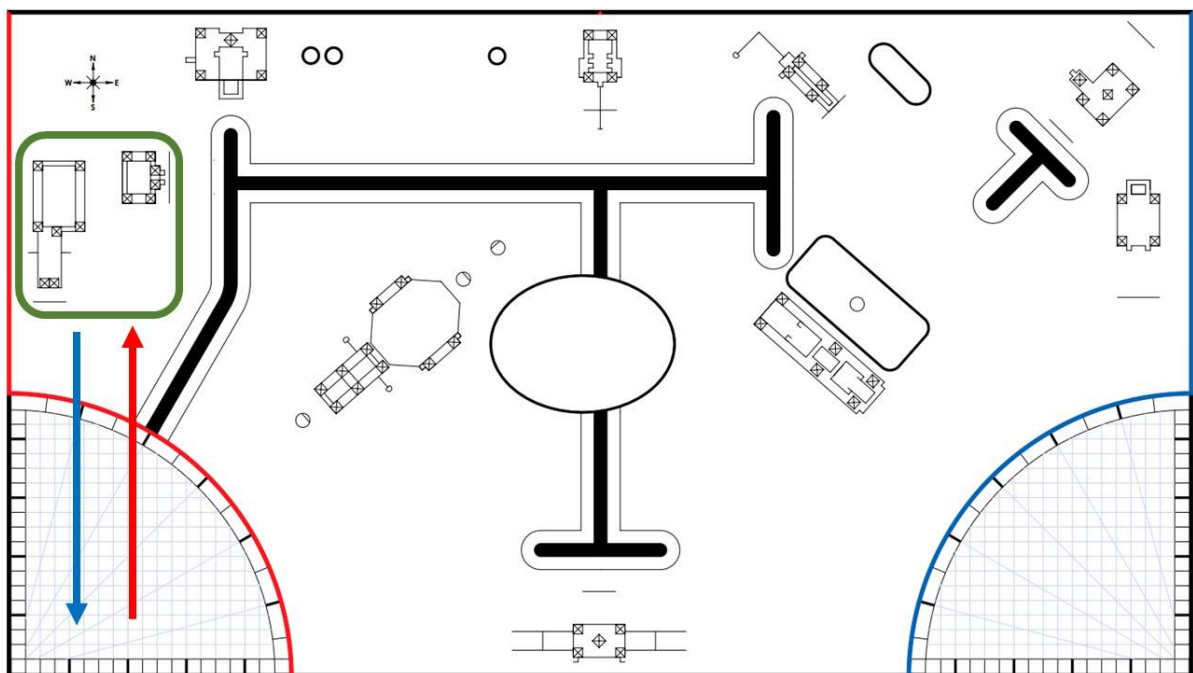
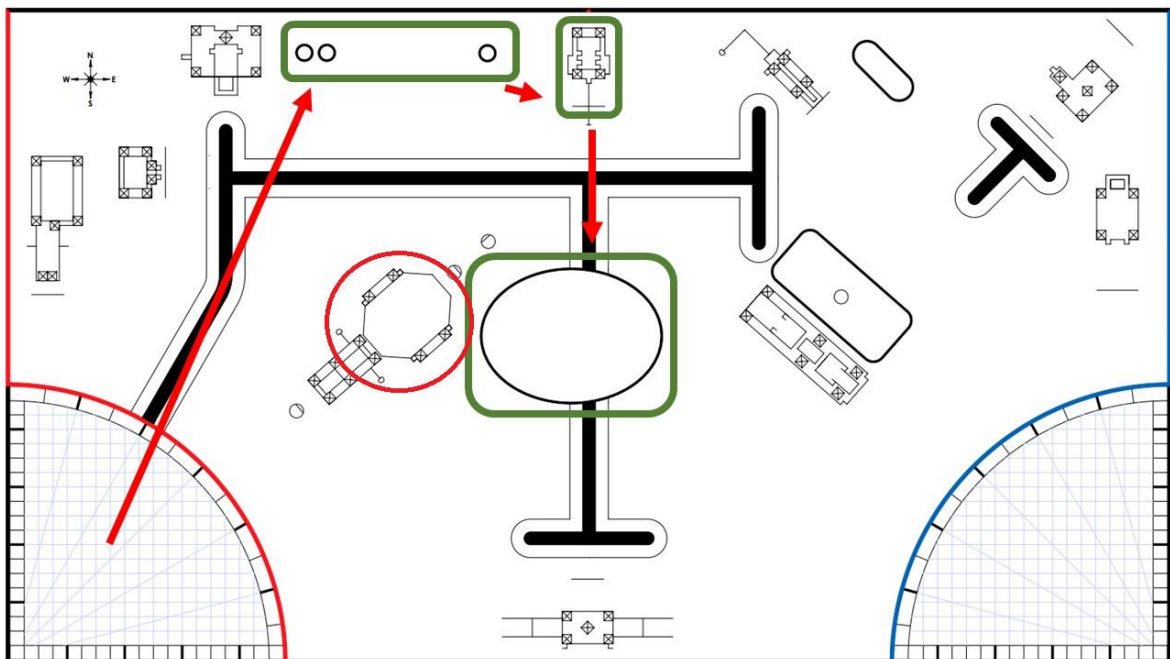### 2.1.3. Oil car carrying
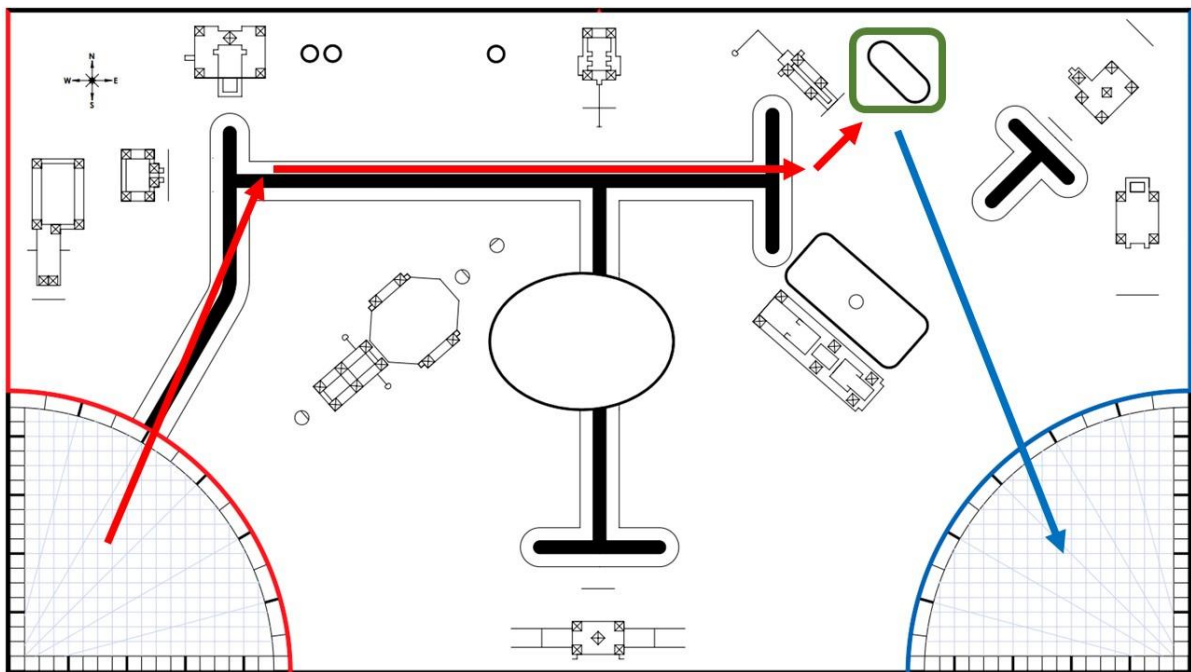
