Standard 3D-Printed Robot

Immortals robotics

RoboCup 2018

Montreal CA

Why 3D-printing?

- Able to design complicated parts
- Easy to use
- Fast development and optimization
- Low cost of production

3D Printers

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Immortals Standard 3D-Printed Robot

- Low center of gravity
- Except gears and screws its all 3D-printed now
- Compacted and easy to fit a high number of robots in a single luggage
- It has a door for the battery :b

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Recommended printers

- Prusa i3 mk2/mk3
- Ultimaker
- Creality cr10

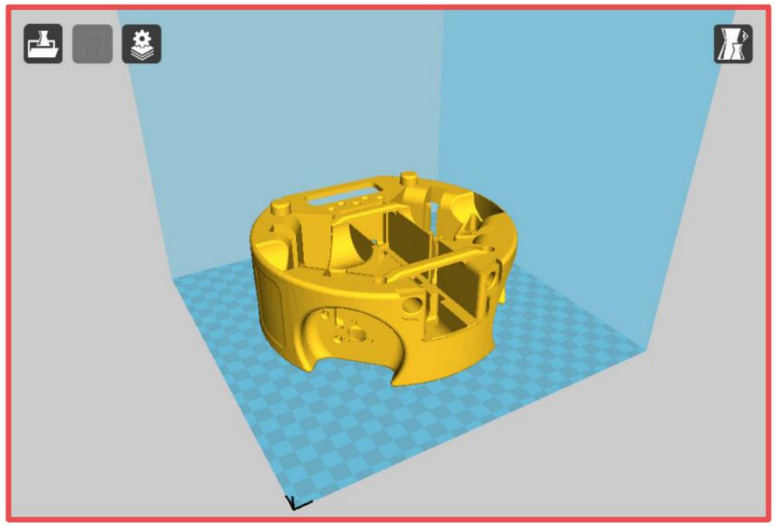
Our guide for printing parts with optimum settings

We made a PDF Document and we mentioned the best settings for printing each part.

MAIN BODY

Base part of the 3D-printed robot which all the other parts e.g. shafts, encoders, etc. will be mounted on this part. Printing settings for main body is as below:

- **Material** : PLA 1.75mm diameter, for 3D-printer nozzle 0.4mm diameter
- **Infill density:** 20 percent.
- **Shell thickness** : 0.8mm (for 0.4mm nozzle means two layers of PLA for shell)
- **Layer height** : 0.2mm
- **Amount for one robot** : 1
- **Support:** Supports will touch the build plate.
- **Heated bed temperature** : 50 C



