



FALCONS

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Falcons Project V1

Mechanical description

The need for a new platform



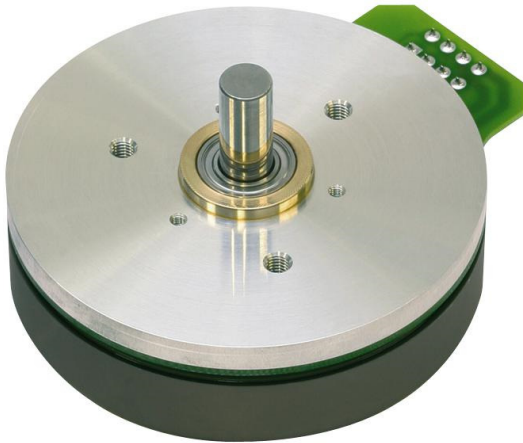
- The current robot electronics is based on the Turtle5k design. This design has not much room for improvement in terms of enhanced servo design.
- Next to this are the robots suffering from connectivity issues between the motor electronics and the CPU case.
- It is the aim of the team to improve the robot speed by at least 50%. This is only possible if the servo control has sufficient bandwidth and the motion electronics is stable and reliable.
- To comply with the rules also robot weight needs to be reduced, to allow for hardware additions in the future.
- The last requirement is modularity, the new platform is built in 3 big sub assies, to allow for quick repair and upgradability.