2.1.4. Santa Boulevard
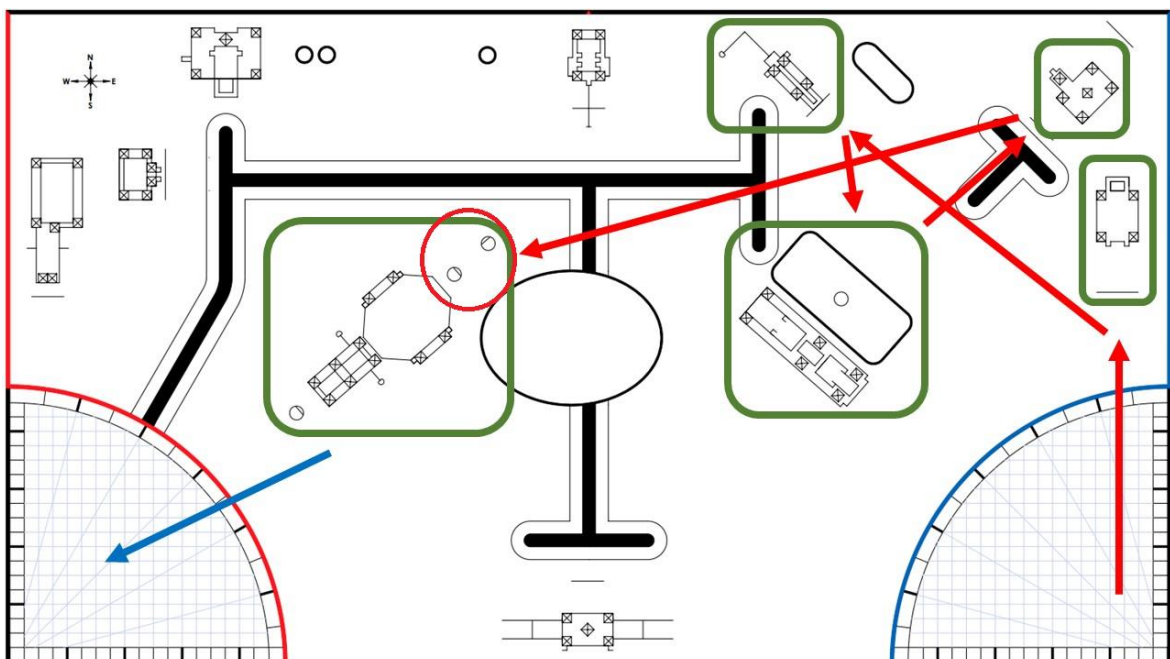
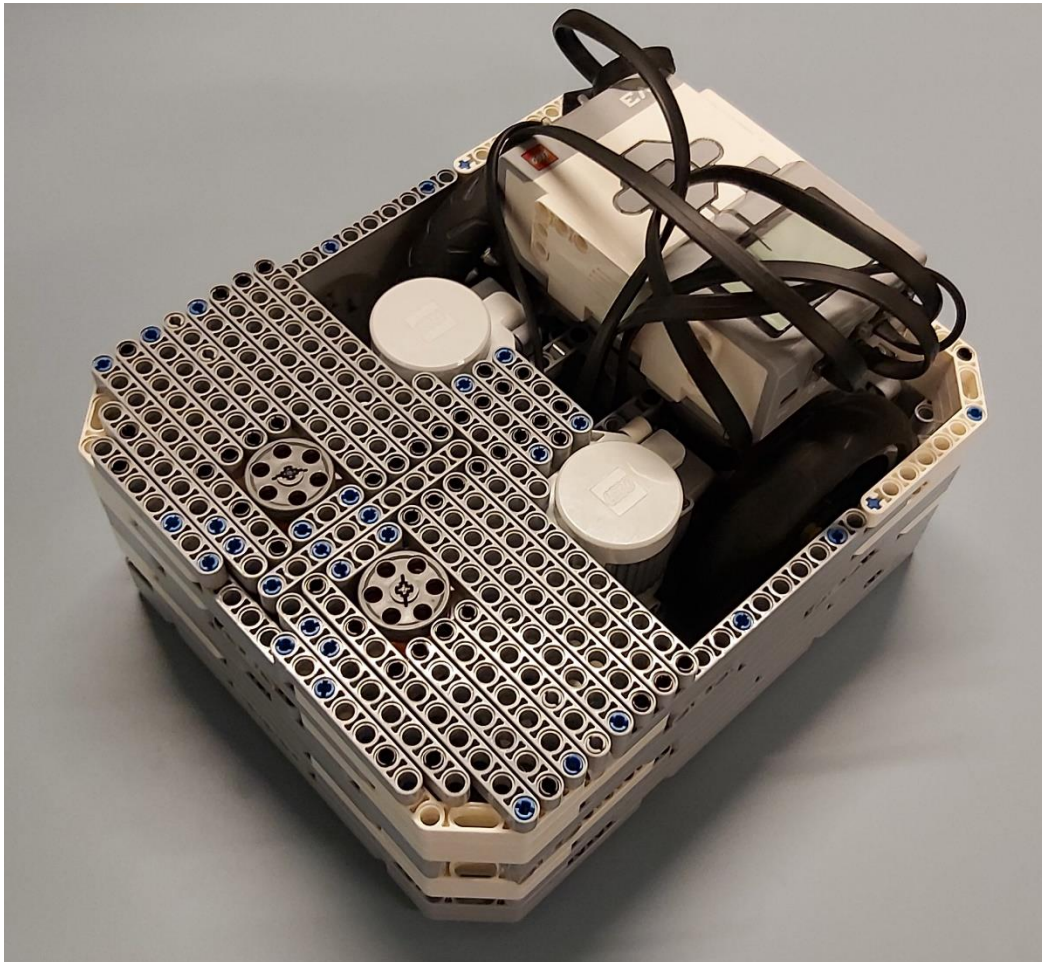## 2.1.5. Energy storage