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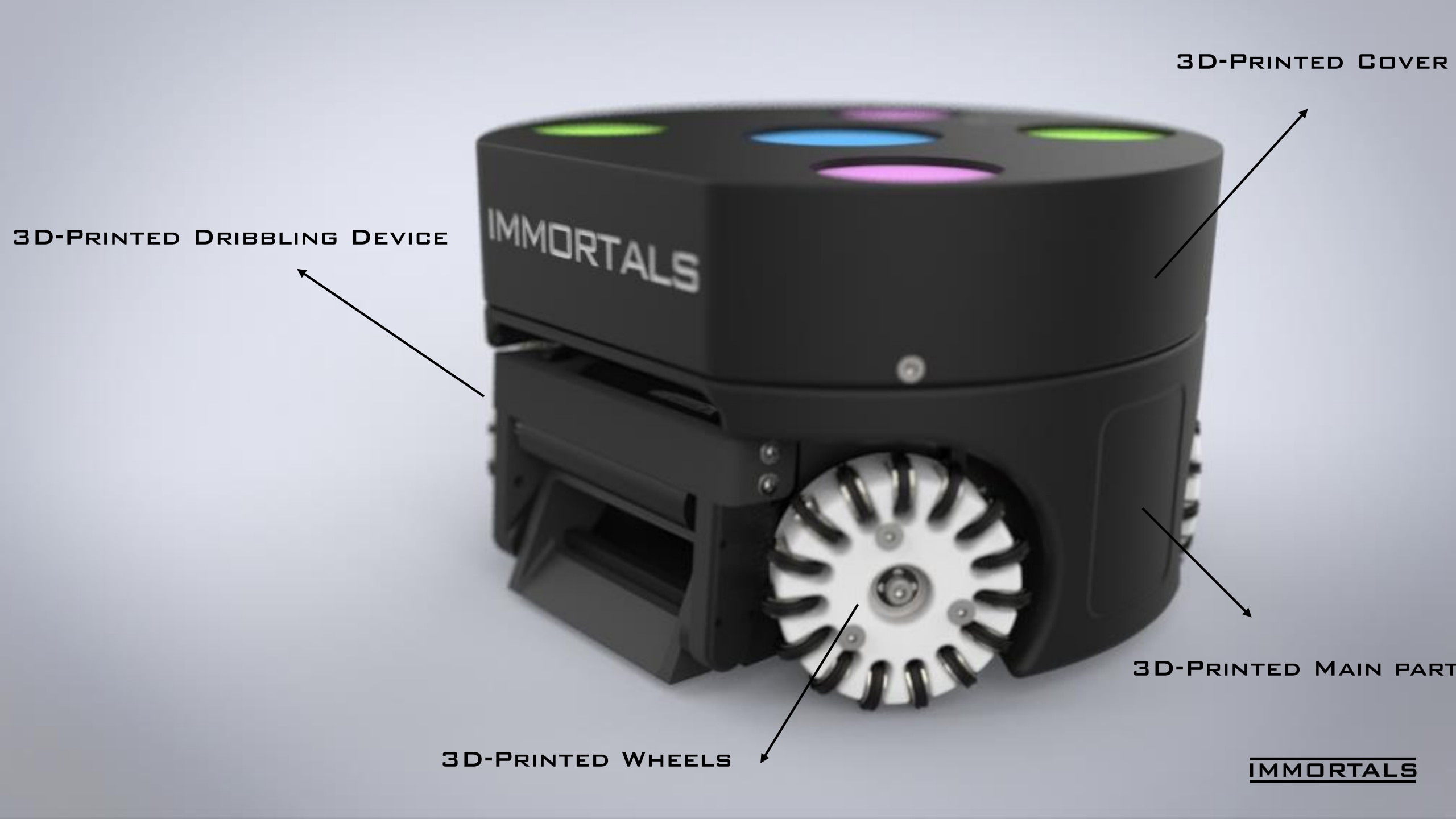
A closer look to the design


3D-Printed Cover
3D-Printed Dribbling Device
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3D-Printed Main part
3D-Printed Wheels
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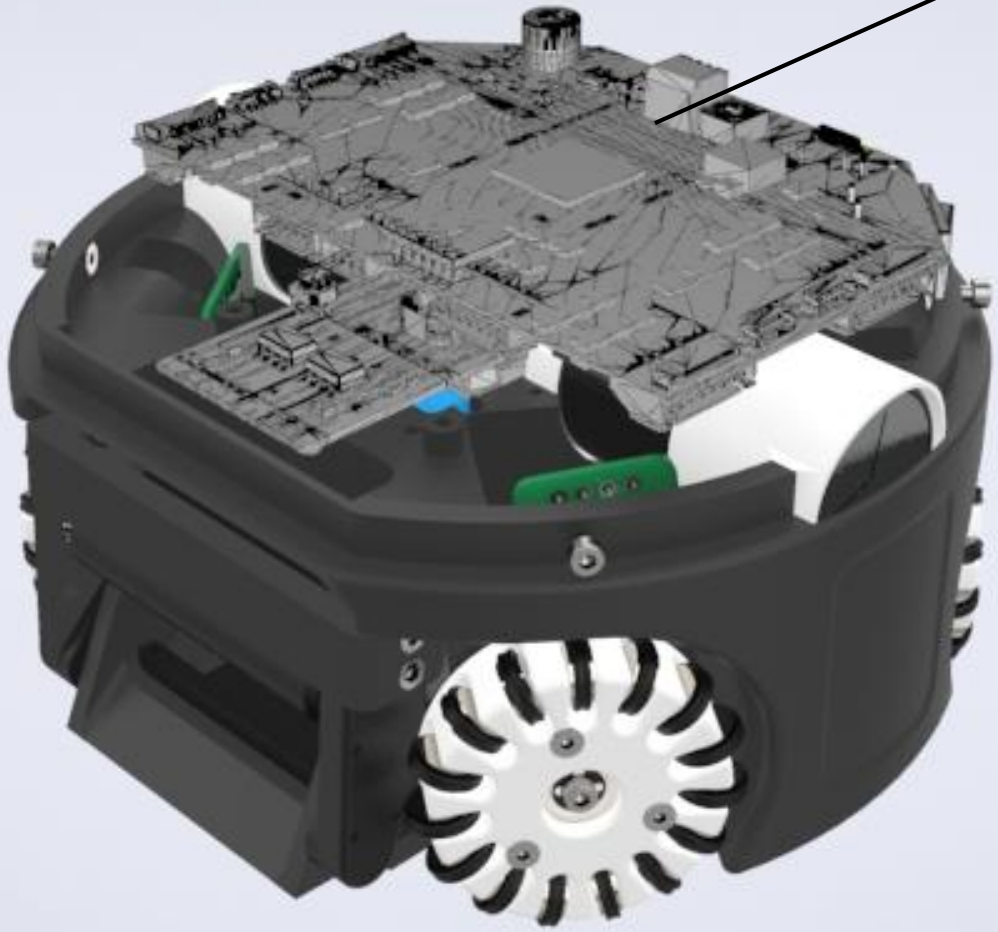

