**Purpose of Documentation:**  
Calculation for the predicted new weight of V1.1. ,after the removal of the case, counter weight, new body and change of camera .

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|  | V1 (29/09/2022)(w/o new body) | V1.1 (3/10/2022) |
| Weight | Body + Gimbal = 1.5448kg    Body + Gimbal + 8AX-12A motors + 4MX-64T=  Body + Gimbal + 8x(0.0546) + 4x(0.126) = 2.4856kg    DVS Camera= 0.112kg  Camera Case= 0.077kg  Camera Lens=52.5kg  Total Weight of Entire Camera attached= 0.2415kg    Weight of Entire Body + Camera attached=  2.4856 + 0.2415= 2.7271kg    \*including new 3d printed body= 2.75kg | Body + Gimbal = 1.3592kg    Body + Gimbal + 8AX-12A motors + 4MX-64T=  Body + Gimbal + 8x(0.0546) + 4x(0.126) = 2.3 kg    DVS Camera= 0.040kg  Camera Lens=0.0525kg  Total Weight of Entire Camera attached= 0.092kg    Weight of Entire Body + Camera attached=  2.3 + 0.092= 2.392kg  Around 400g lesser than the previous one |
| Calculated Torque From Motors | 0.15kgf x 8 = 1.2kgf    0.6116kgf x 4 = 2.4464kgf    2.4464kgf + 1.2kgf =3.6464kgf | 0.15kgf x 8 = 1.2kgf    0.6116kgf x 4 = 2.4464kgf    2.4464kgf + 1.2kgf =3.6464kgf |
| Required torque | 2.8kg minimum. Existing torque outputs 3.6464kgf. By theory it should be able to move the robot. | 2.4kg minimum. Existing torque outputs 3.6464kgf. By theory it should be able to move the robot. |

\*Calculations do not include how much torque to overcome stiction? (needed: Info on mechanics, as kind of wheels, surface, style of movement)

References:

Stiction Explanation:

<https://en.wikipedia.org/wiki/Stiction>

Friction Explanation:

<https://en.wikipedia.org/wiki/Friction>

Analytical Dynamics Explanation:

<https://en.wikipedia.org/wiki/Analytical_dynamics>