2.1.6. Solar farm

3.CONSTRUCTION OF THE ROBOT

Our robot is a simple-structured basic robot, and it is equipped with special arms for the different tasks.
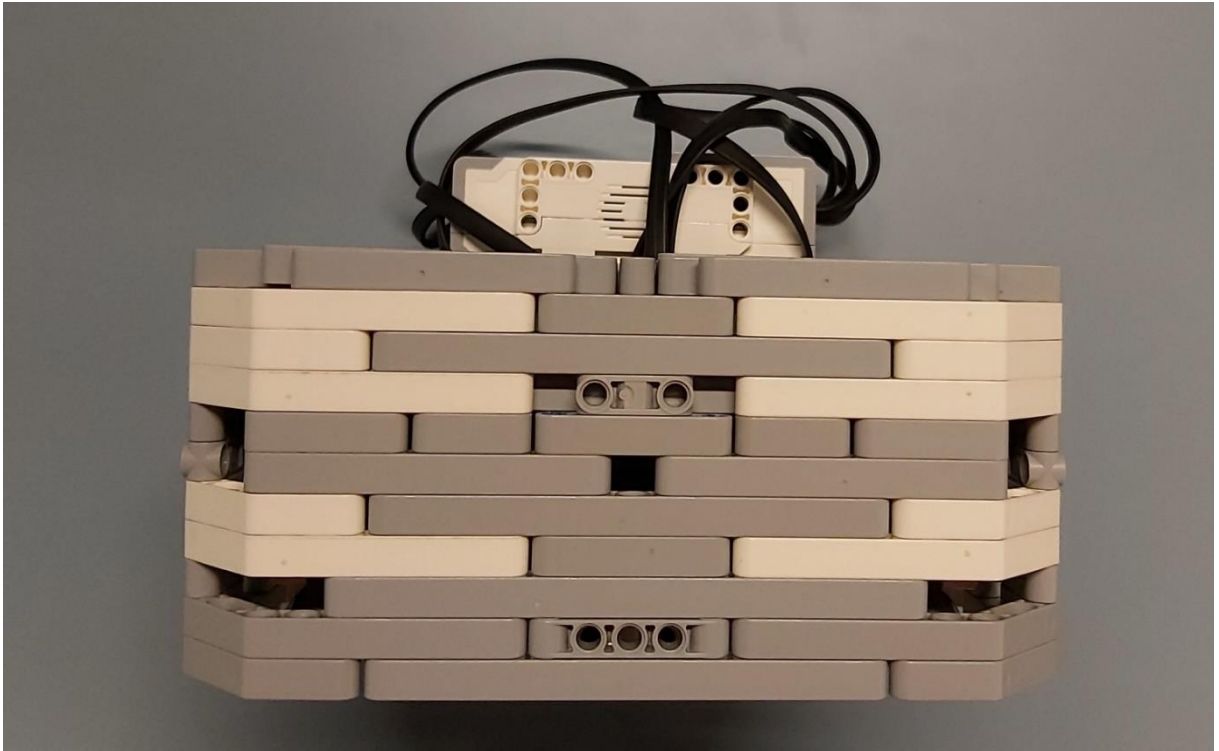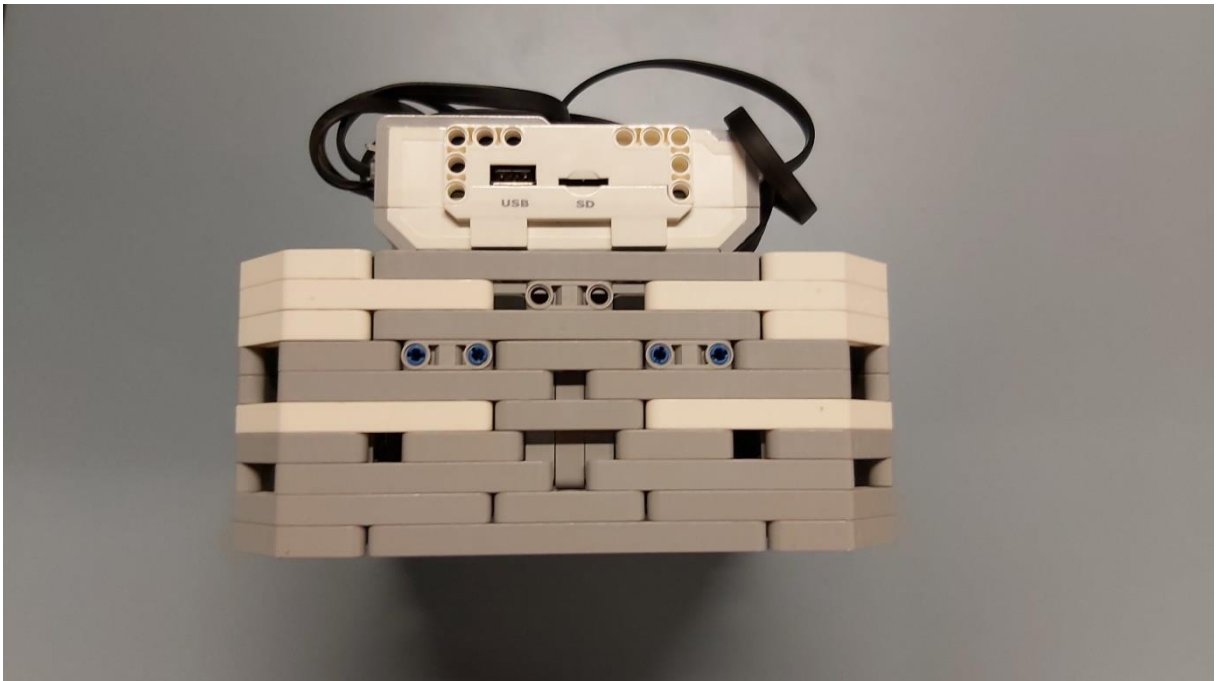
3.1. The Robot

Construction:

- 2 EV3 Large Motor
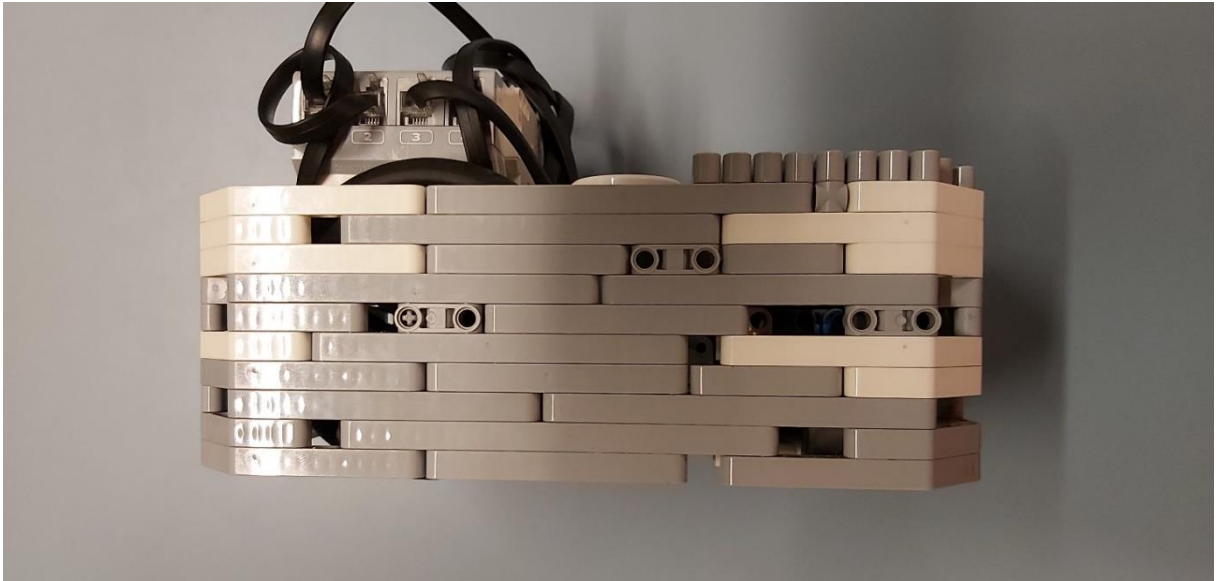- 2 NXT Large Motor
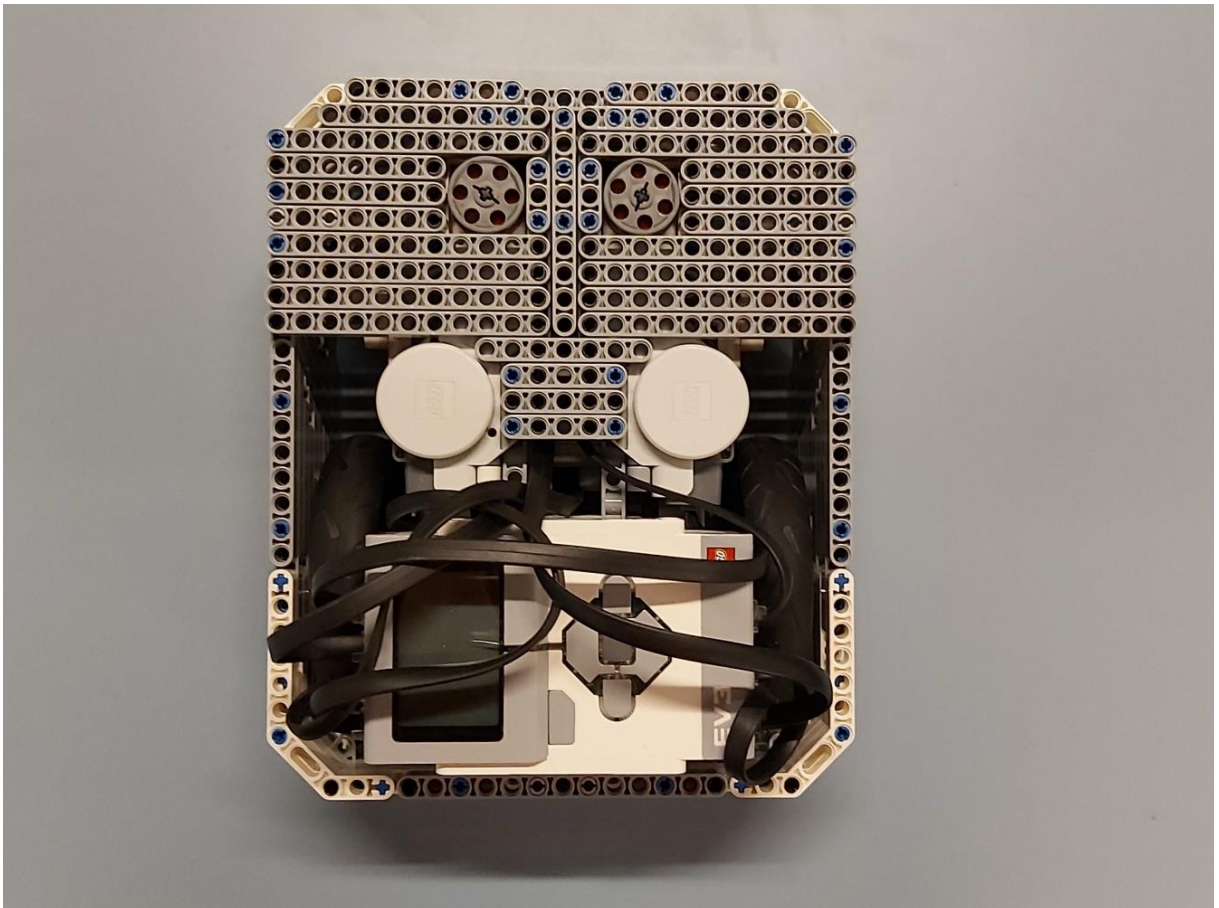- 2 Color Sensors
- 1 Gyro Sensor

