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Discussion of MATLAB Results

Chart

Description automatically generatedChart, diagram

Description automatically generated with medium confidence

Figure 1 Figure 2

Fig (1) and (2) are the plots of the trajectories of a space craft at Lyapunov Orbit at L2 in a body frame and inertial frame respectively. The body frame plot was calculated in MATLAB using numeric analysis from the given equation (7) and (8) utilizing ODE45 in MATLAB. From the body frame, the inertial frame can be found for each time step with the DCM CNB.

Diagram

Description automatically generatedA picture containing chart

Description automatically generated

Figure 3 Figure 4

Fig (3) and (4) are the plots of the trajectories of a space craft at Lyapunov Orbit at L4 in a body frame and inertial frame respectively. The body frame plot was calculated in MATLAB using numeric analysis from the given equation (7) and (8) utilizing ODE45 in MATLAB. From the body frame, the inertial frame can be found for each time step with the DCM CNB.