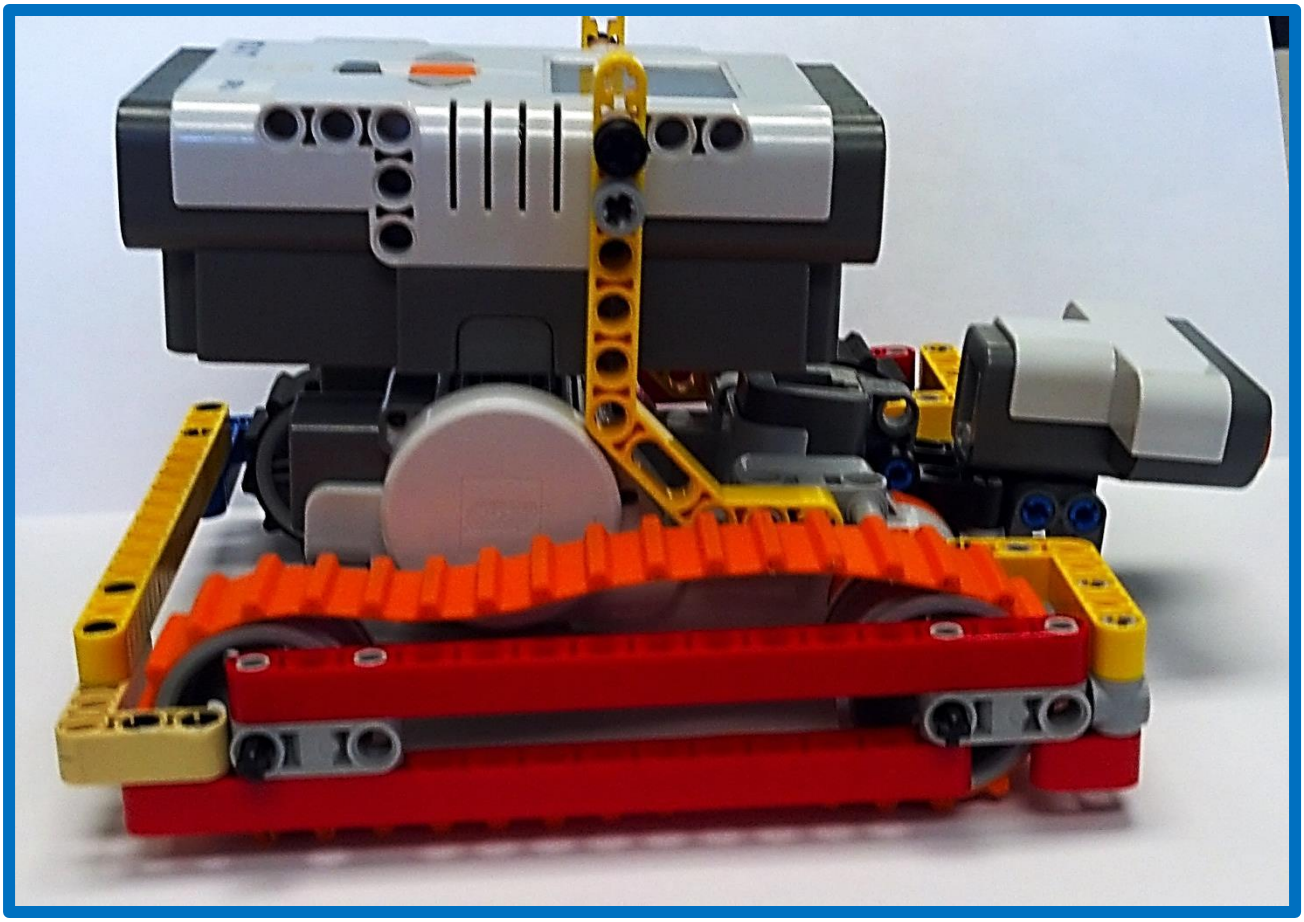
Simple Modularized 4-Wheel Drive With Light & Ultrasonic Sensors Mount



This document consists of:

a) A 4-wheel drive robot with tank driving system. This system consists of 3 modules:
   - Sensors (light + ultrasonic) module,
   - Drive System Module : contains 2 sub-modules, motor and wheel system mounts
   - Main controller Mount

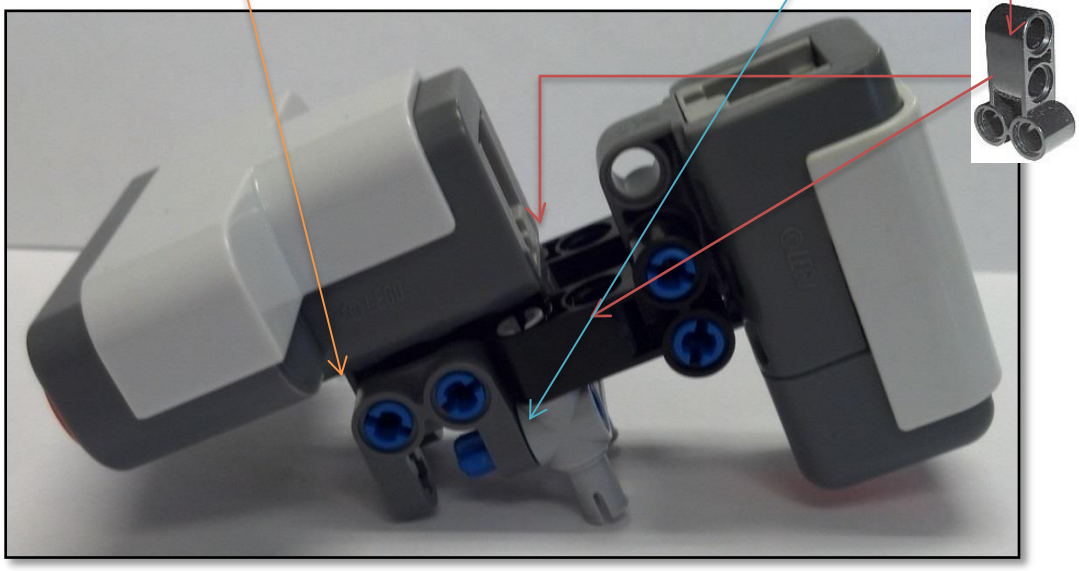
b) An alternative drive system with 4-wheels.