3.1.1.1.   Front View

3.1.2. Back View

3.1.3. Side View
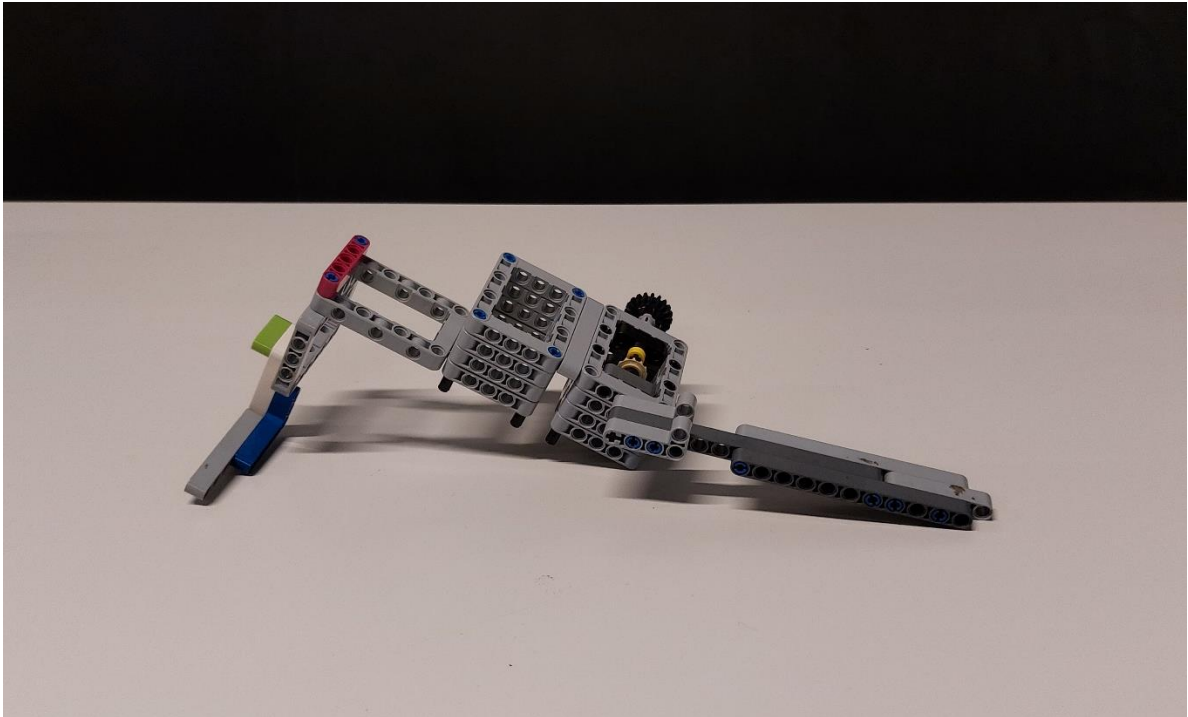

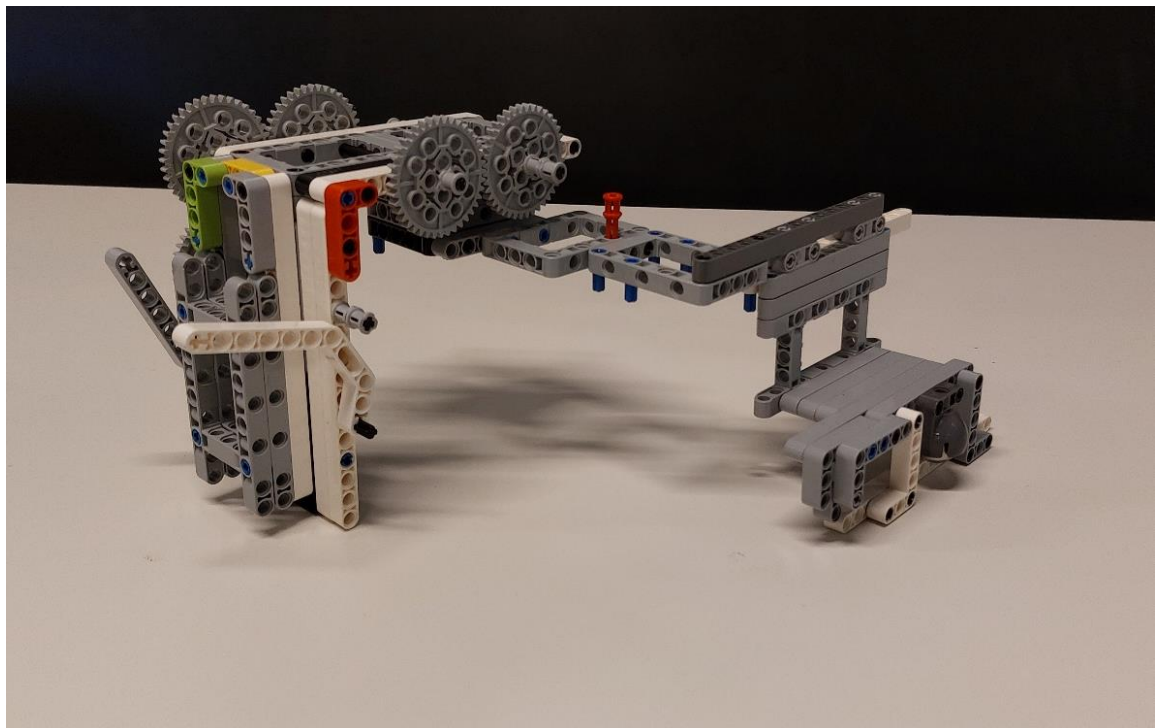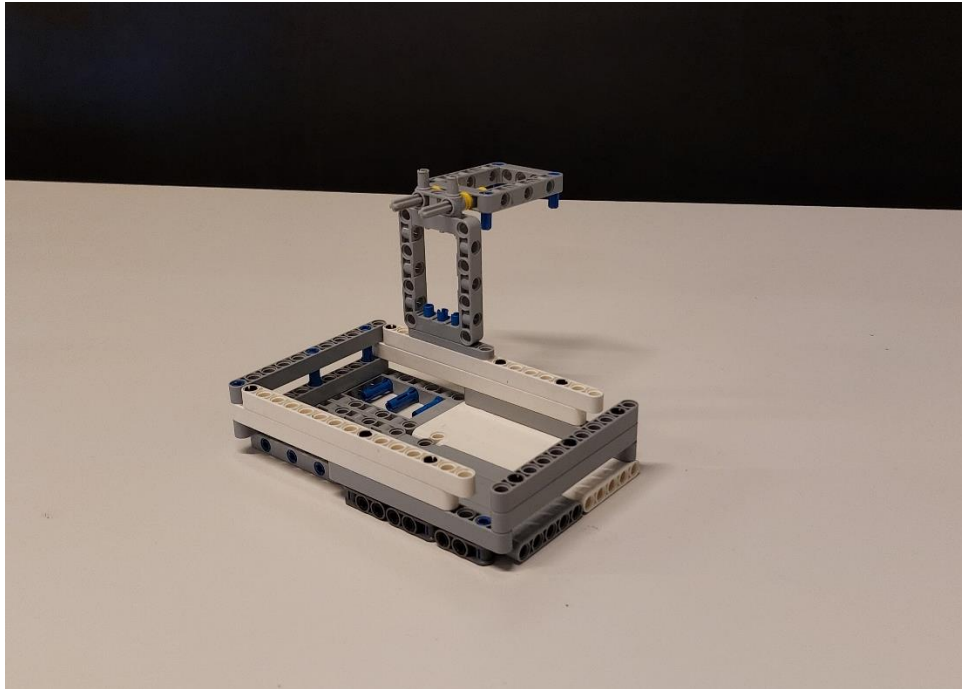### 3.1.4. Top View