Why a redesign of the frame



To enable future proof motion



New 400W motors



New motion controllers

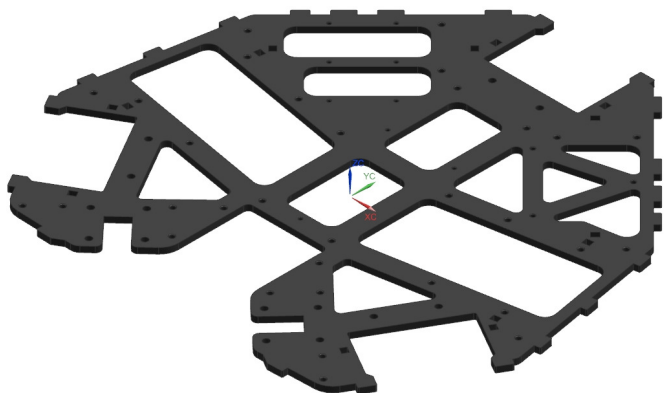


Triple wheel, for more traction and grip

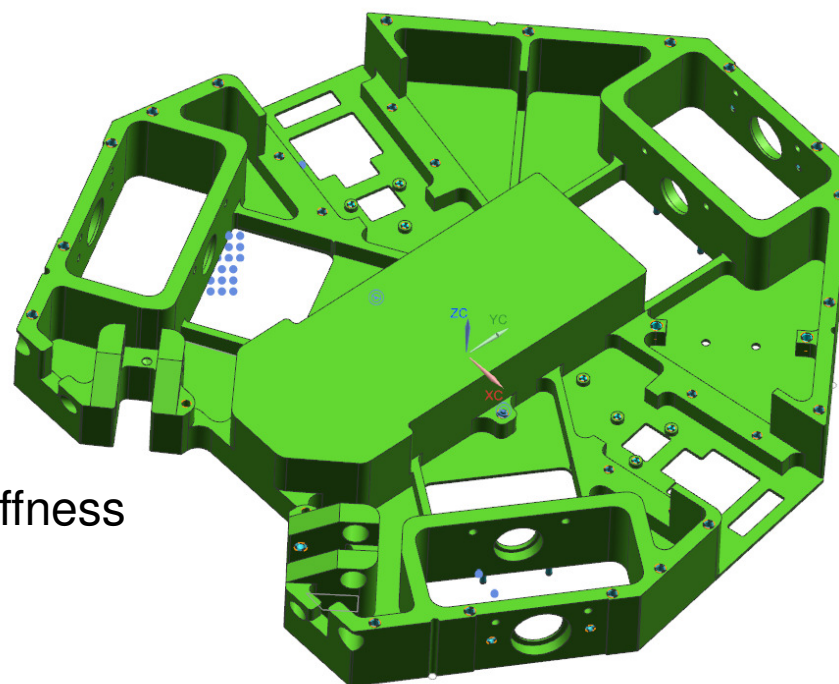