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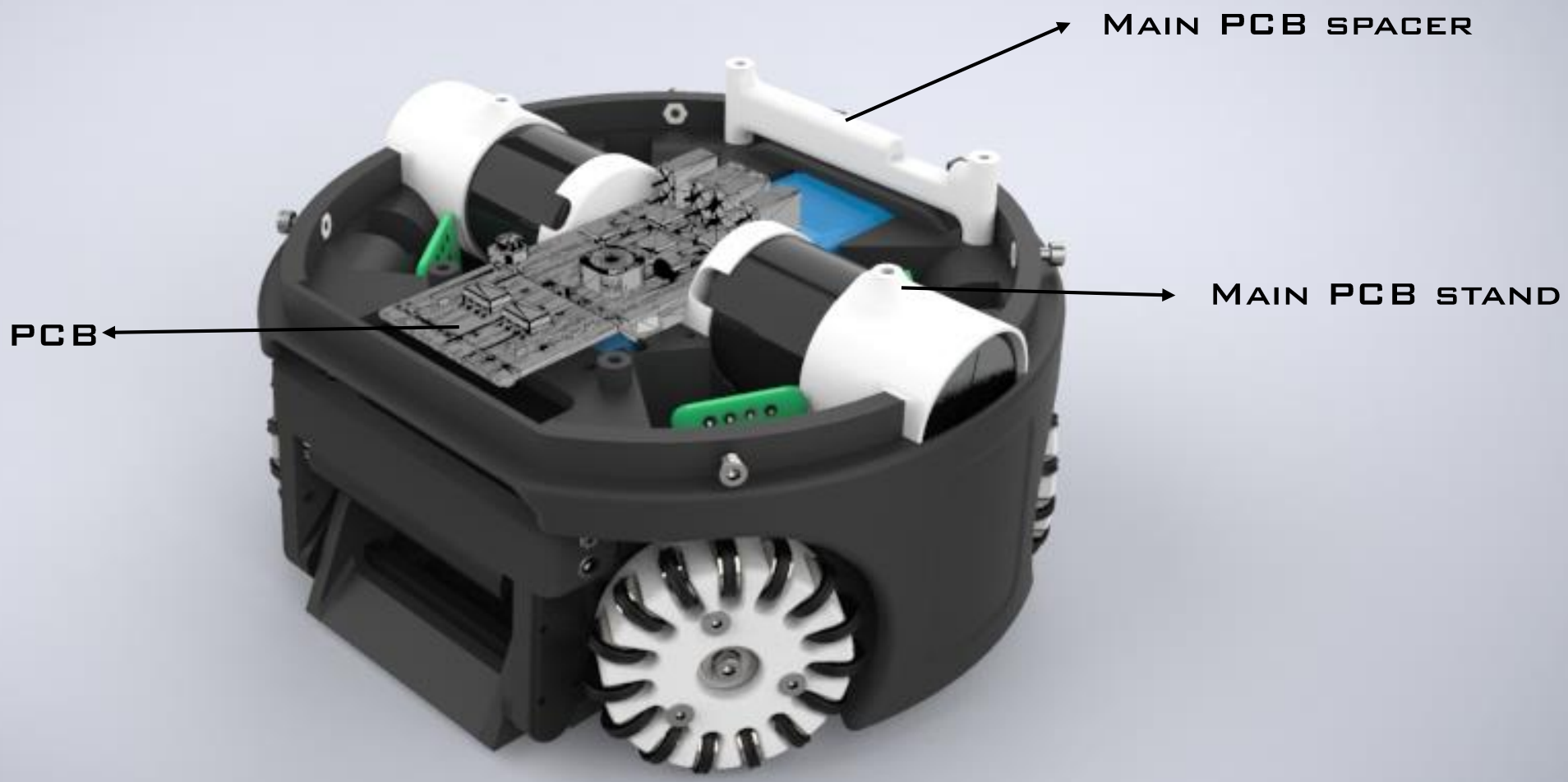