3.1.5. Bottom View
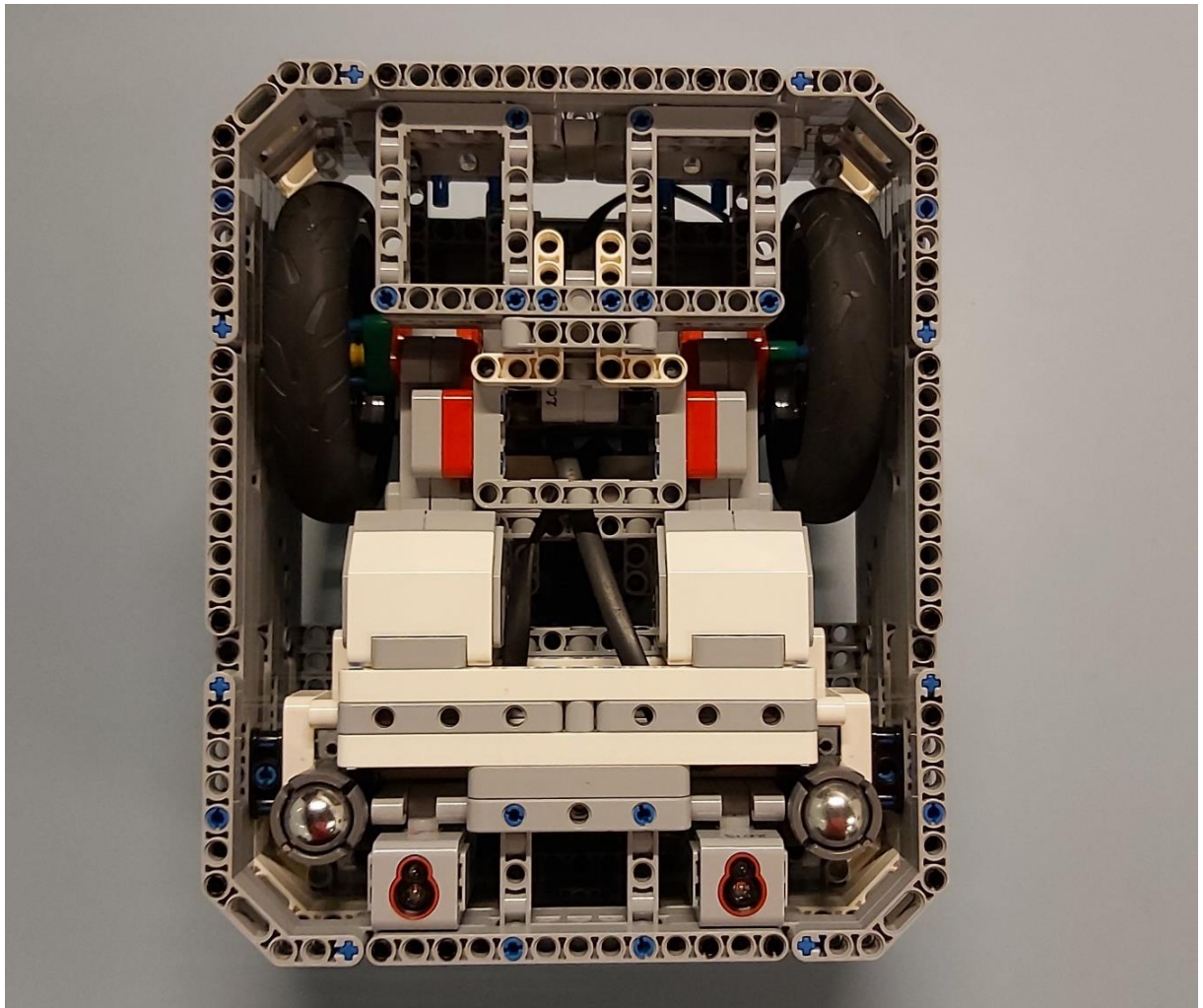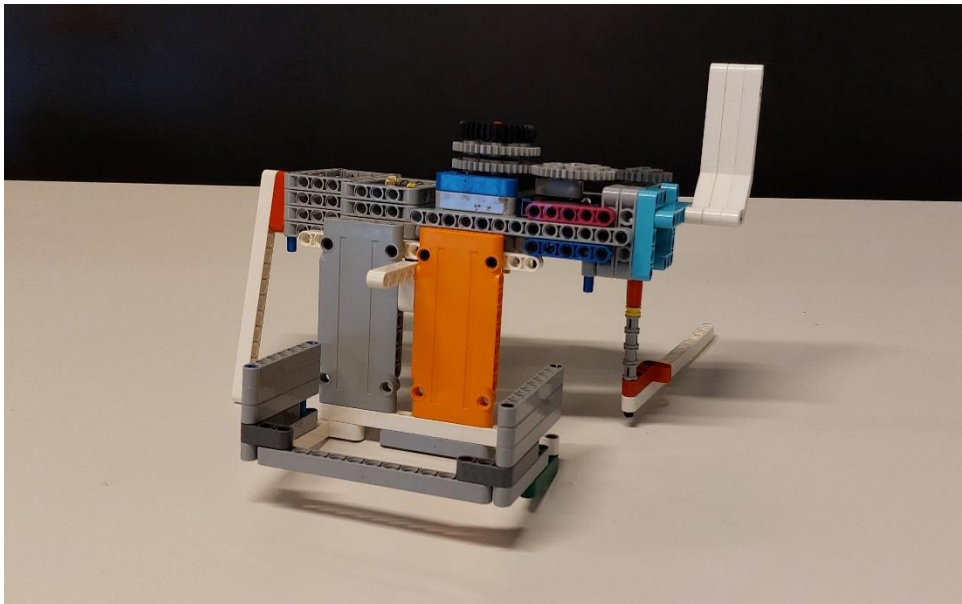
3.2. Arms
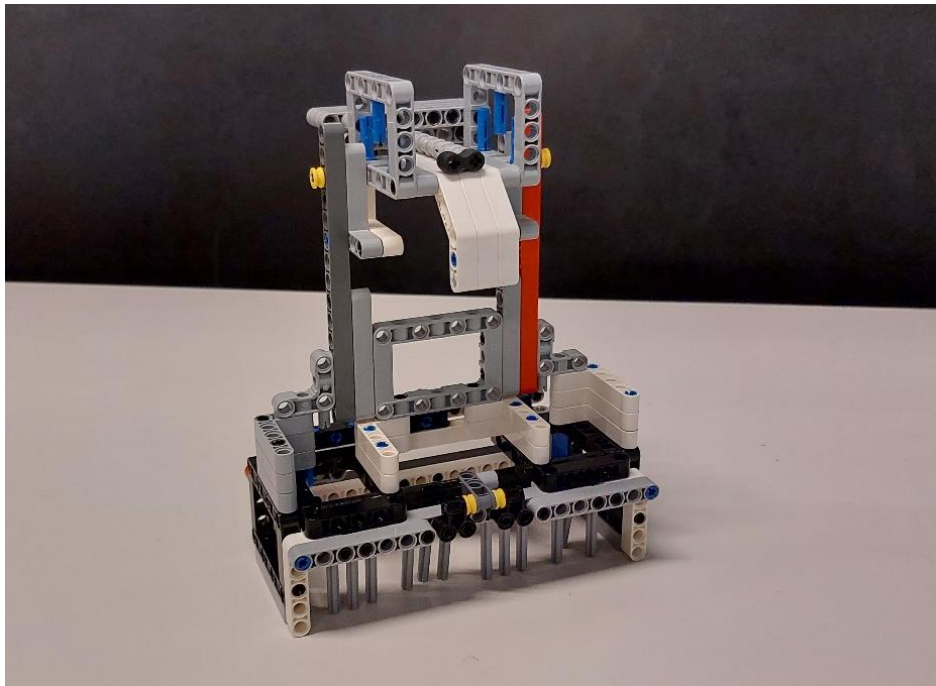
3.2.1. Snap-up arm