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From Bolt on, To Bolt in

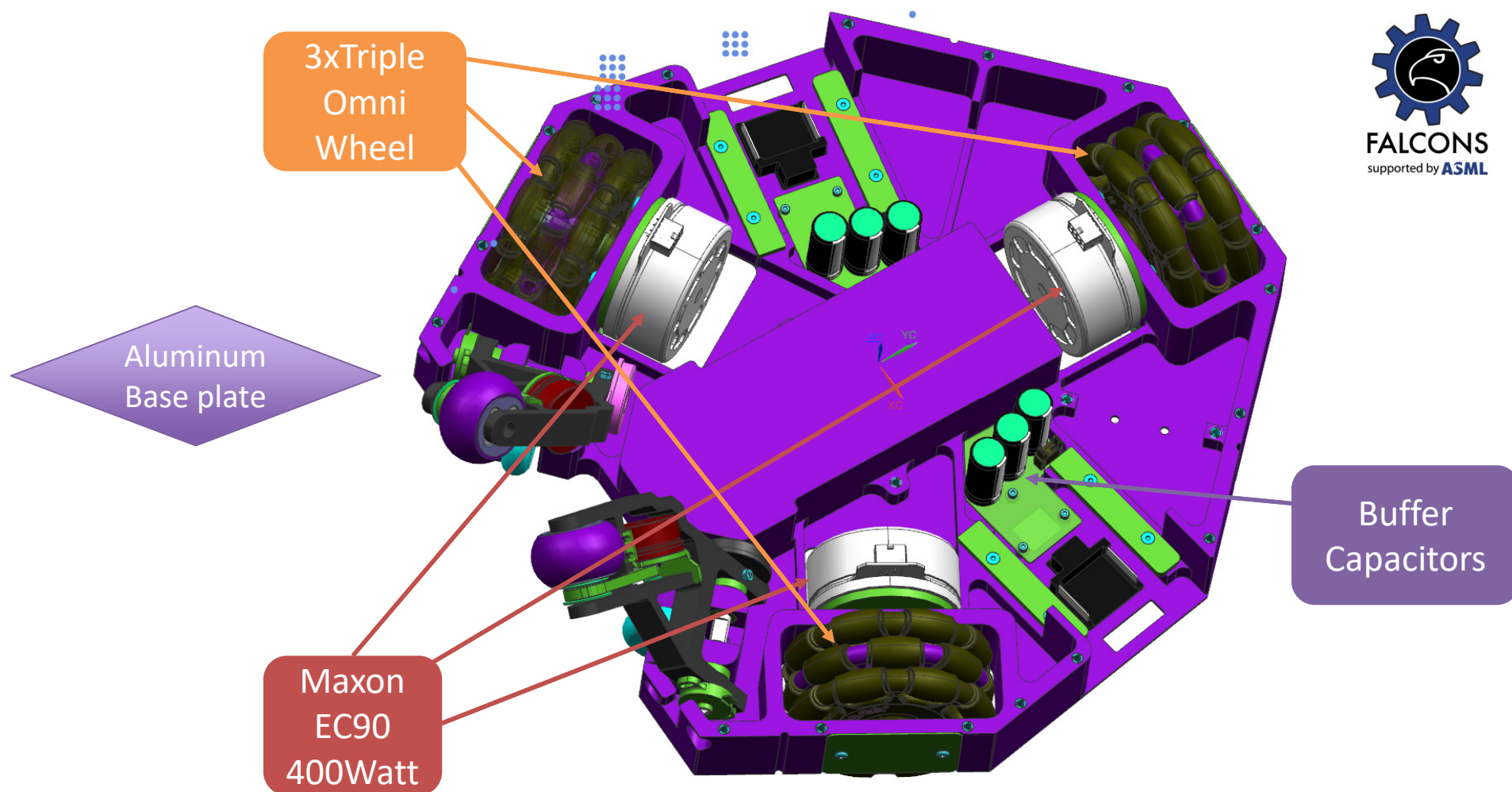


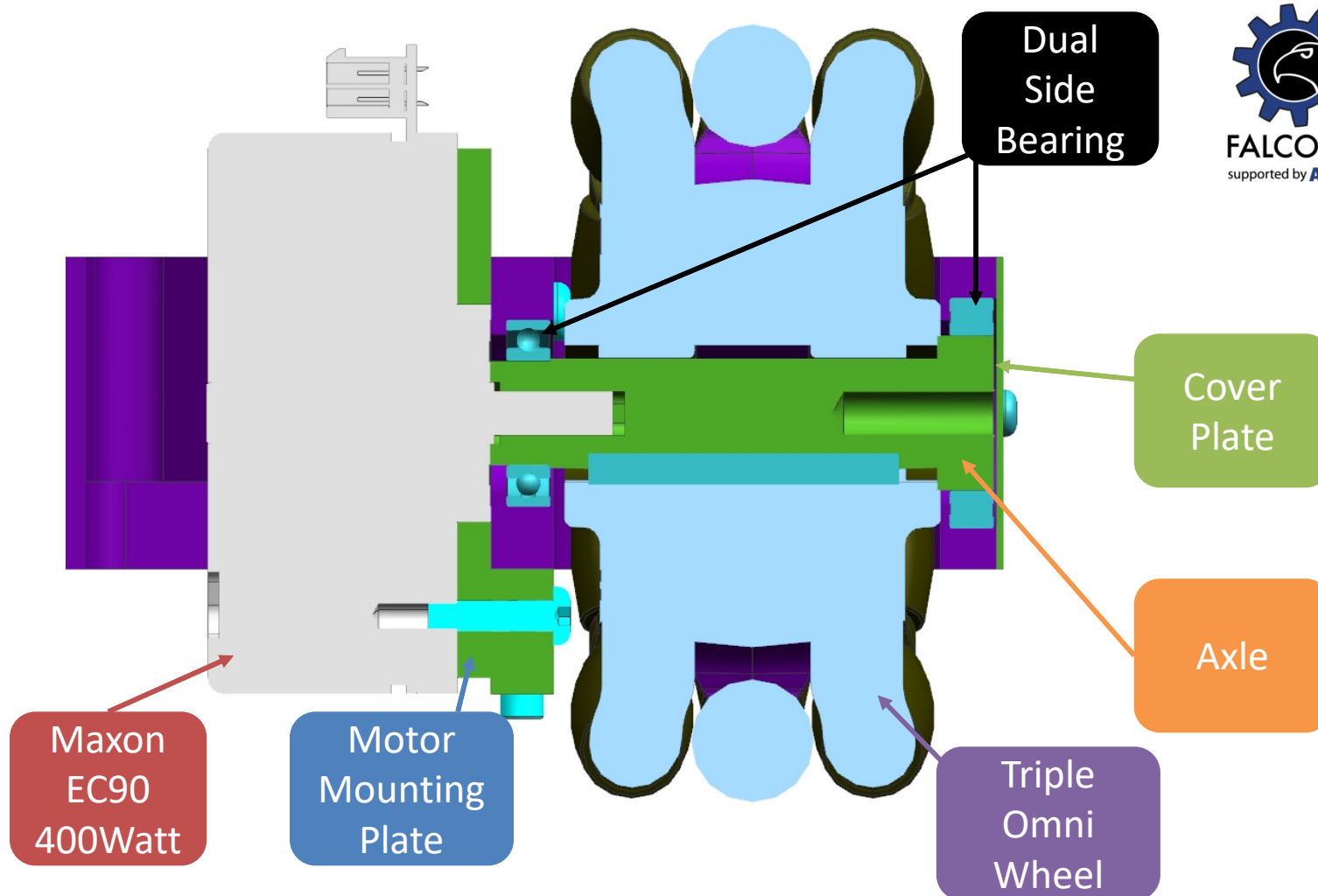
New base plate for maximum stiffness



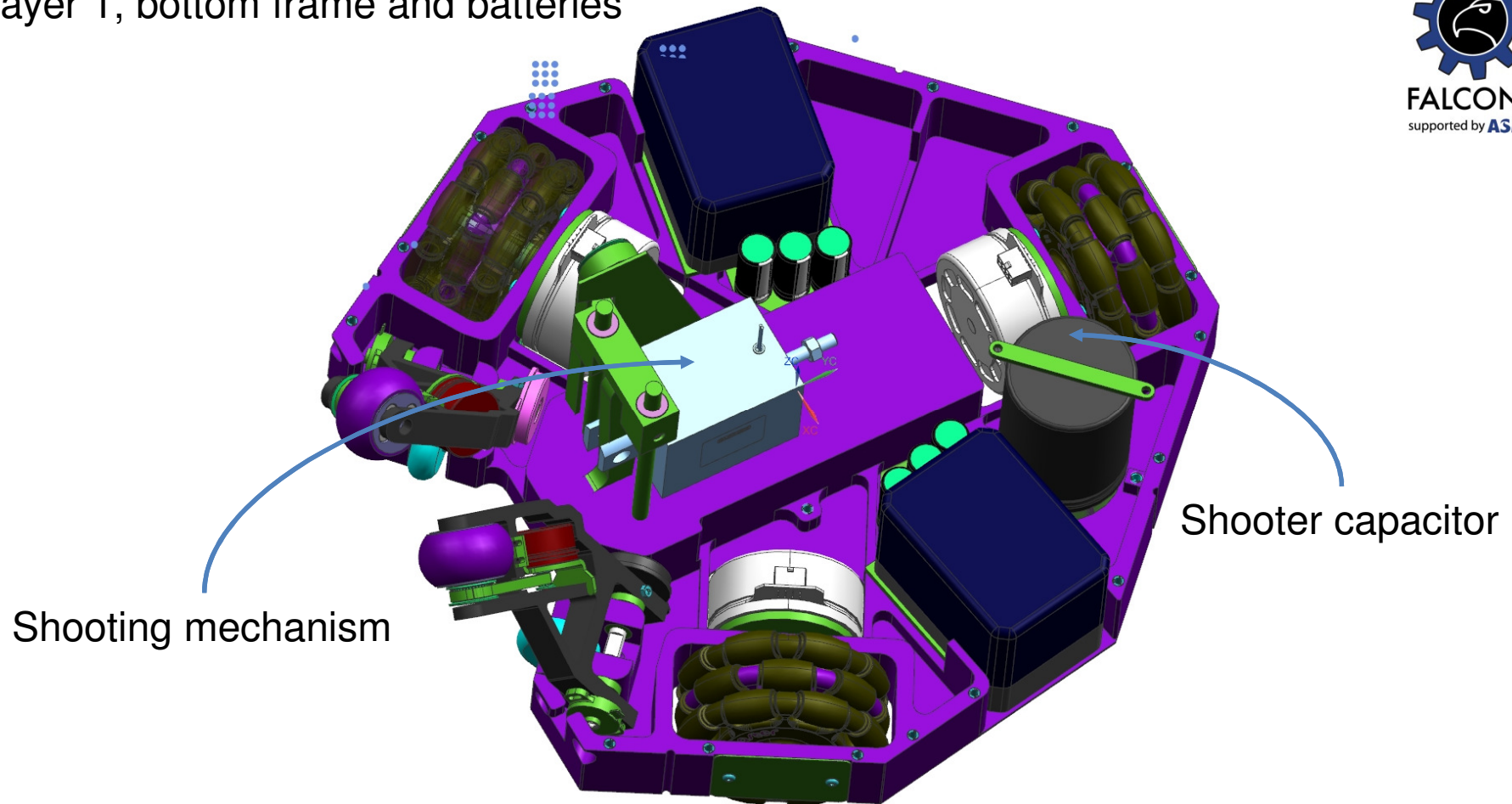