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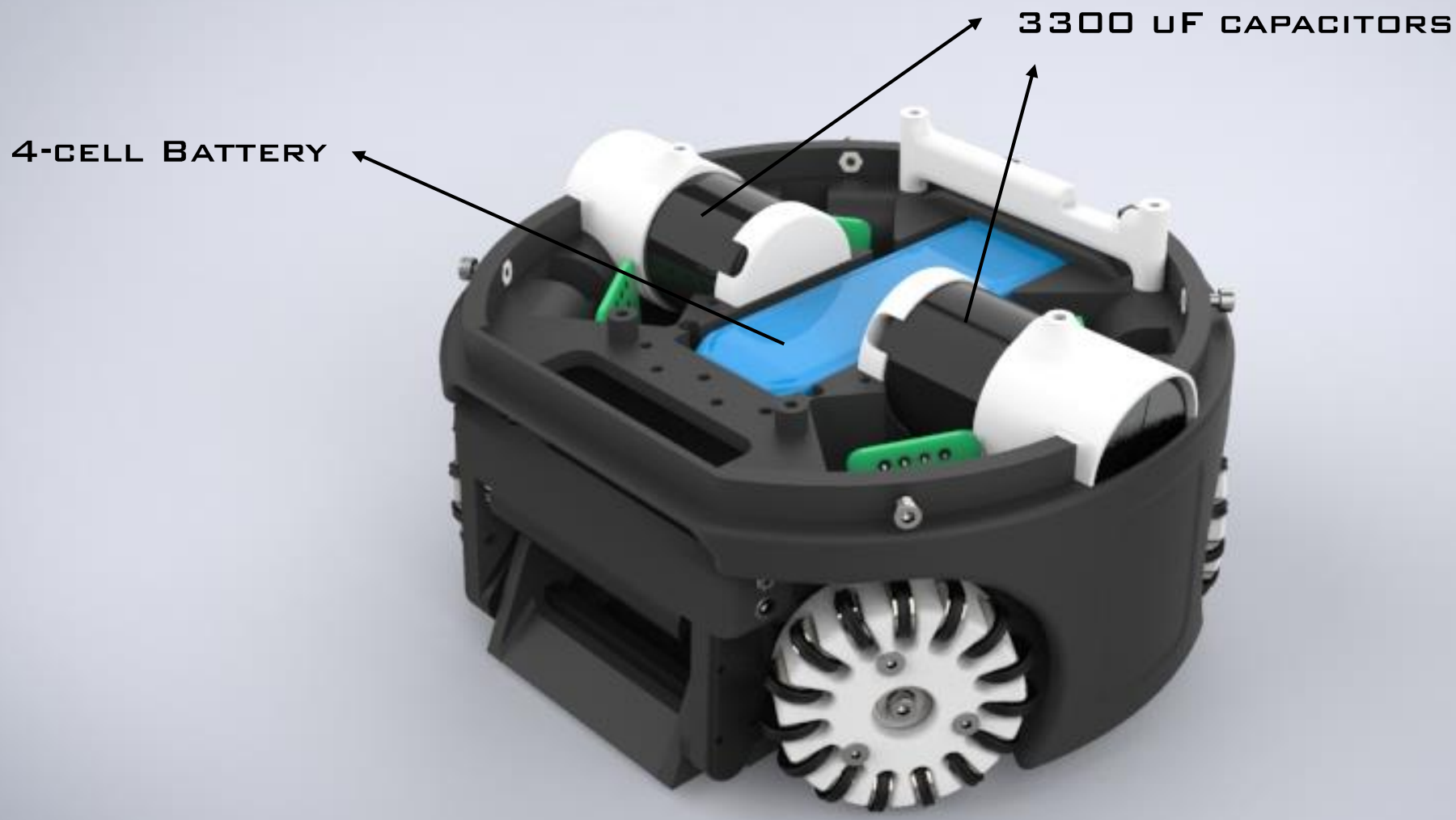