Built and Designed By Ashley Yang
Edited by Bhavik Shah
Storming Robots Roboclub Students

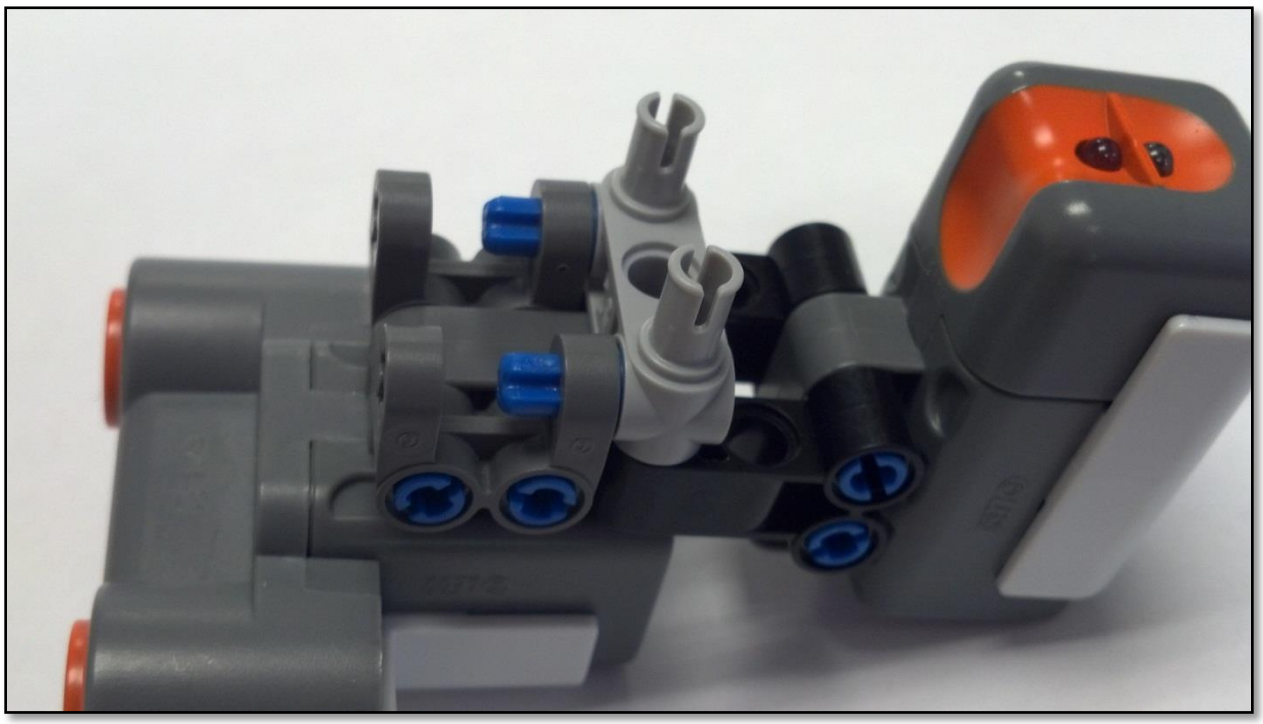
Light and Ultrasonic Sensor Module Mount

Use friction pins, i.e. blue and black ones
***2* Pin Connector Perpendicular Double 3L**
2 Axle and Pin Connector Perpendicular Double
1 Pin Connector Perpendicular 3L with 4 Pins

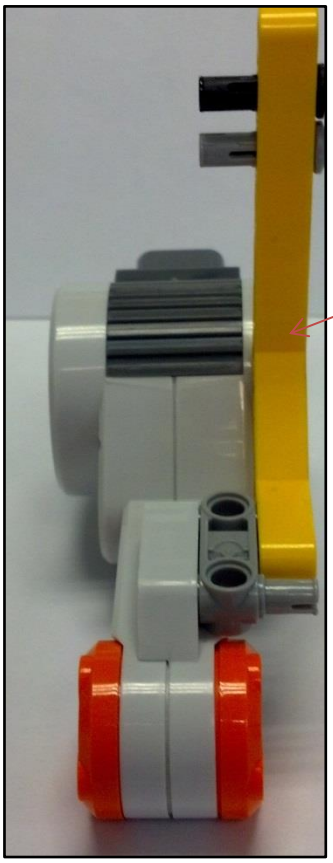
Side View



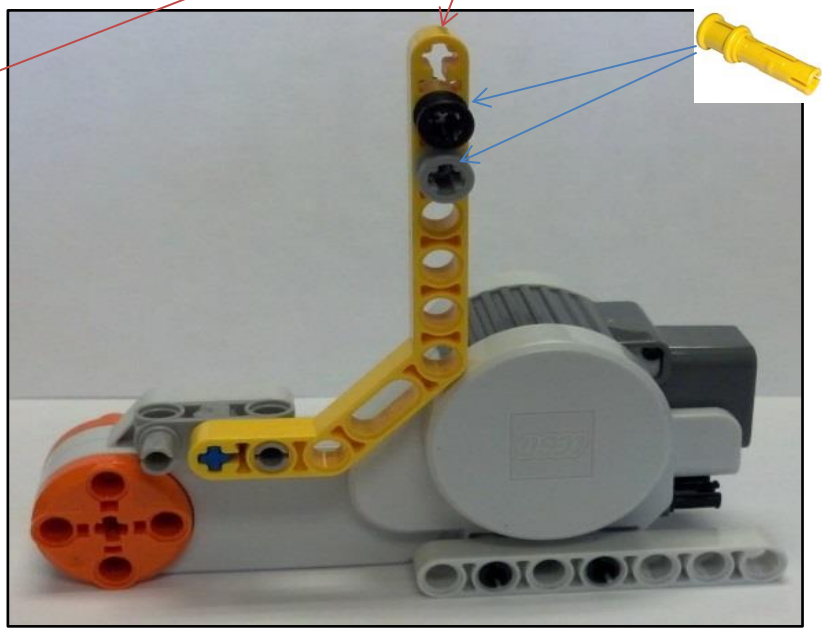
Bottom View



Motor Mount sub-module



Left motor with *1 x 11.5 Double Bent Liftarm* for bracing You will create the mirror image of this for the right side.