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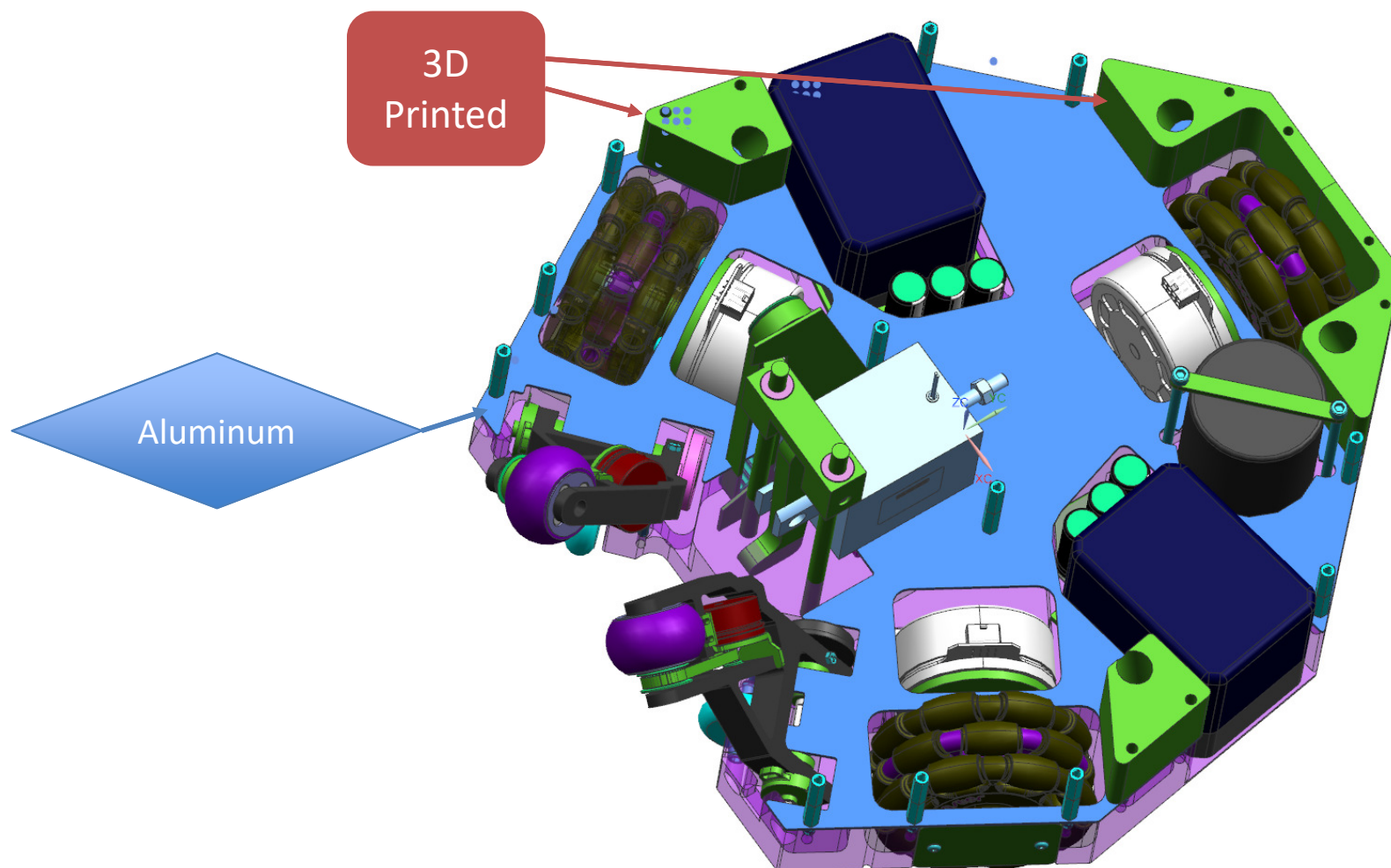


Layer 1, bottom frame and batteries





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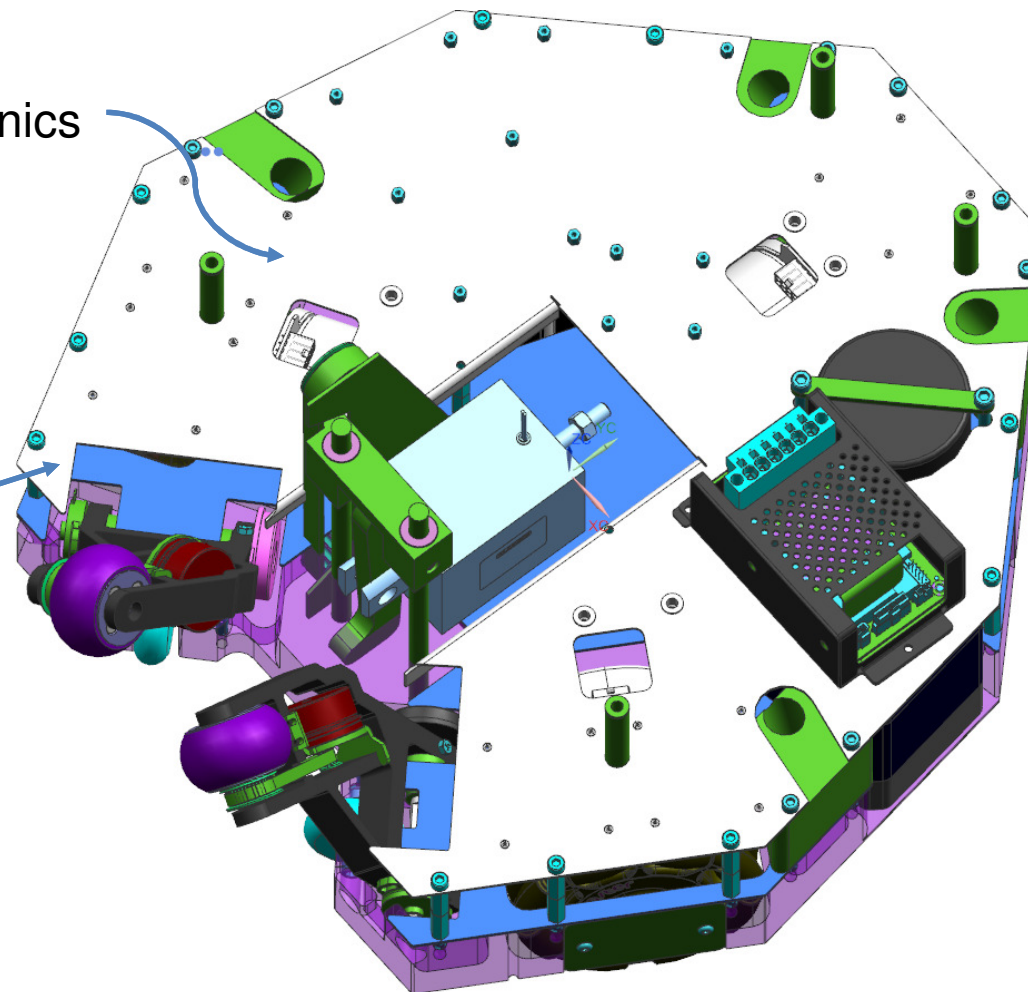