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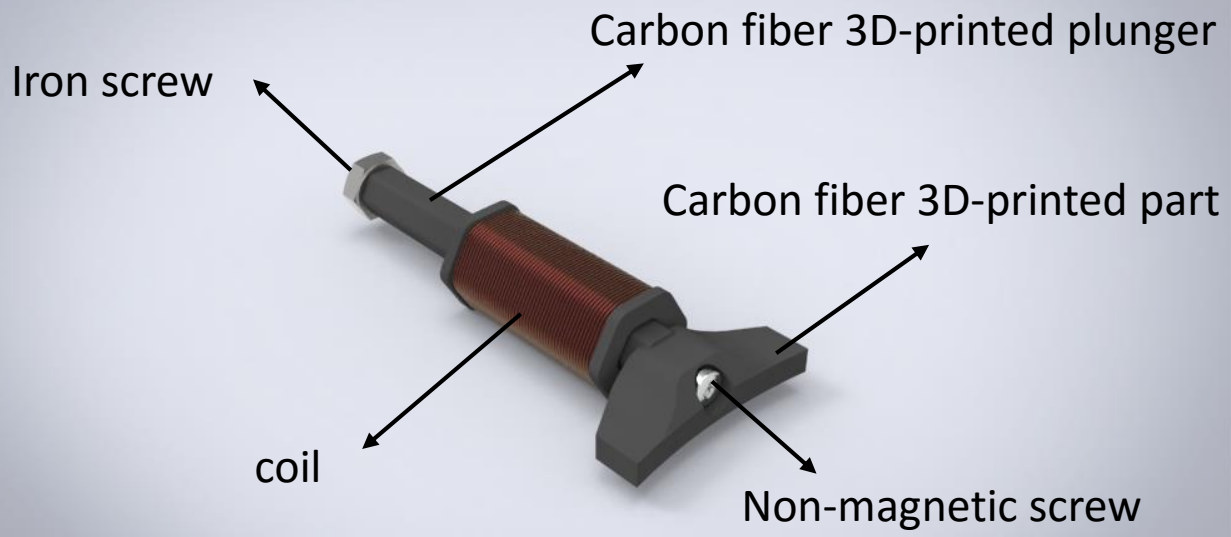
Carbon fiber 3D-printed plunger
Iron screw
Carbon fiber 3D-printed part
coil
Non-magnetic screw

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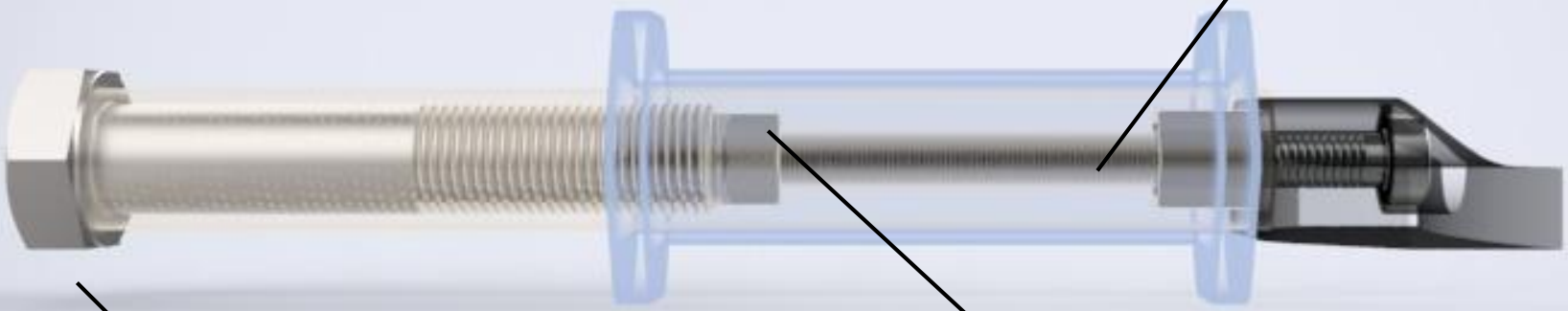