3.2.2. Lift arm
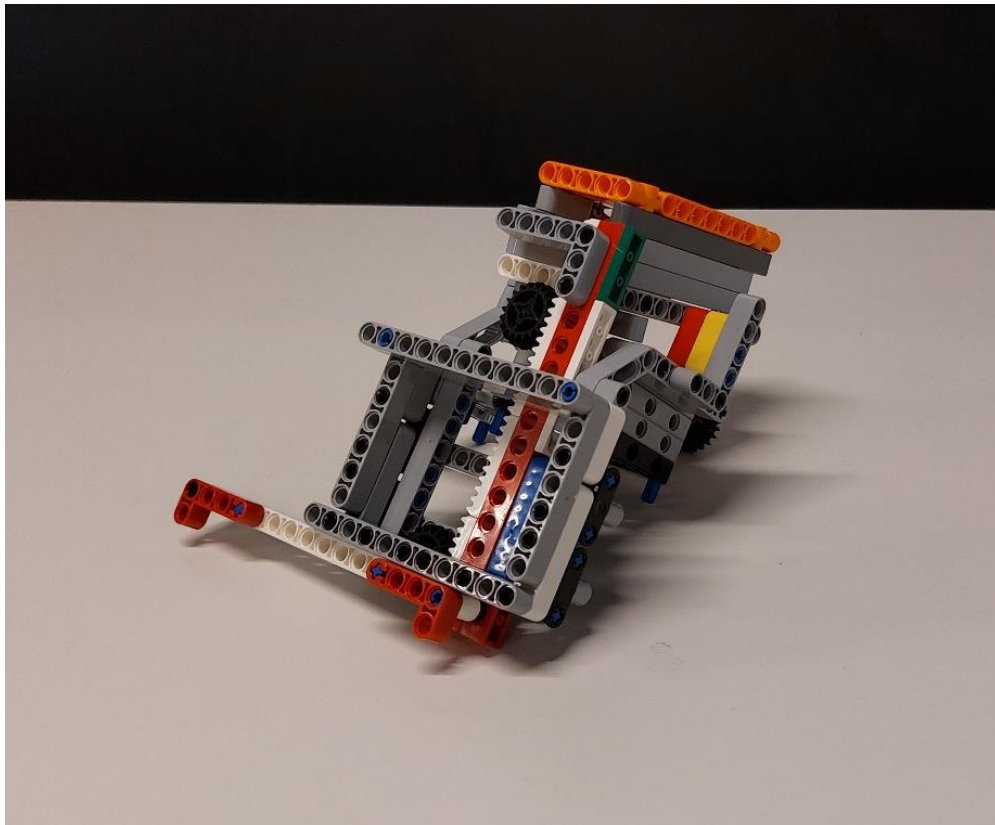
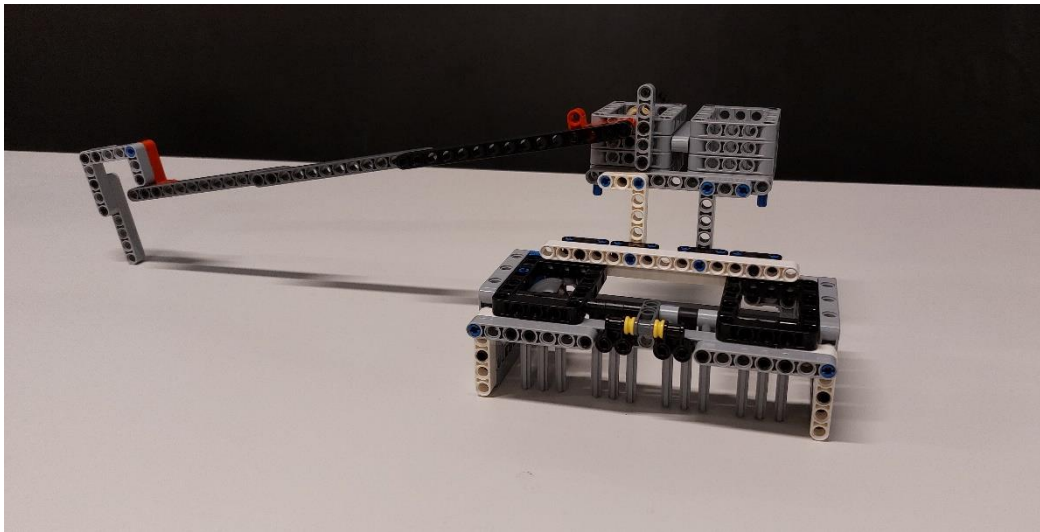### 3.2.3. Oil car carrier arm

3.2.4. Energy dropper arm

3.2.5. 4 in 1 arm
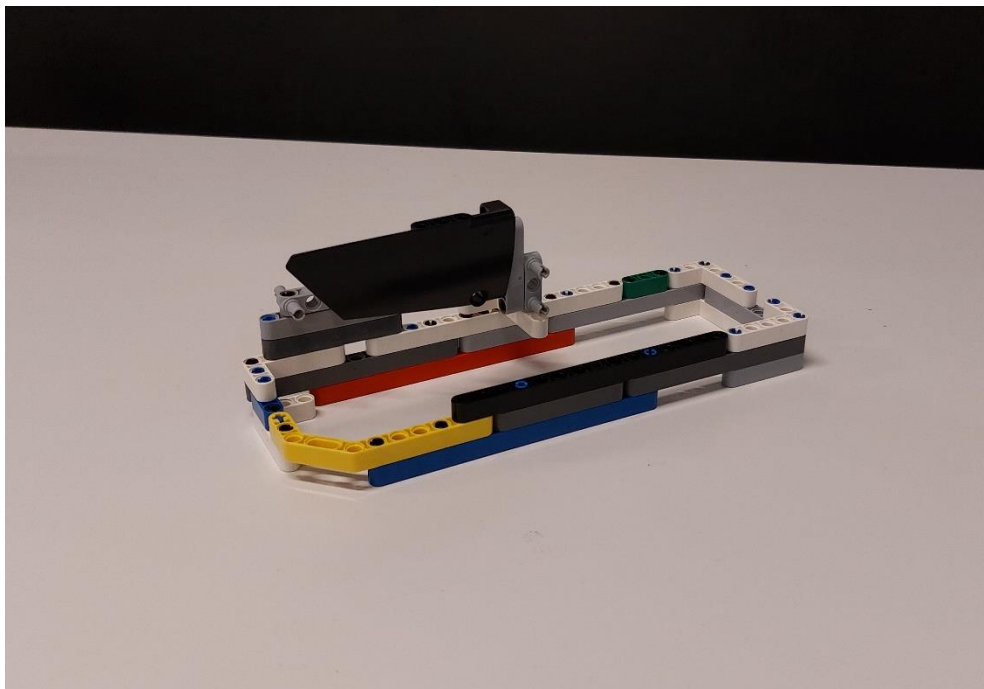

3.2.6. Energy input arm

3.2.7. Energy collector

3.3. Gadgets

3.3.1. Snap-up gadget

3.3.2. Oil car carrier gadget
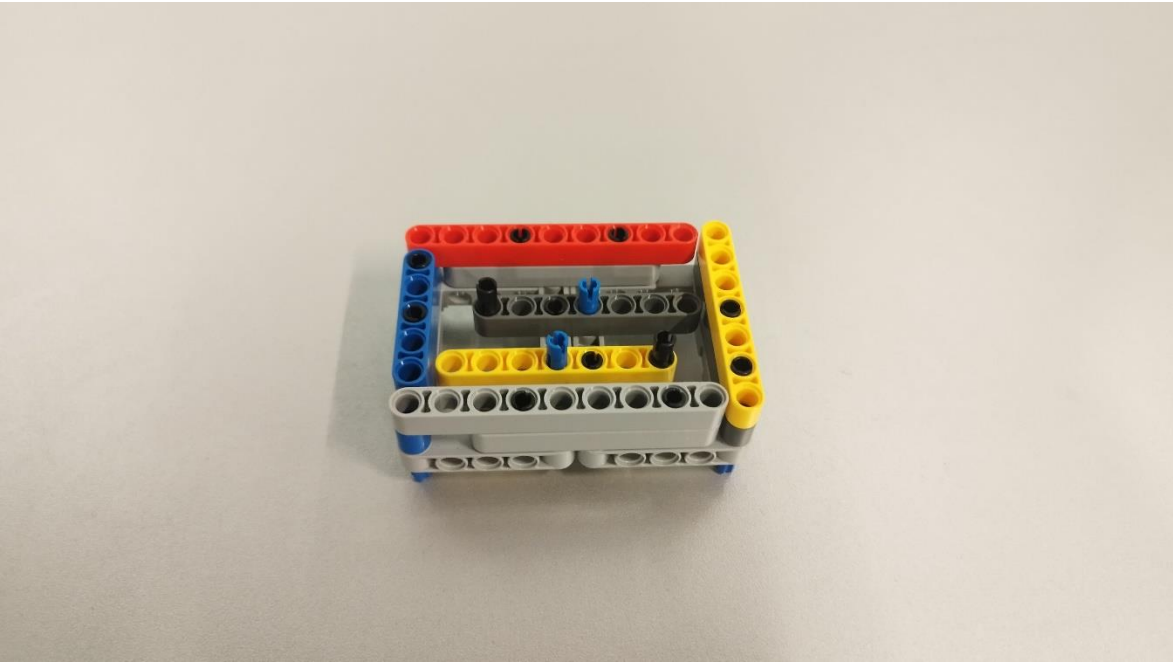
3.4. Used Sensors

Pictures	Names	Tasks
	Gyro Sensor	Going Straight Turning
	2 Color Sensors	Line following Stop at a Line

