Alex Nguyen
Suhail Chakravarty
ECE/ME 179D

Lab 2A: Omnibot Trajectory Planning and Feedforward Control

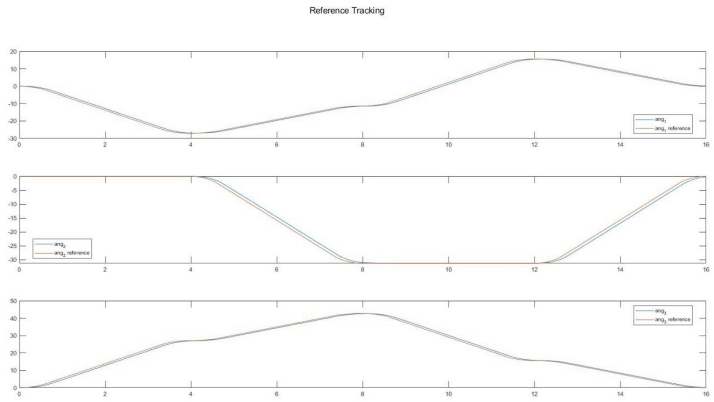

Figure 1: Angle Tracking for Omnibot Moving in Square Pattern

Figure 1, above, shows the angle tracking for the omnibot tracing a square pattern. Although the plot is small, the lines can be shown to trace the reference signal very well. The motors of the omnibot were good enough to not have different K_p and K_d values for each motor. The tracing of the square was done well when running the simulink file. As seen in the video, the omnibot creates a square pattern but at an angle since we did not have the body angle of the chassis equal to zero, thus it made a rotated square. The tuning constants used for the three motors were $K_p = 150$ and $K_d = 10$.

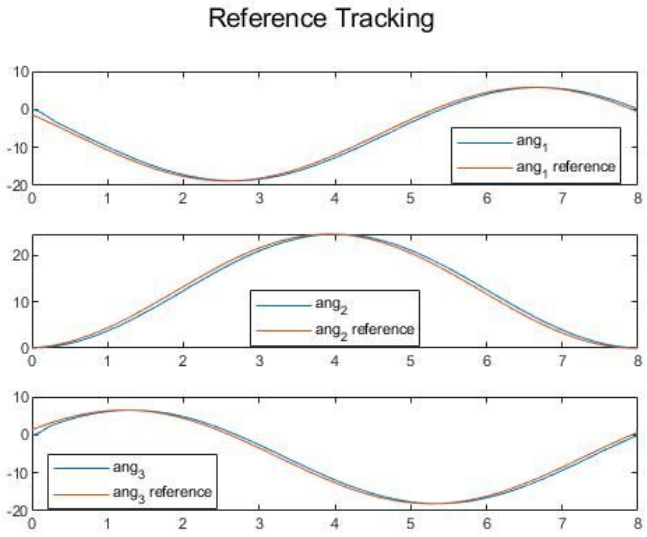

Figure 2: Angle Tracking for Omnibot Moving in Square Pattern

Figure 2, above, shows the angle tracking for the omnibot tracing a circle pattern. Like in figure 1, motor joints track the reference very well. The tracing of the circle was done well when running the simulink file. As seen in the video, the omnibot completes a full circle without any problem. The tuning constants used for the three motors were $K_p = 175$ and $K_d = 8$.