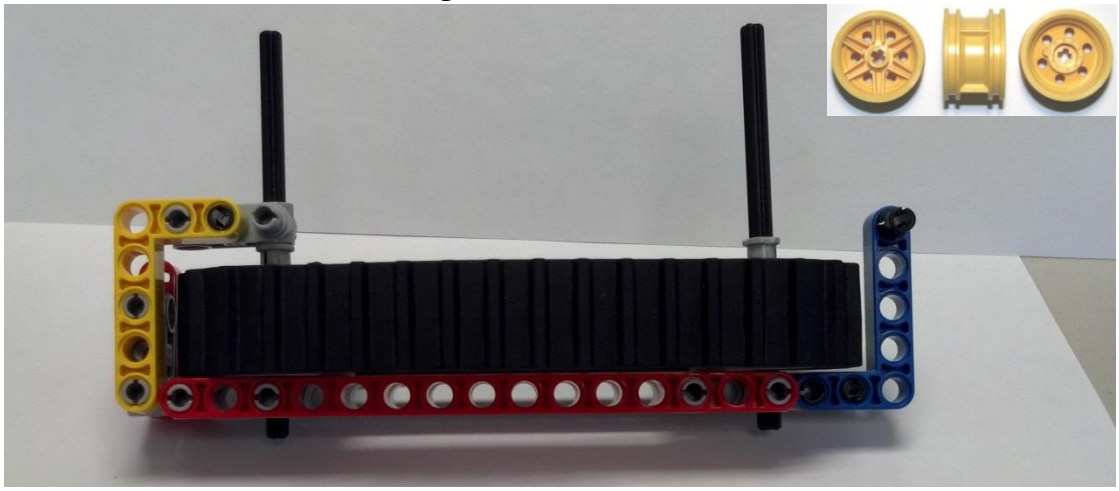


Wheel sub-module

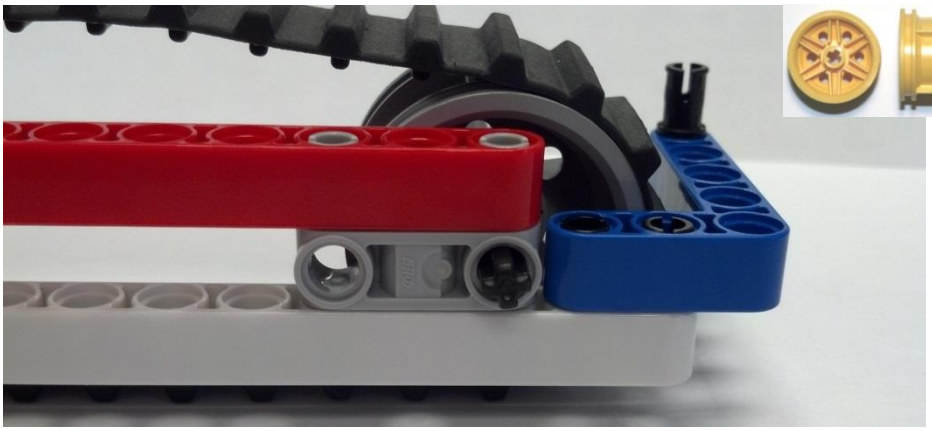
The left side –Top View

Recommend to use minimum 8-size axle

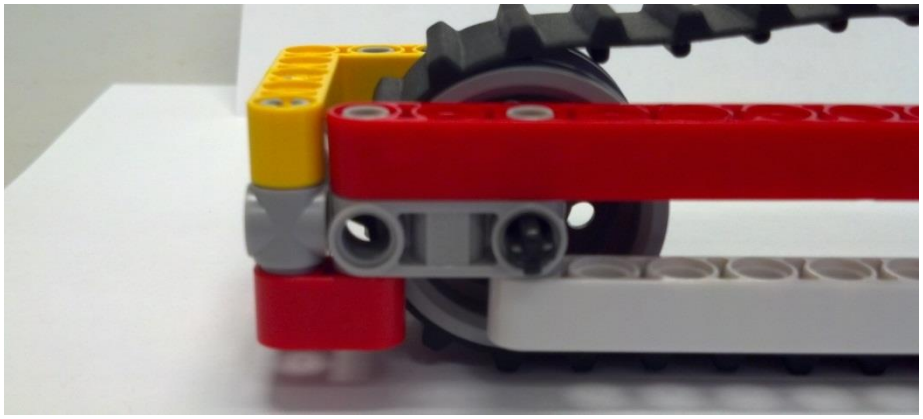
Two hubs holding the treads measured 3cm each