8th table: Used Sensors
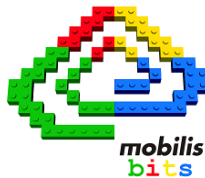
3.5. Used Ports

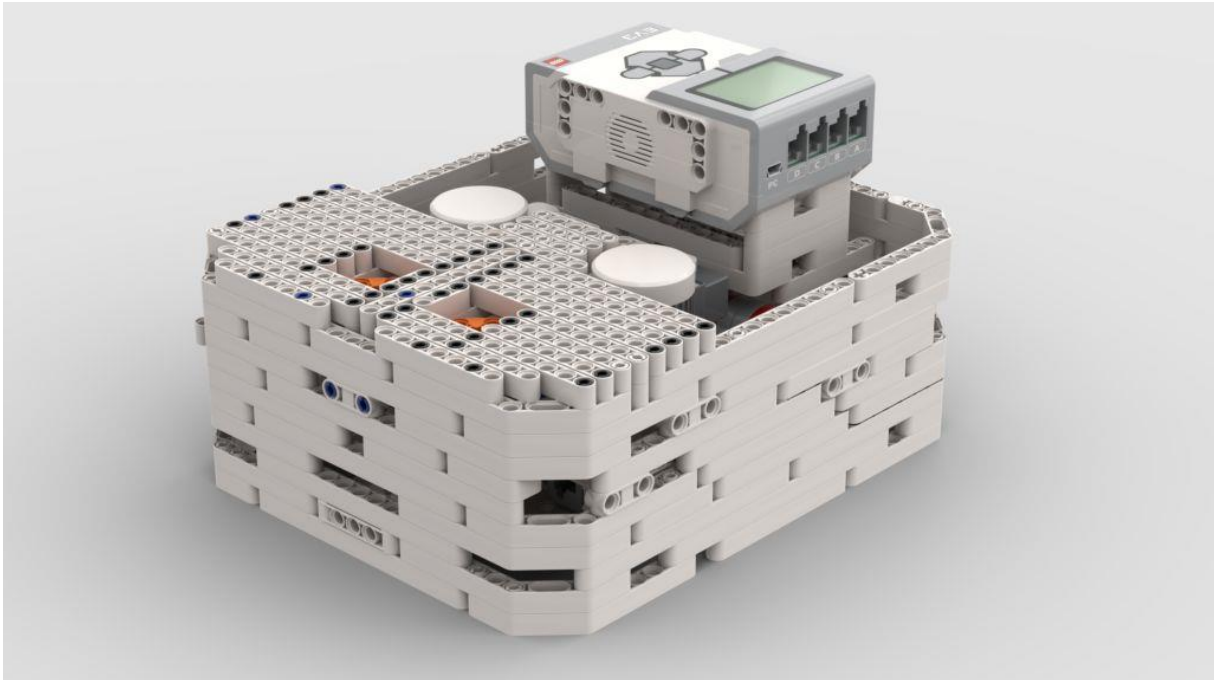| Ports	Motors	Ports	Sensors
A	Left NXT Large Motor	1	Color (left)
B	Left EV3 Large Motor	2	Gyro
C	Right EV3 Large Motor	3	Color (right)
D	Right NXT Large Motor	-	-

9th table: Used Ports
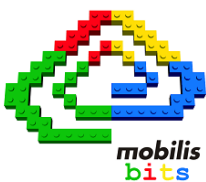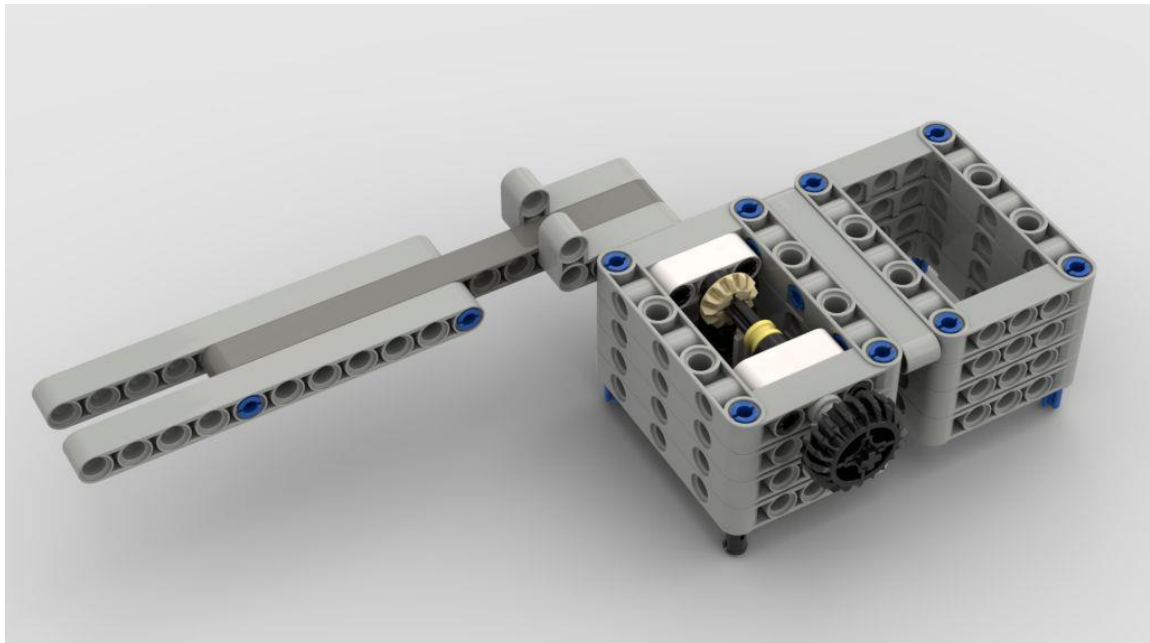
4.BUILDING INSTRUCTIONS