M5 x60 screw
Non-magnetic steel or Aluminum alloy

M5 nut

M10 x60 hex screw
Magnetic steel or iron

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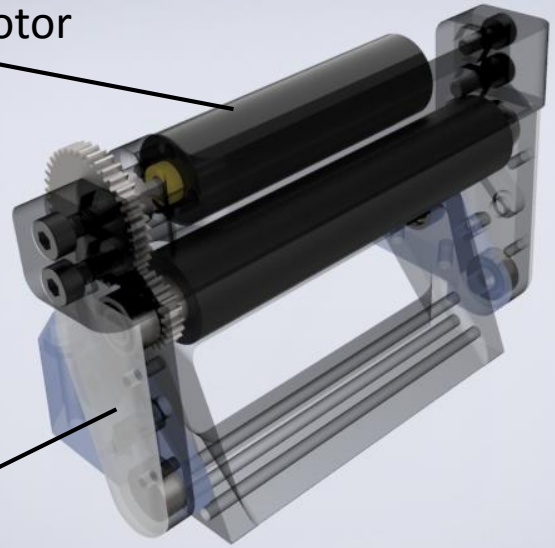
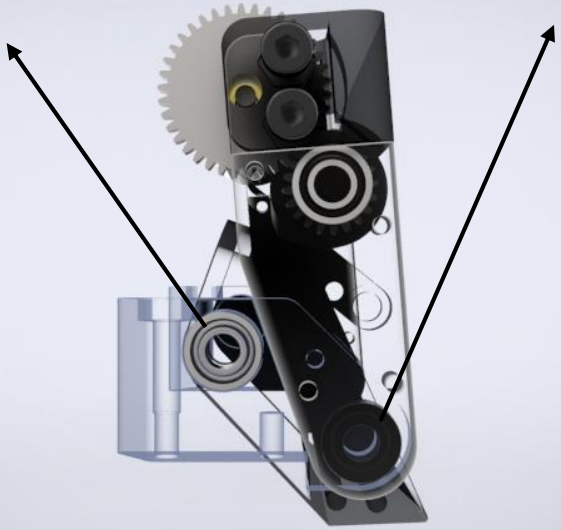
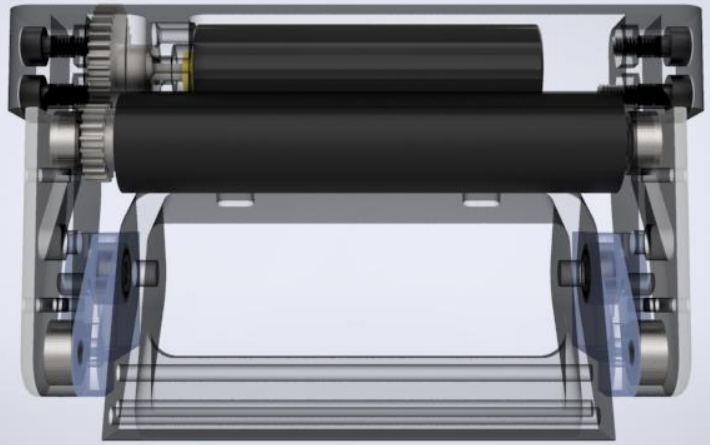
Dribbler motor