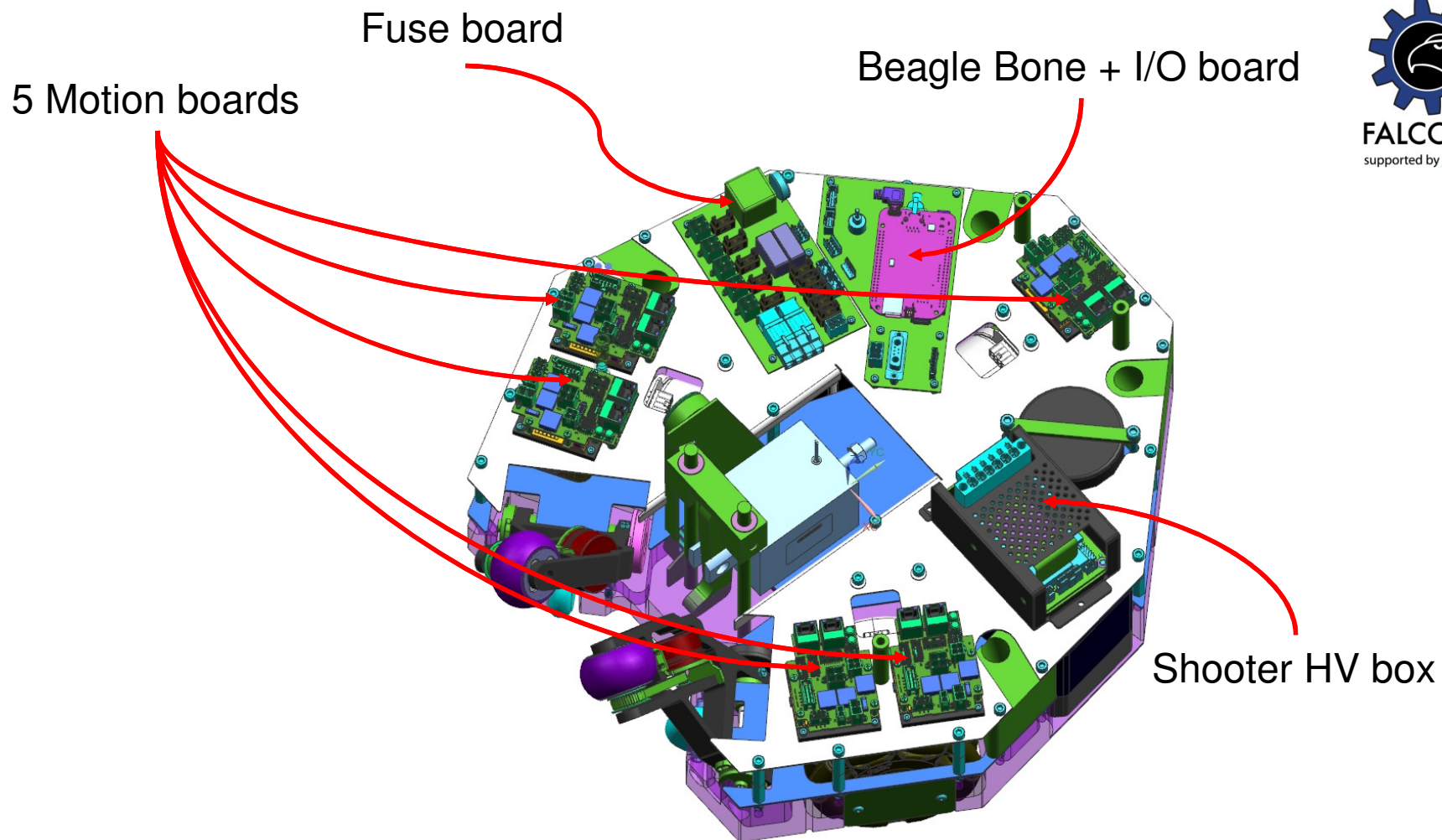


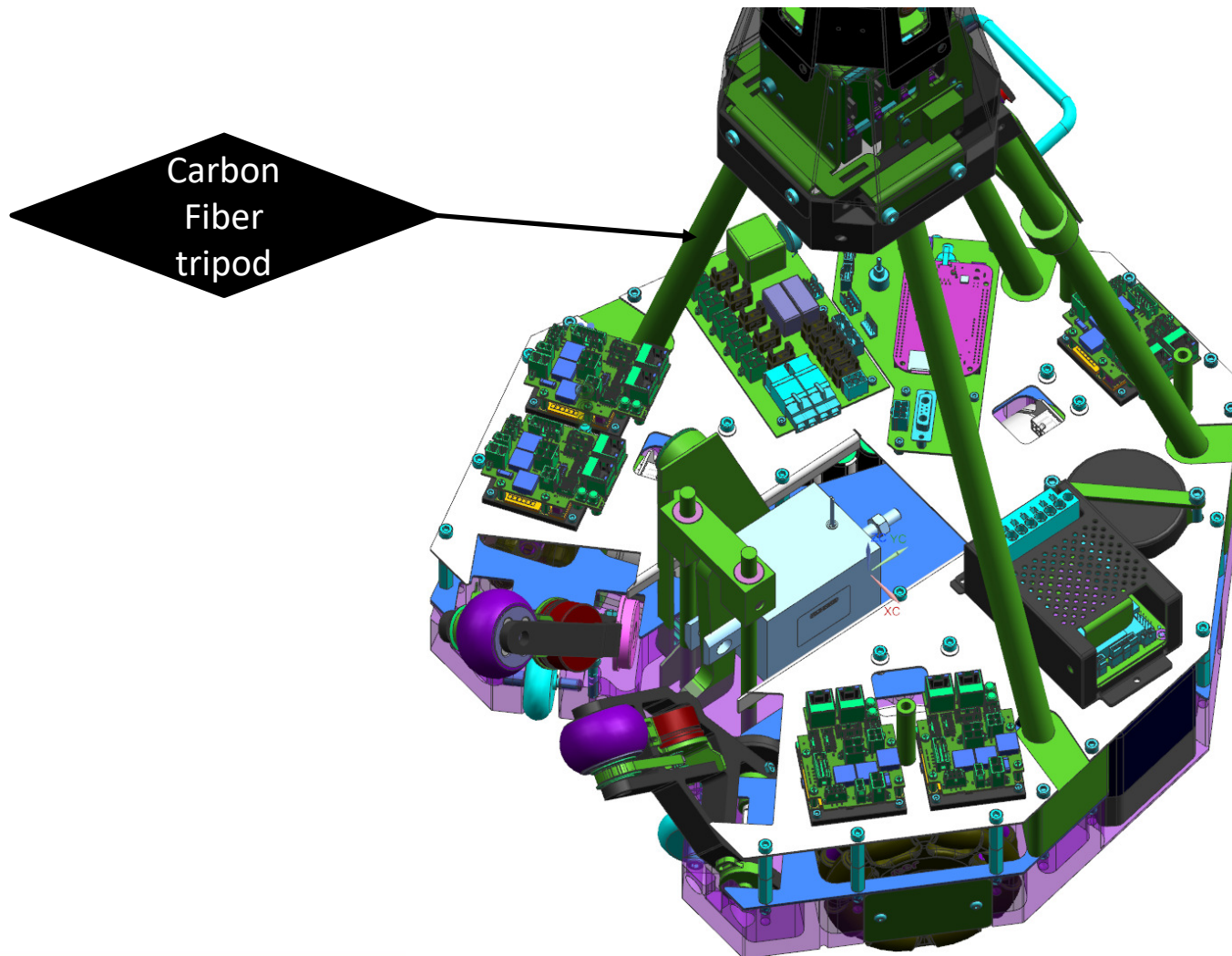
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Plate for all electronics