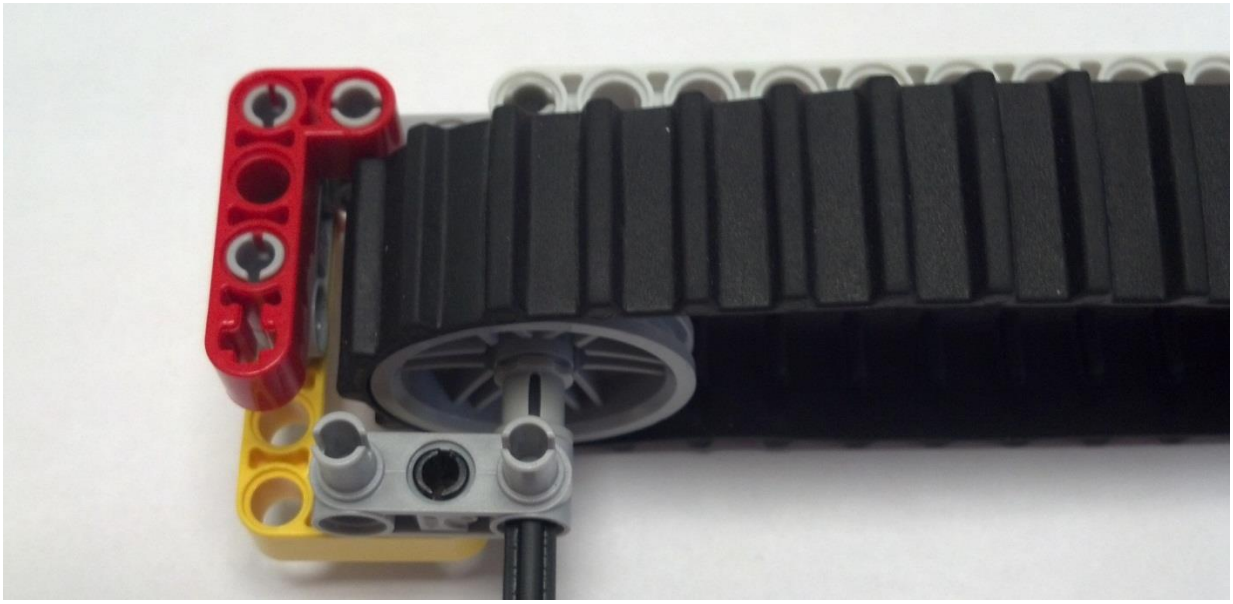
Left Back Corner - Side View



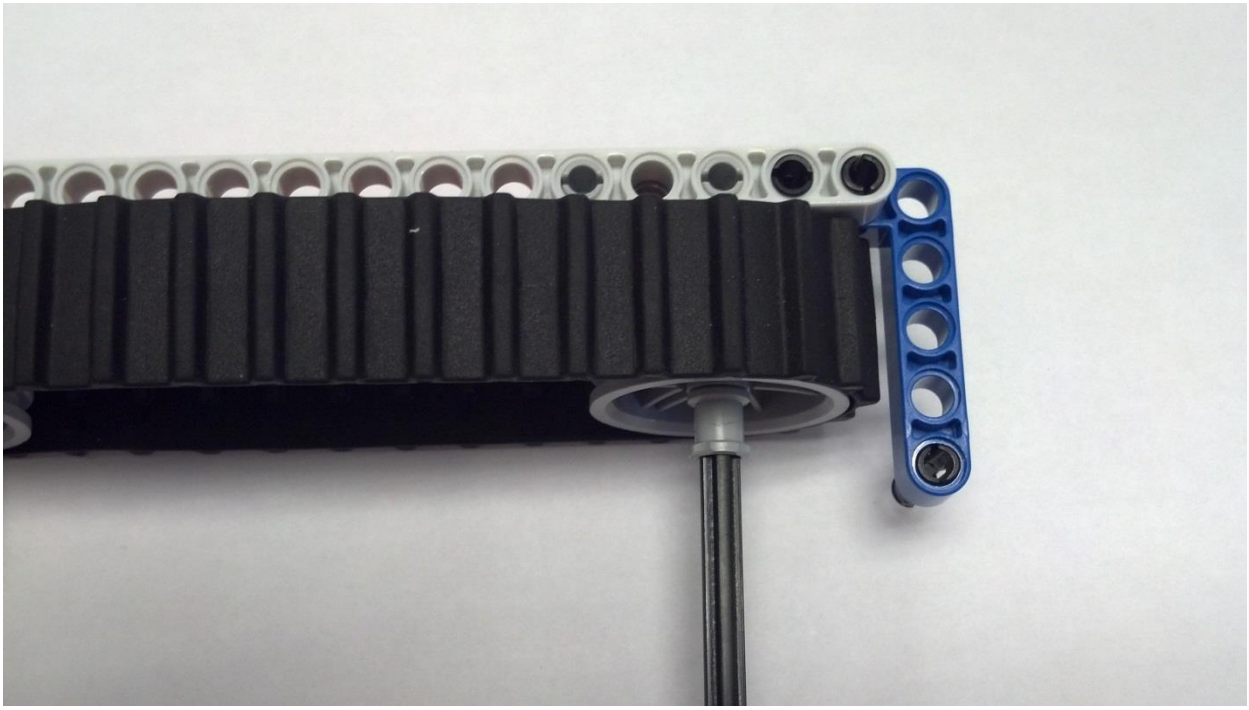
Left Front Corner - Side View



Front Corner Bottom view



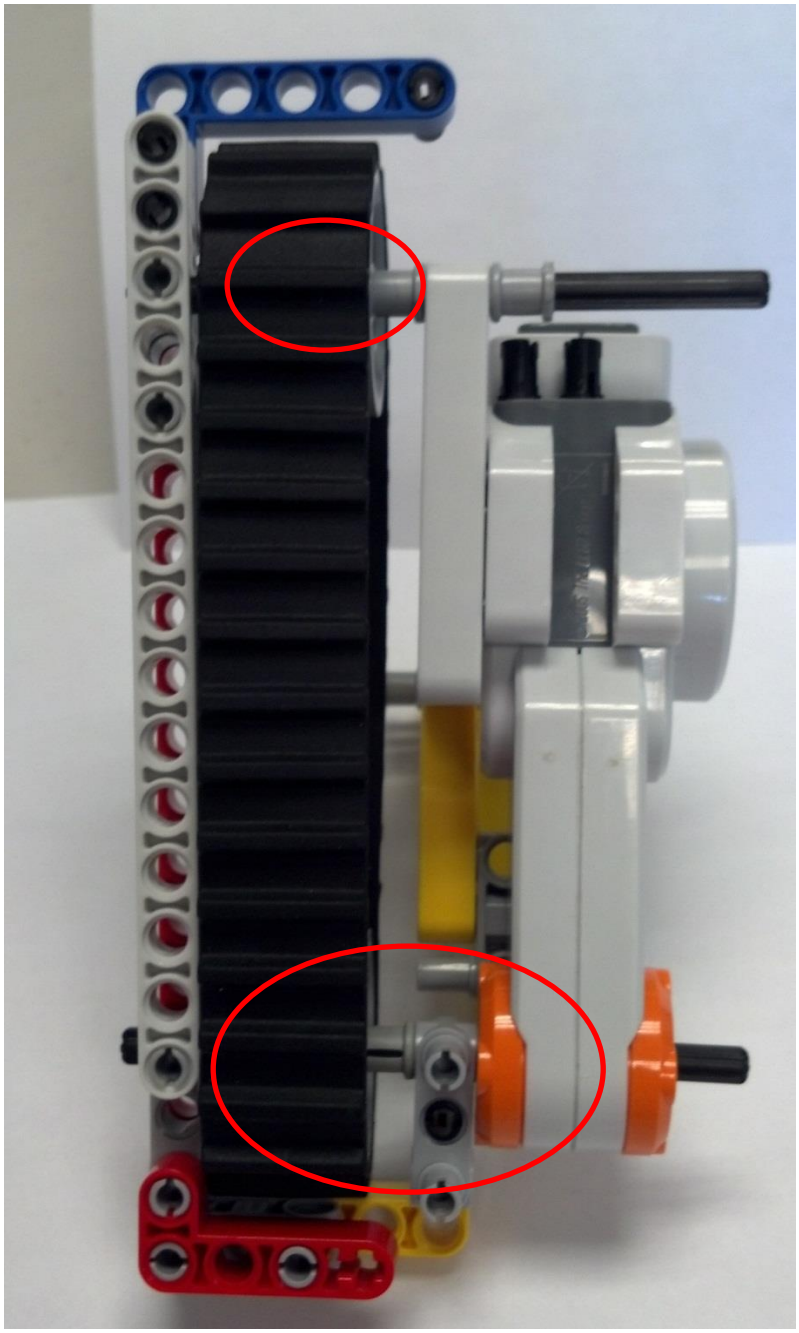
Bottom Corner Bottom View



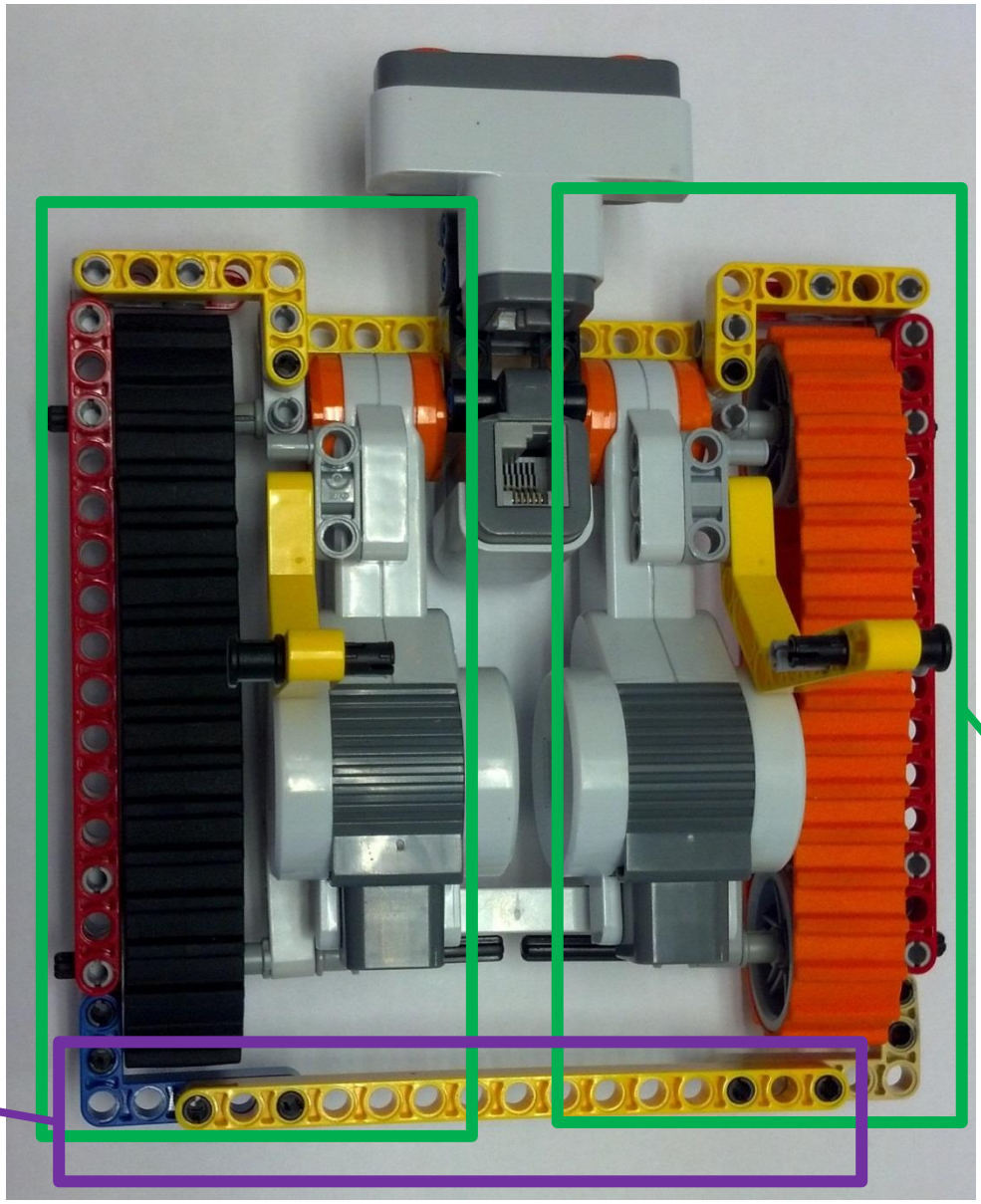
Connect Motor and Wheel sub-modules

Again, this is for the left side only. You will need to create a mirror image of this for the right side later.

Bottom View



Build Motor sub-module and Wheel Sub-module again. But, this time it needs to be *a **Mirror Image*** of the previous structures.

