

Additional control systems

• Motor (electrical) - 2

• Wheels - 4

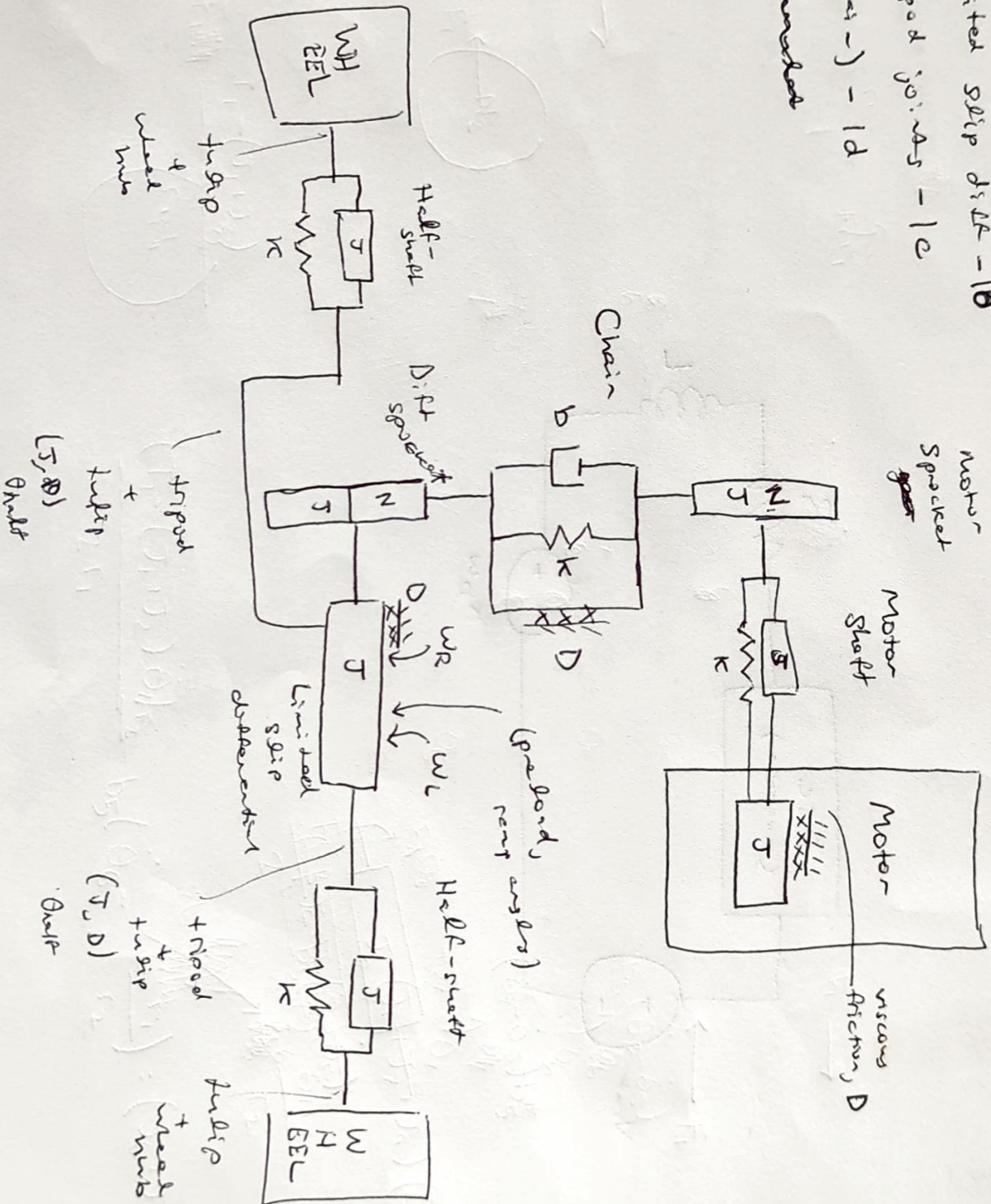
• Limited slip diff - 1

• Tripod joints - 1

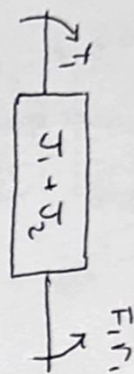
• (Chassis) - 1

• Intermediate

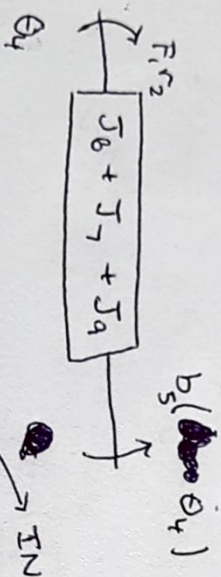
Drive train



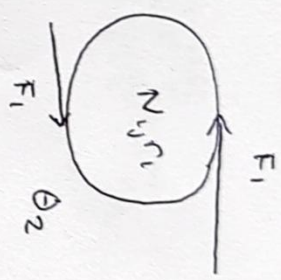
Bicy



$$T_1 - F_1 r_1 = (J_1 + J_2) \ddot{\theta}_1$$

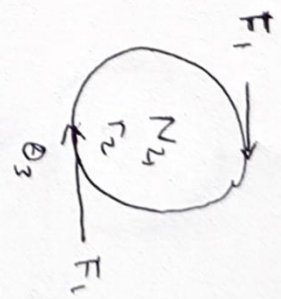


$$F_1 r_2 - b_5 \dot{\theta}_4 = (J_6 + J_7 + J_9) \ddot{\theta}_4$$



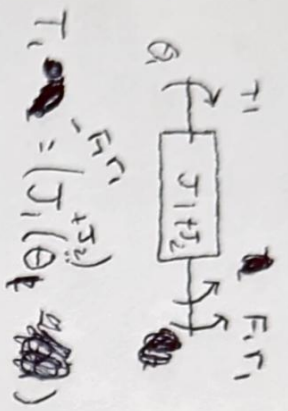
$$\frac{\theta_2}{\theta_1} = \frac{r_2}{r_1}$$

$$\ddot{\theta}_1 = \ddot{\theta}_2 = \frac{\ddot{\theta}_3 r_2}{r_1}$$

