**Motor Selection**

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The requirements needed to find the correct motor for the mecanum wheels was done by use of calculating the required torque (crabbing being the most amount needed) and thereafter finding a motor which could handle said torque.

The calculations found that in order for the device to move at about 2 Km/h (max), the required torque when crabbing was 13,77 N.m and needed an angular velocity of about 52 rad/s. Thereafter it was advised to find a stepper motor for said torque and angular velocity.

The stepper motor which was found was a 4-1-Planetary-Gearbox-Nema-23-Stepper-Motor-2-8A-for-DIY-CNC-Mill-Lathe-Router. This motor was found on stepper online from the following link: <https://www.omc-stepperonline.com/geared-stepper-motor/nema-23-stepper-motor-bipolar-l56mm-w-gear-raio-41-planetary-gearbox-23hs22-2804s-pg4.html>

The Specifications were all in range as this motor could have a maximum torque of about 20N.m, which was more than enough needed. It has a draw of about 24-48V at about 2.8A rated current. The batteries which shall be used to power the device are the lead alkali batteries. The problem encountered with the stepper motor choice was that it shall skip a step once in a while or freeze etc. The solution was to place an encoder to provide help to manage the step count.