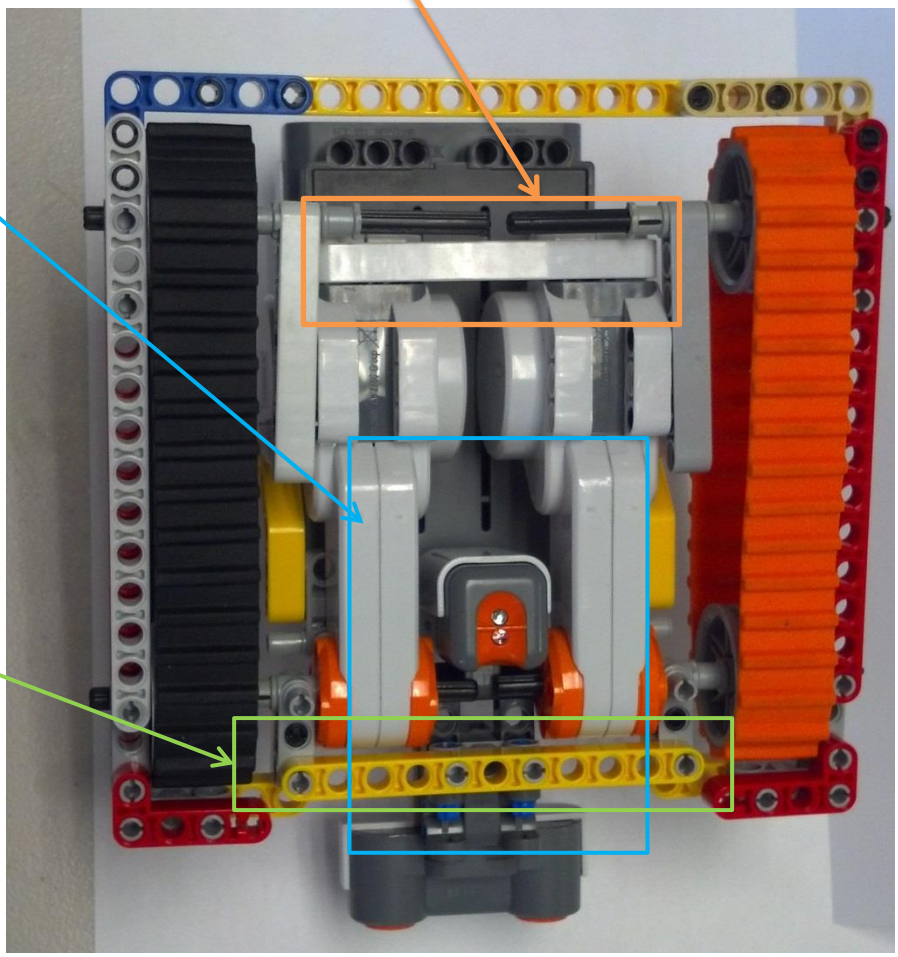


Attach Motor Modules and the Sensor mount

Add in bracing support to secure the two sides.

Connect the two motors with a 9 holes beam

Attach the wheel modules and sensor module with an 11 hole beam in the Front

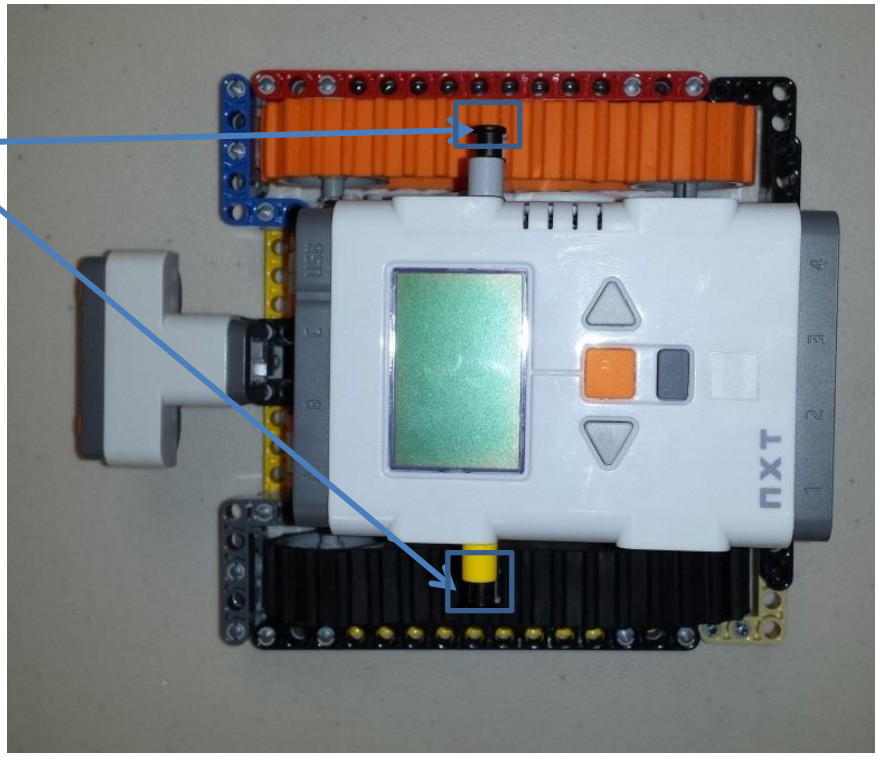


Mounting the NXT

Place the NXT brick in between the two angled beams and on top of the motors

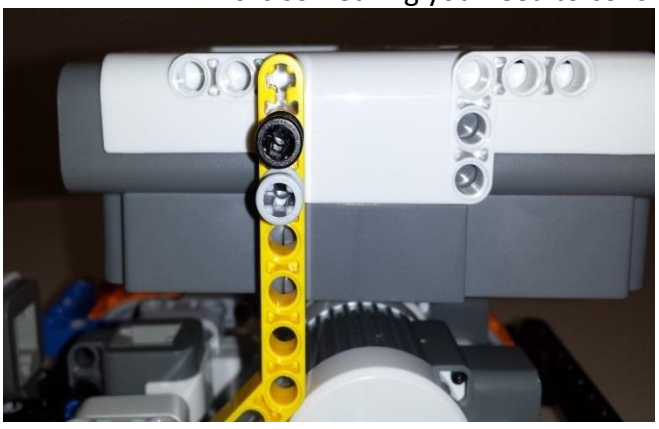
Top View

Push in the two long pegs with bushing end on each side to secure it in place.