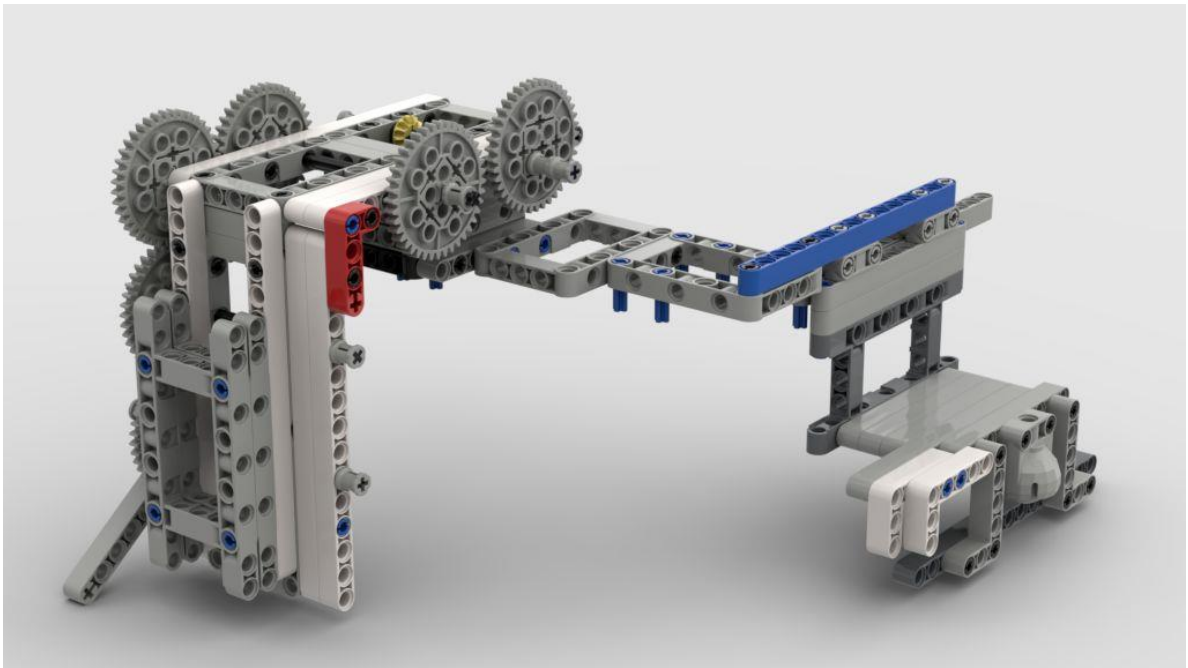We built the whole robot and all the arms in Lego Digital Designer.
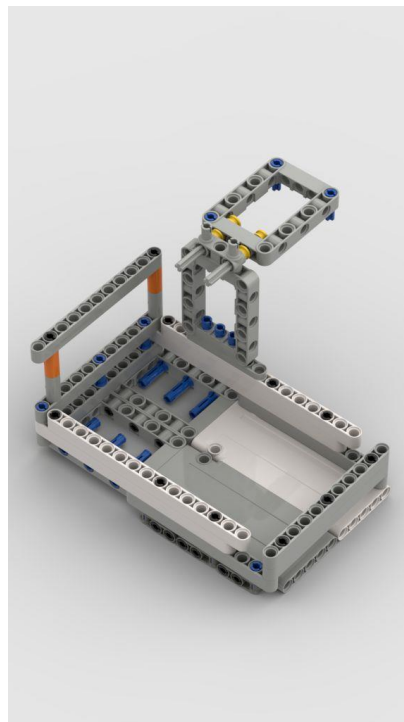
4.1. The Robot

4.2. Arms

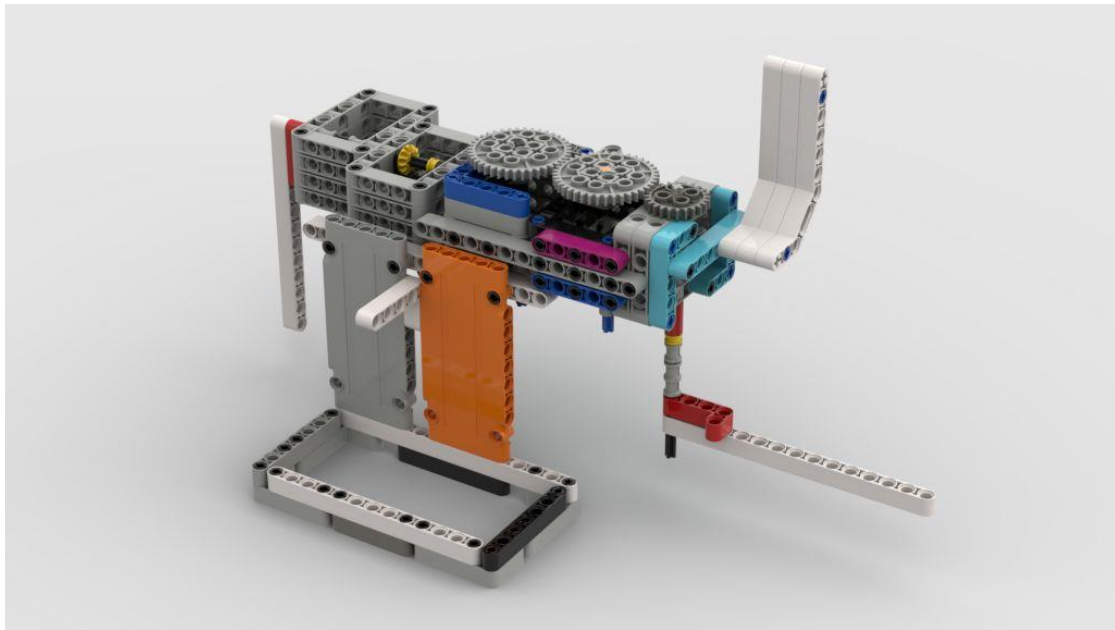### 4.2.1. Snap-up arm
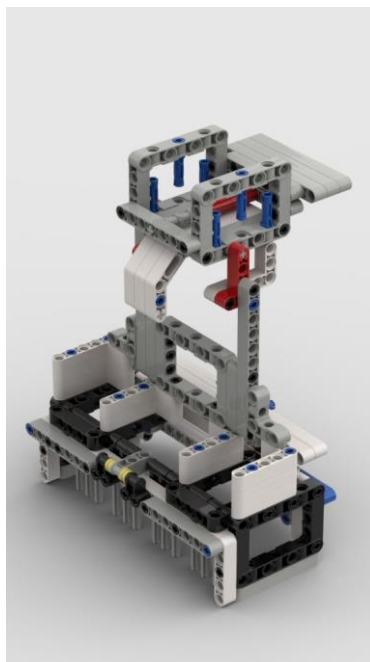
4.2.2. Lift arm

4.2.3. Oil car carrier arm

4.2.4. Energy dropper arm

4.2.5. 4 in 1 arm

4.2.6. Energy input arm

4.2.7. Energy collector

4.3. Gadgets

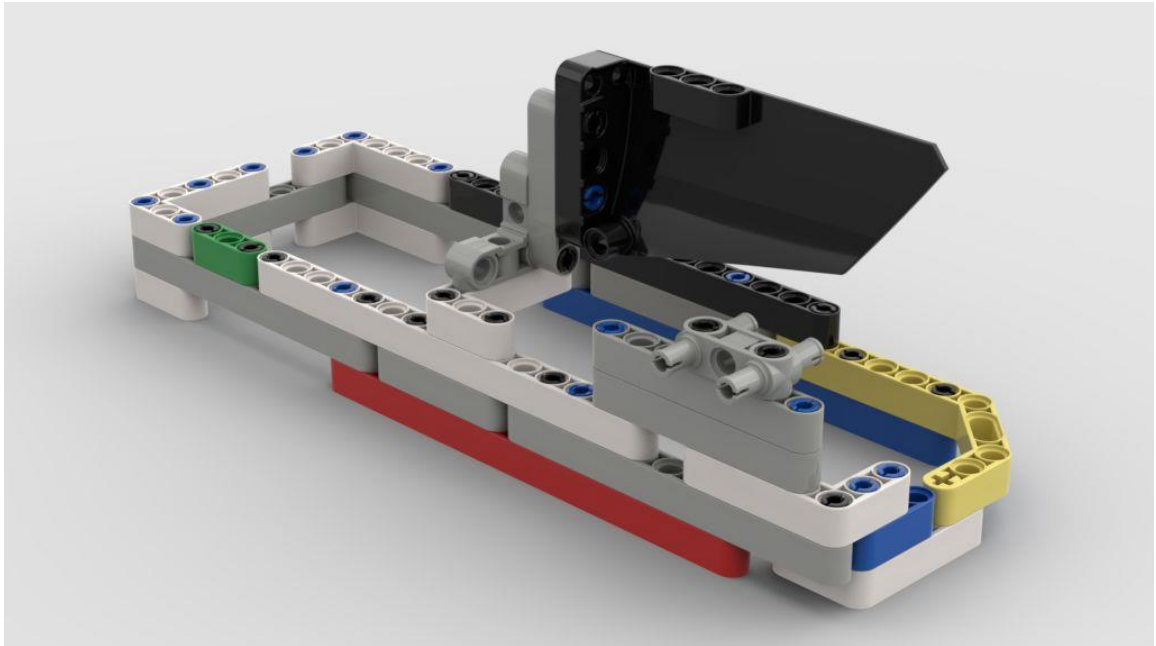### 4.3.1. Snap-up gadget

4.3.2. Oil car carrier gadget