IR cover

Ball-bearing to avoid damage on plastic parts





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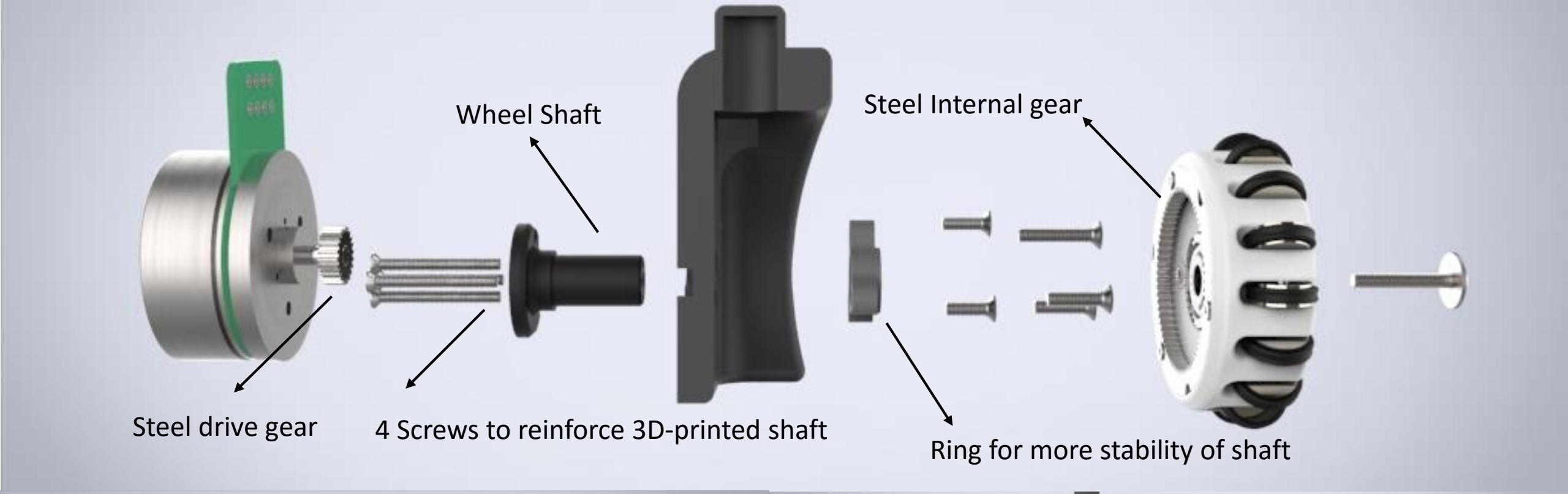
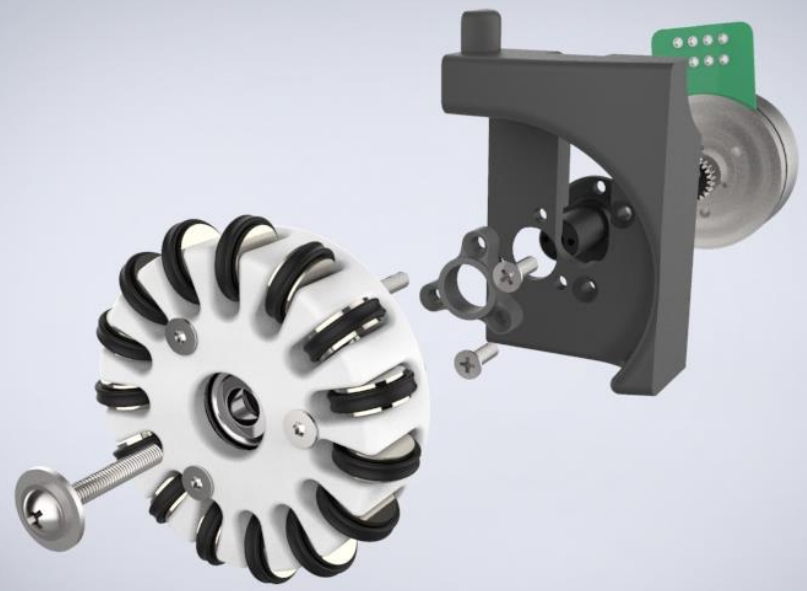
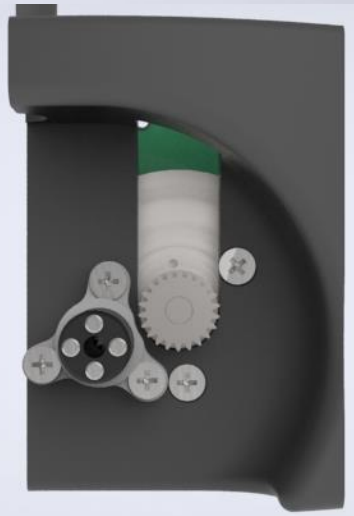
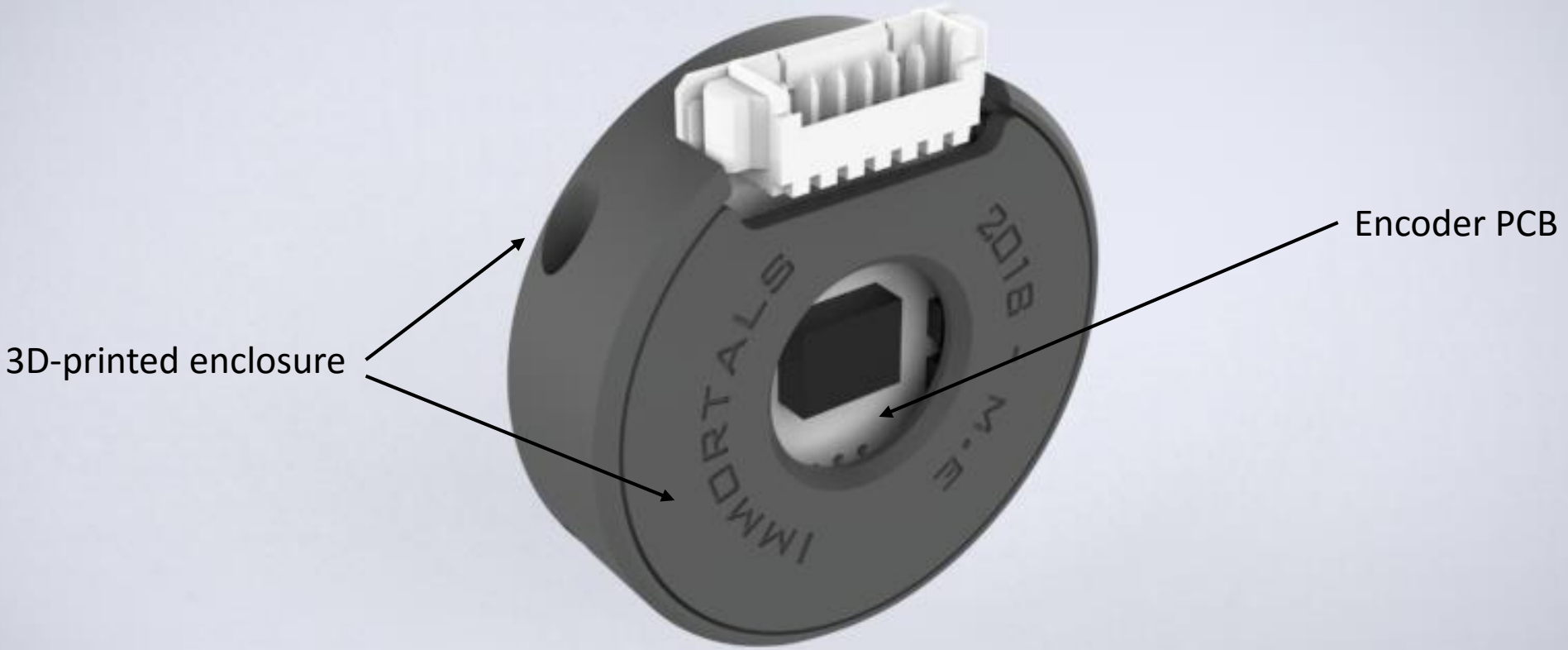

Wheel Shaft
Steel Internal gear
Steel drive gear
4 Screws to reinforce 3D-printed shaft
Ring for more stability of shaft





Magnetic encoder made by immortals



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Designed By Ghasemieh, M.

References:

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