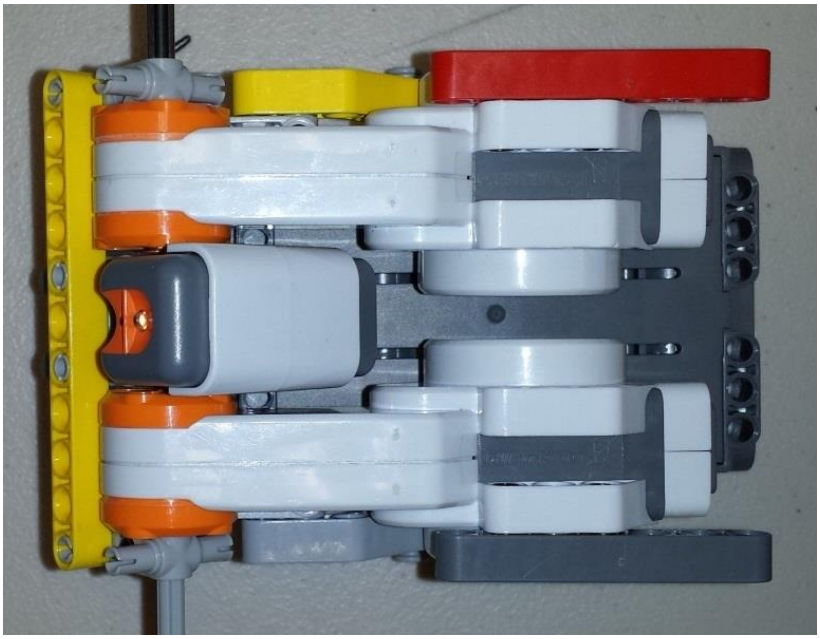
Side Views

(You can shift the controller forward or backward in order to shift the enter of gravity. This is something you need to consider if your robot needs to go uphill)



Alternative Drive System – 4-Wheels gear system

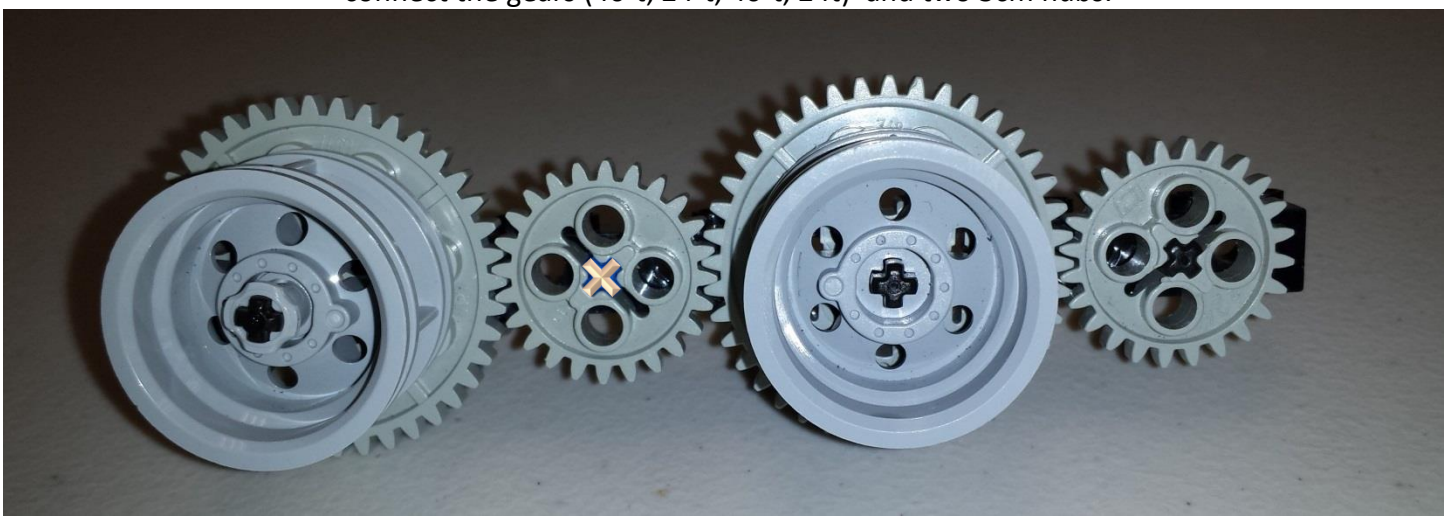
Remove the tread sub-module from the Tankbot above



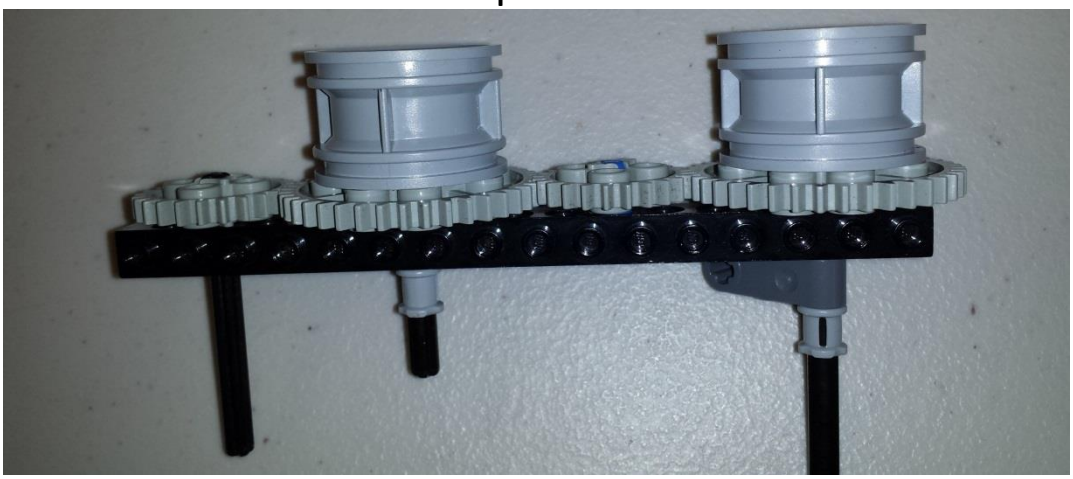
Right Wheel sub-module

Size View

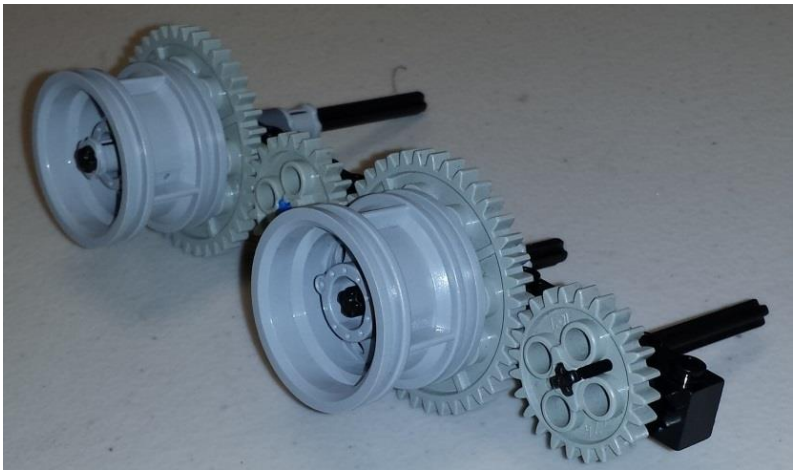
Recommended to use 8+ length axles. Use 3 axles and one non-frictional peg to connect the gears (40-t, 24-t, 40-t, 24t) and two 3cm hubs.