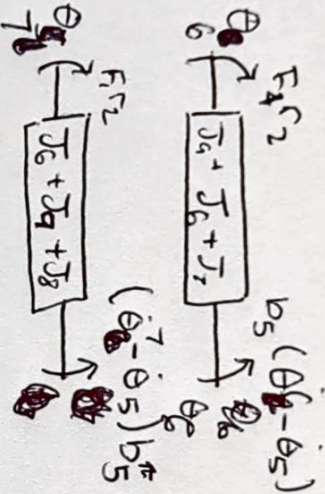
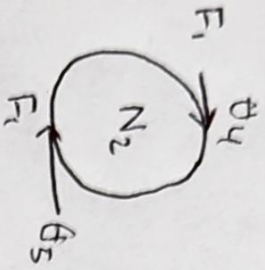
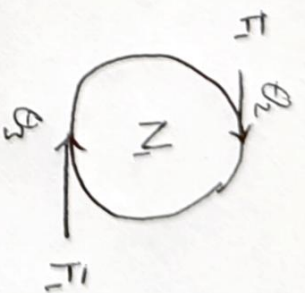
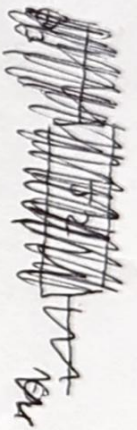


$$\ddot{\theta}_4 = \ddot{\theta}_2 = \frac{\ddot{\theta}_1 r_1}{r_2}$$

Motor + Shaft



(Ignoring Crein, Spraghet inertia)
bush gear



$$\approx \frac{F_1 r_2}{2} - b_5 (\dot{\theta}_6 - \dot{\theta}_5) = (J_6 + J_7 + J_8) (\ddot{\theta}_6)$$

$$\ddot{\theta}_6 = \frac{\dot{\theta}_1 r_1}{r_2}$$

$$F_1 r_1 = \frac{T_1 - (J_1 + J_2) \ddot{\theta}_1}{r_1}$$

$$\frac{(T_1 - (J_1 + J_2) \ddot{\theta}_1) r_2}{2 r_1} - b_5 (\dot{\theta}_6 - \dot{\theta}_5) = (J_6 + J_7 + J_8) (\ddot{\theta}_6)$$