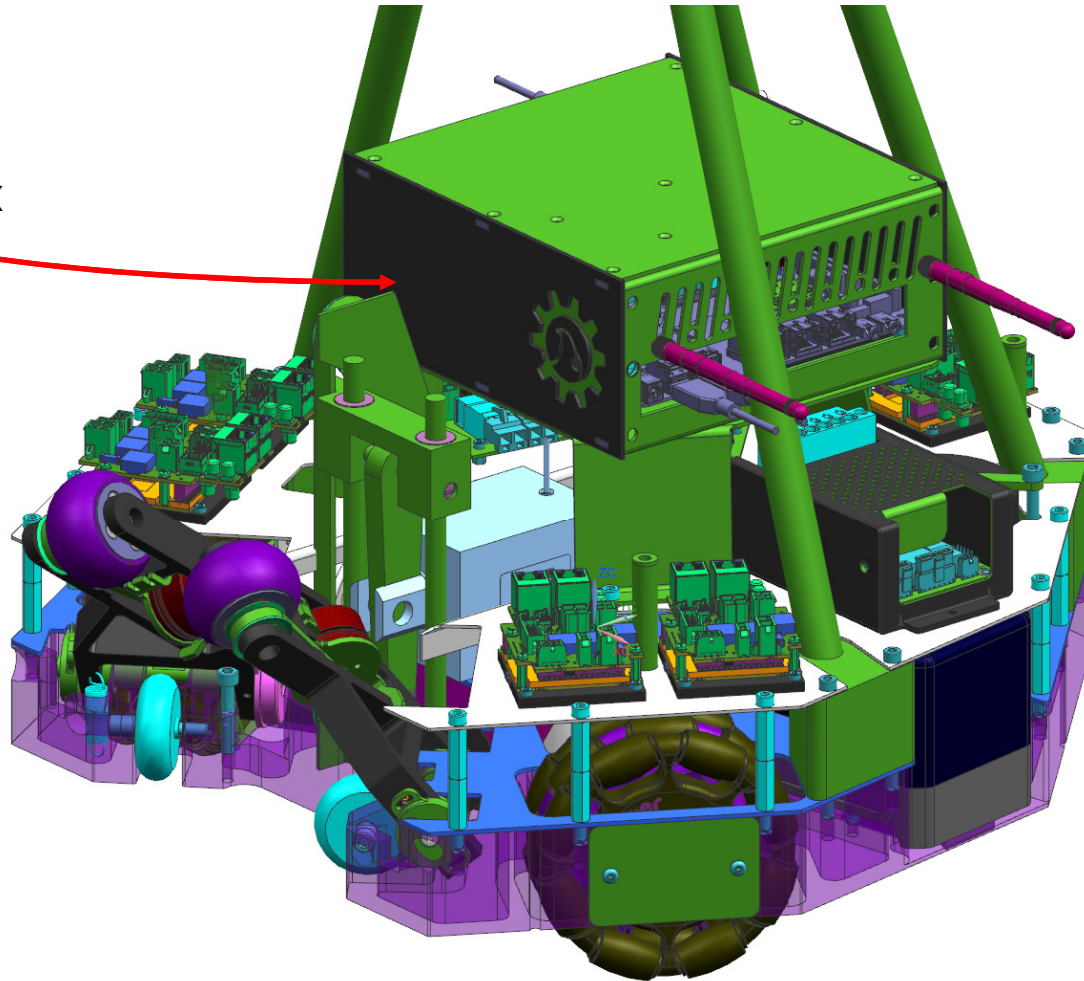
Aluminum



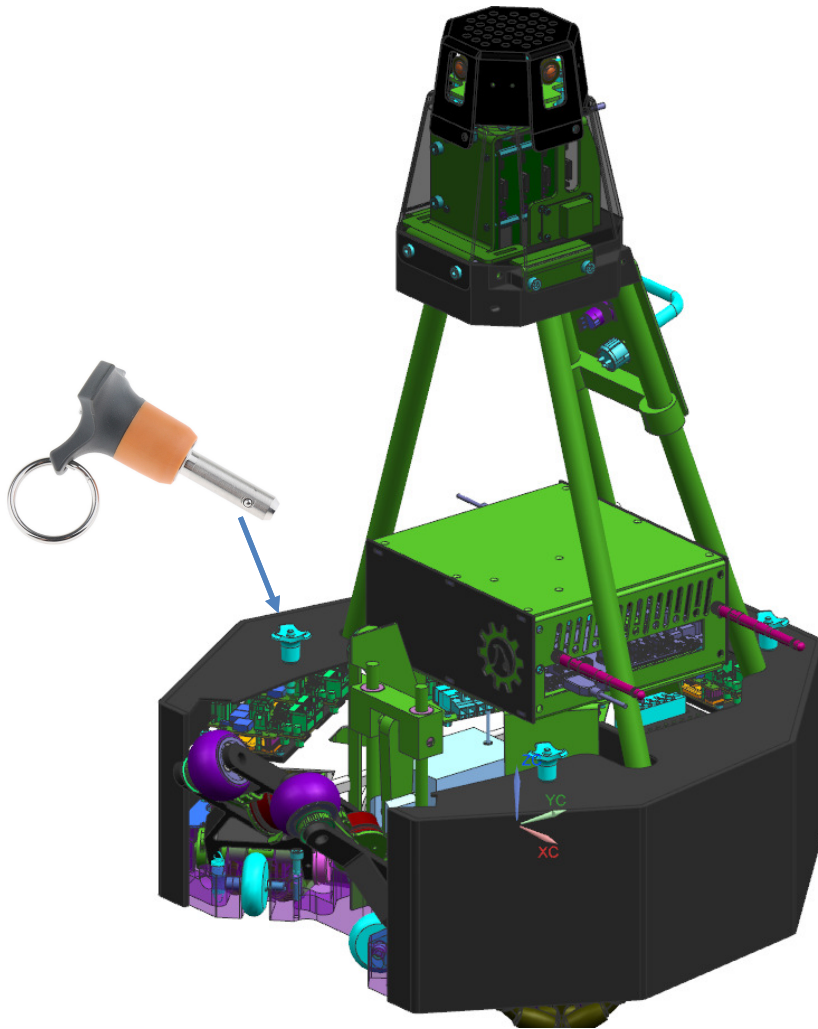




CPU Box



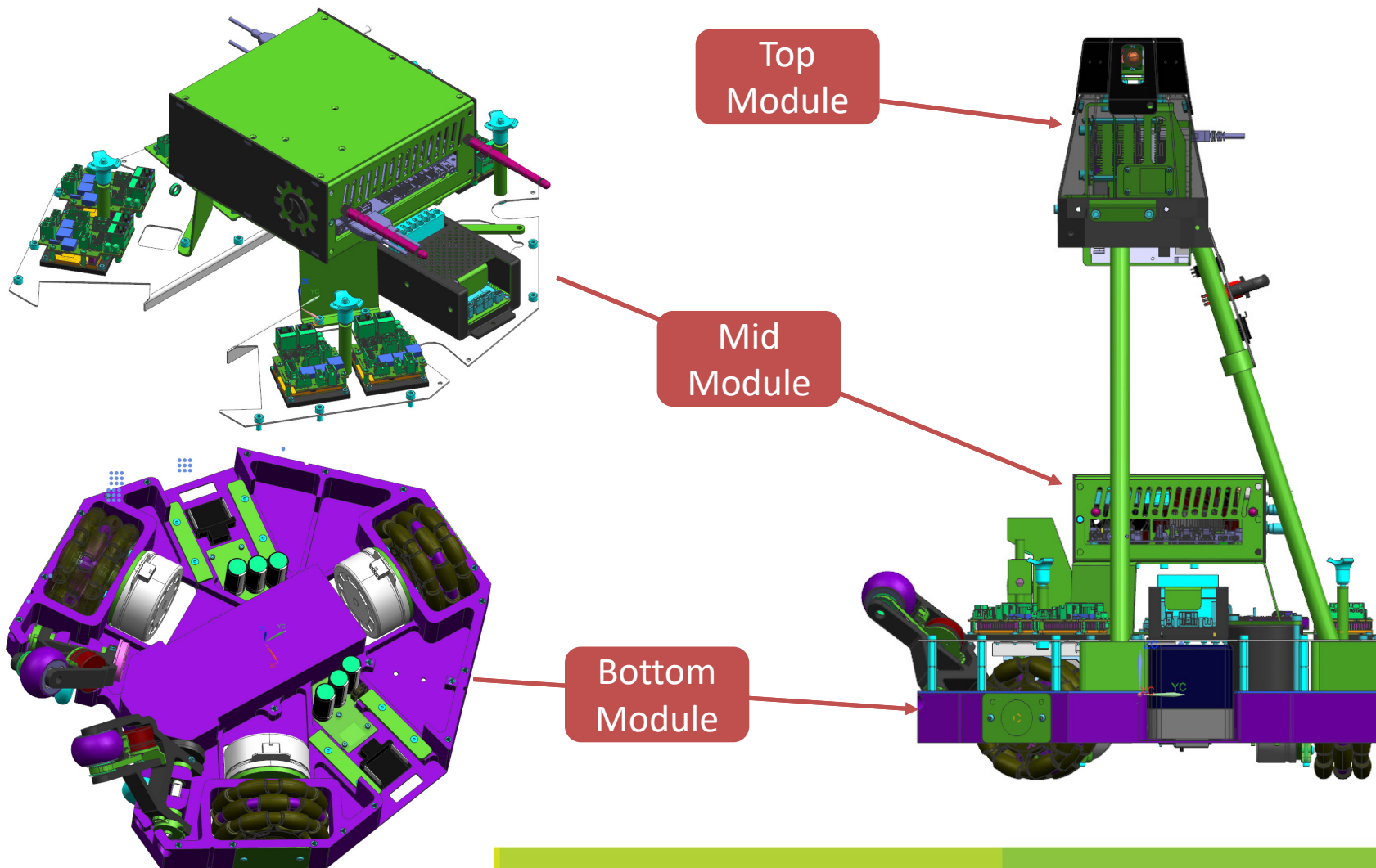
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Top
Module

Mid
Module

Bottom
Module

New Ball Handler, still under development.