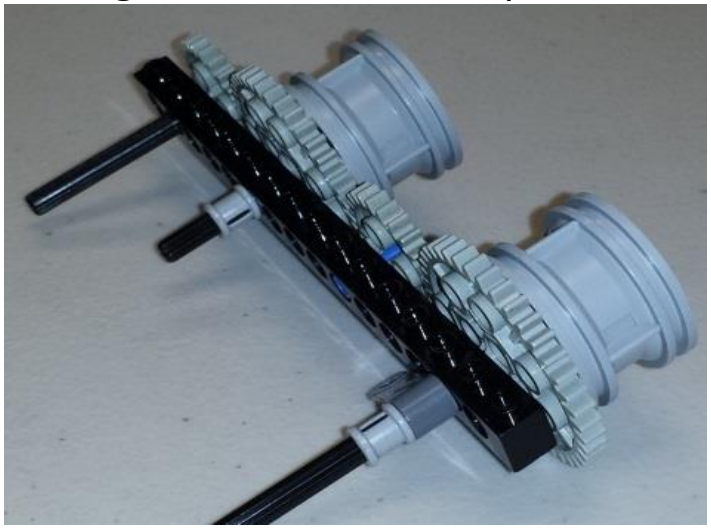
Top View



Right Front corner - Top View



Right Back corner - Top View



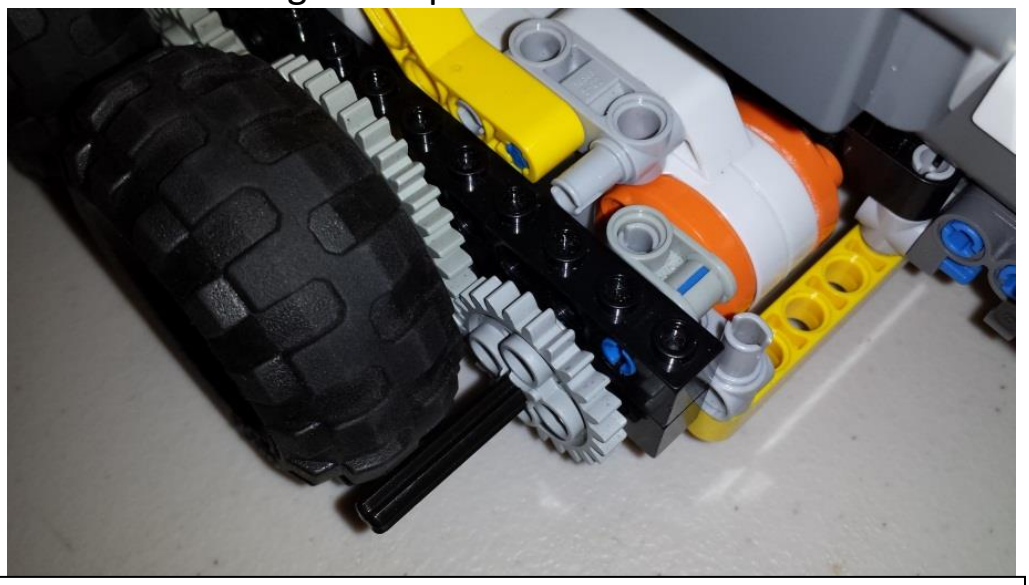
Connect Motor and Wheel sub-modules

Now Build the Left Sub-module. Again, it needs to be ***a Mirror Image*** of the previous structure.

To Brace the chassis frame :

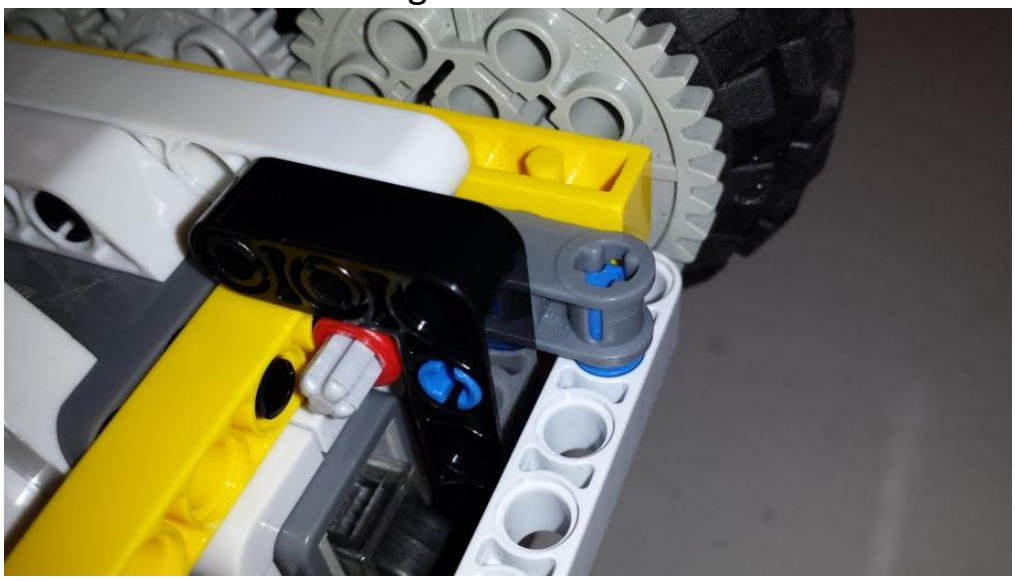
- 2 16- stud beams
- 1 frictional peg
- 1  Axle and Pin Connector Perpendicular

Front Right – Top View



If you use the previous 3cm hub, you will need to use the 30.4mm D. x 20mm wheel. However, you can improvise here by switching hub and wheels size, of course.

Back Right – Bottom View



A complete picture of the 4-wheel drive chassis