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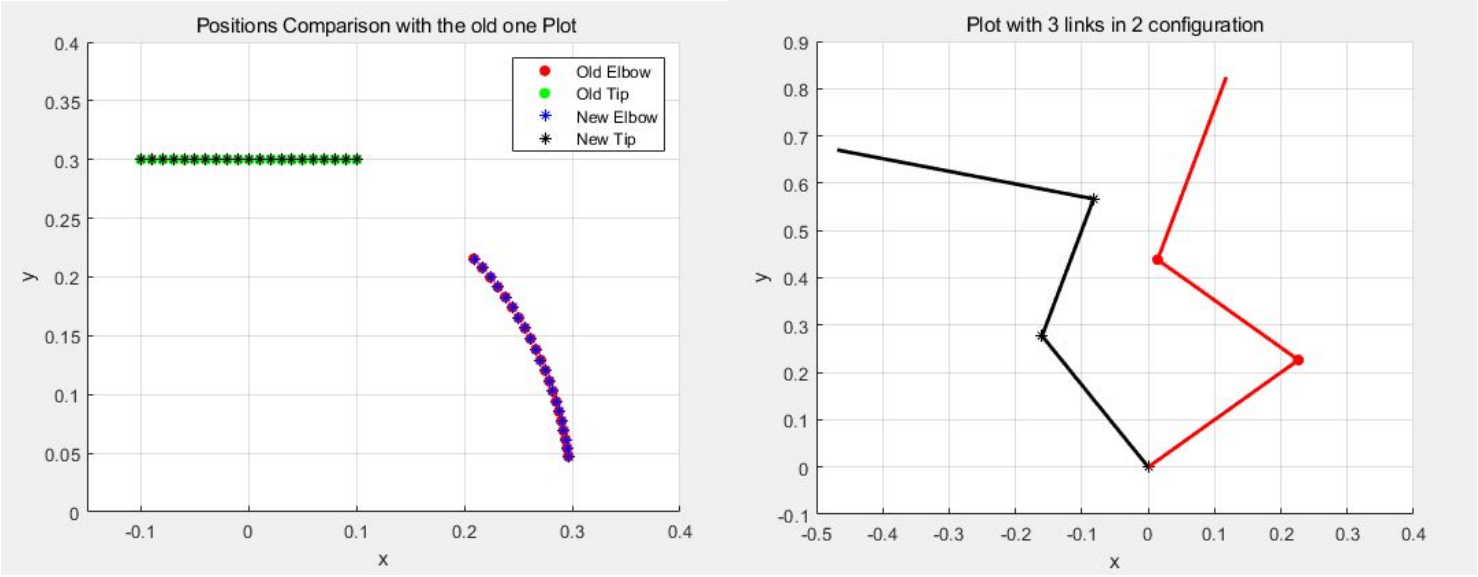
OVERVIEW

This assignment utilizes forward kinematics function using the homogeneous transformations, and it should compute the forward kinematics mapping for a planar arm with an arbitrary number of links. Two new functions are added called fkhLink.m and fkh.m. The function file fkhLink.m is responsible for creating homogeneous transformation matrix while fkh takes and decides the number of the joints and their corresponding angles to create matrices with fkhLink function. To verify the new functions, they will be compared to the results of the elbow and end-effector positions plot from the assignment 1. The file main.m shows the number of the arbitrary links and the following plots shown in the Results section.

RESULTS



The plot on the right compares the positions of the arm from the previous assignments. As a result, they were identical. Refer to the hw2_animation.mp4 file to see the positions of the tip and elbow over time. Using homogeneous transformation, positions of two robot arms with 3 links were plotted. Their end-effector and joints. This method is useful when dealing with multiple joints. For example, you can simply calculate transformation at the end-effector located at frame {f} from base frame {a}, by doing T_af = T_ab*T_bc*T_cd*T_de*T_ef.