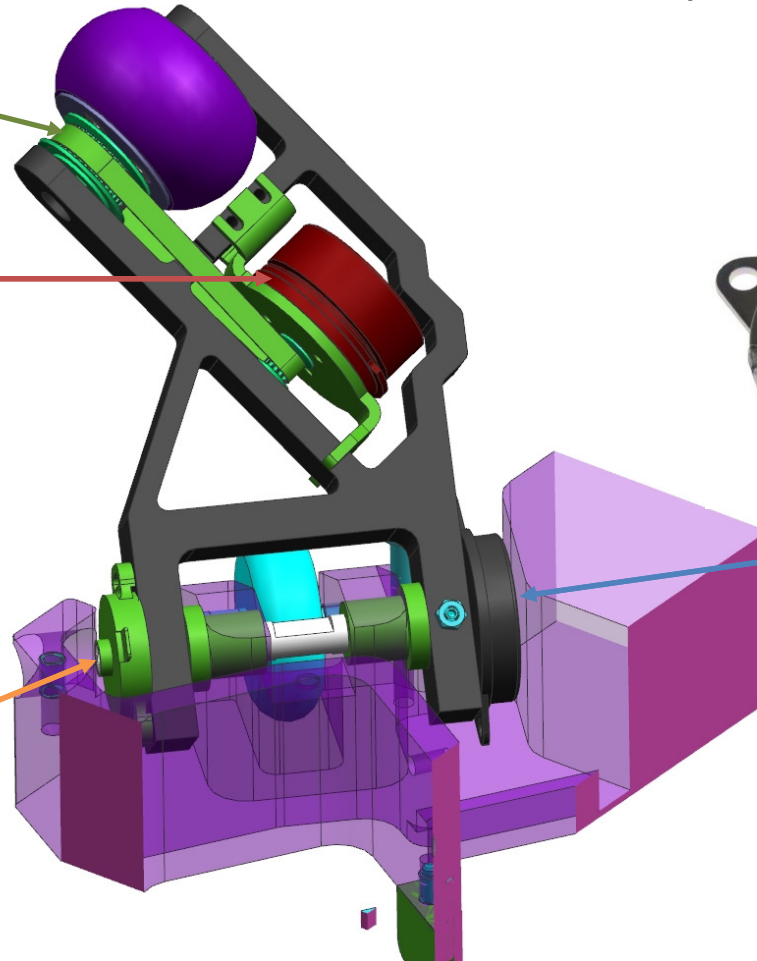
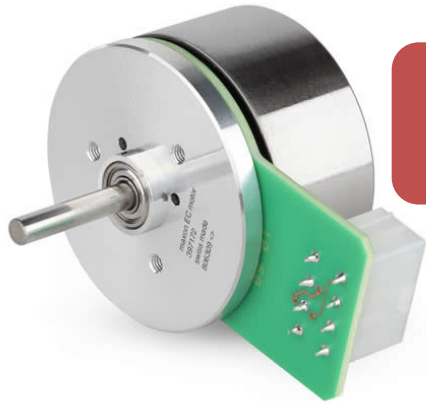


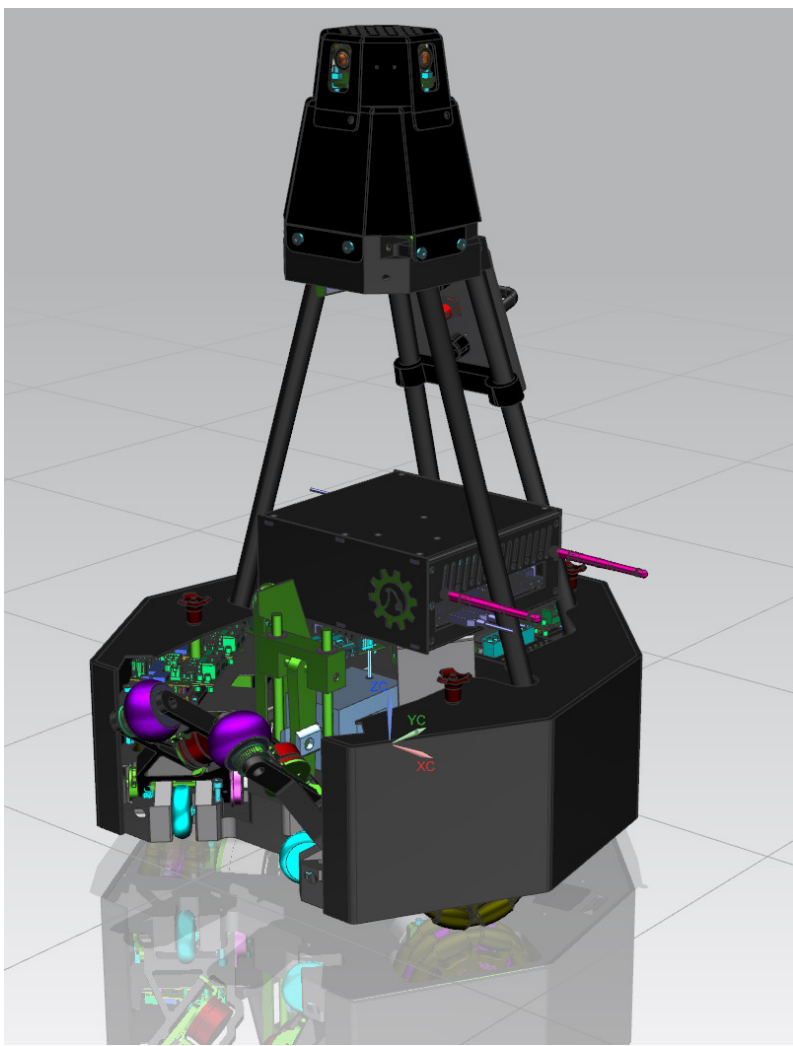
Belt
Driven

High
Torque
EC45

Linear
Angle
Sensor

Rotary
Damper





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