
Lab 5: Plotting final data

% Group 4 member

% Best Practices -- I'll add it to every Excercise for clean up
close all; % closes all open windows
clear all; % deletes the workspace

Exercise 4

plot the best experiment (c) (a): 3d plot the complete path (b): 2d plot with 3 subplots of x,y,z vs time (c): 2d plot with 3 subplots of yaw,pitch,roll vs time

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close all; % closes all open windows
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% load data
load ("group4-3.mat", "p_x", "p_y", "p_z", "Drone_data", "ITERATIONS")
% load group4-3.mat

% Relabel
pitch = Drone_data(:,5);
roll = Drone_data(:,6);
yaw = Drone_data(:,7);
N = ITERATIONS;
% Declarations
tFinal = 42;
t0 = 0;
dt = tFinal/N;
% Create time array
t(1) = t0;

for i = 1:N
 t(i+1) = dt*i;
end

% NOTE, ITERATIONS IS NOT THE SAME LENGTH AS THE ARRAYS
% SO I'M JUST GOING TO MAKE SOMETHING UP BECAUSE I HAVE NO
% ONE TO ASK THIS LAST MINUTE

dt = tFinal/length(p_x);
%length of positions
tnew(1) = t0;
for i = 1: length(p_x)-1
 tnew(i+1,1) = dt*i;
end

% length of angles
tdeg(1) = t0;
for i = 1: length(p_x)
 tdeg(i+1,1) = dt*i;
end

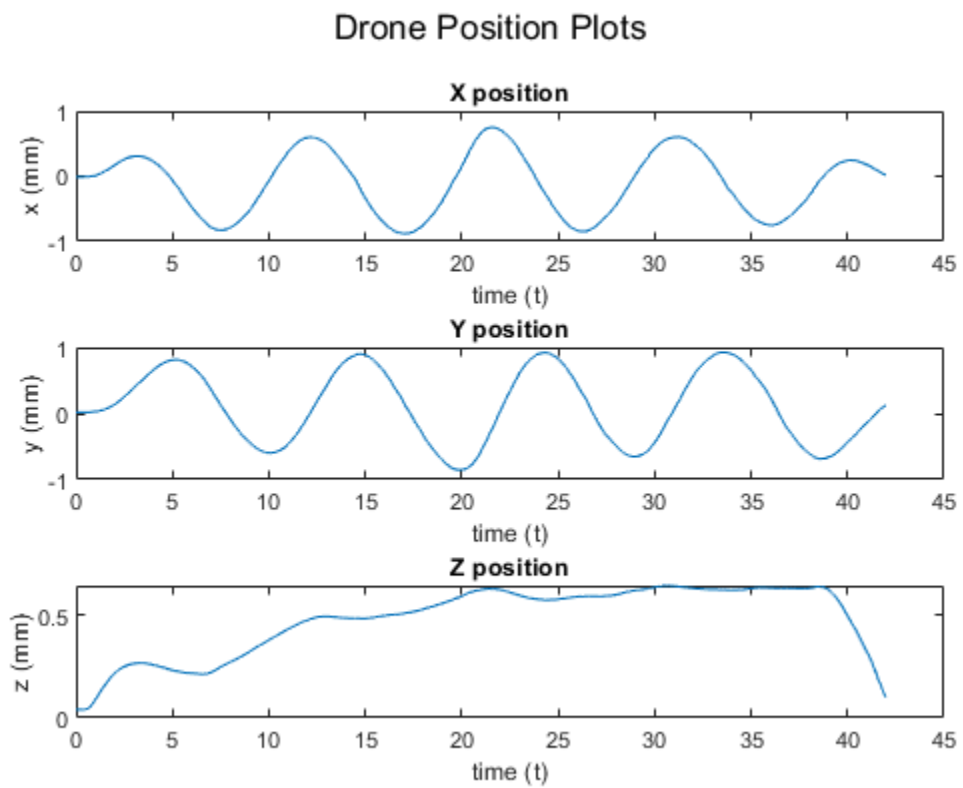
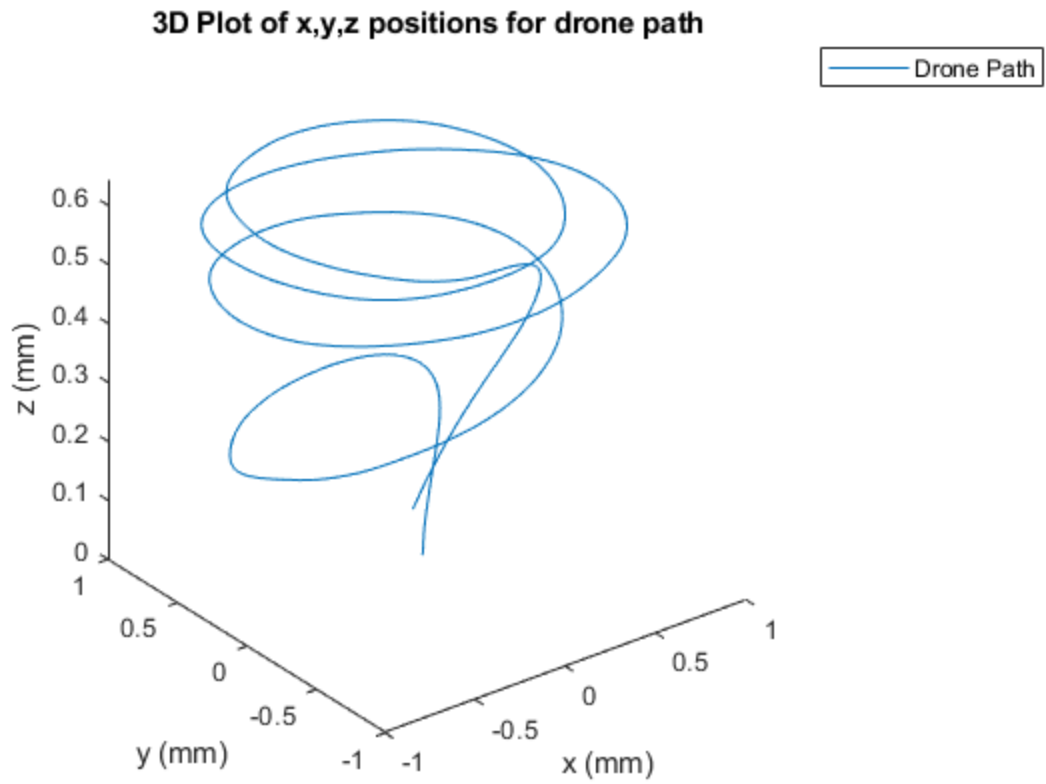
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figure(1)
box on
plot3(p_x, p_y, p_z, 'DisplayName', 'Drone Path')
title("3D Plot of x,y,z positions for drone path")
xlabel("x (mm)")
ylabel("y (mm)")
zlabel("z (mm)")
legend('Location', 'bestoutside')

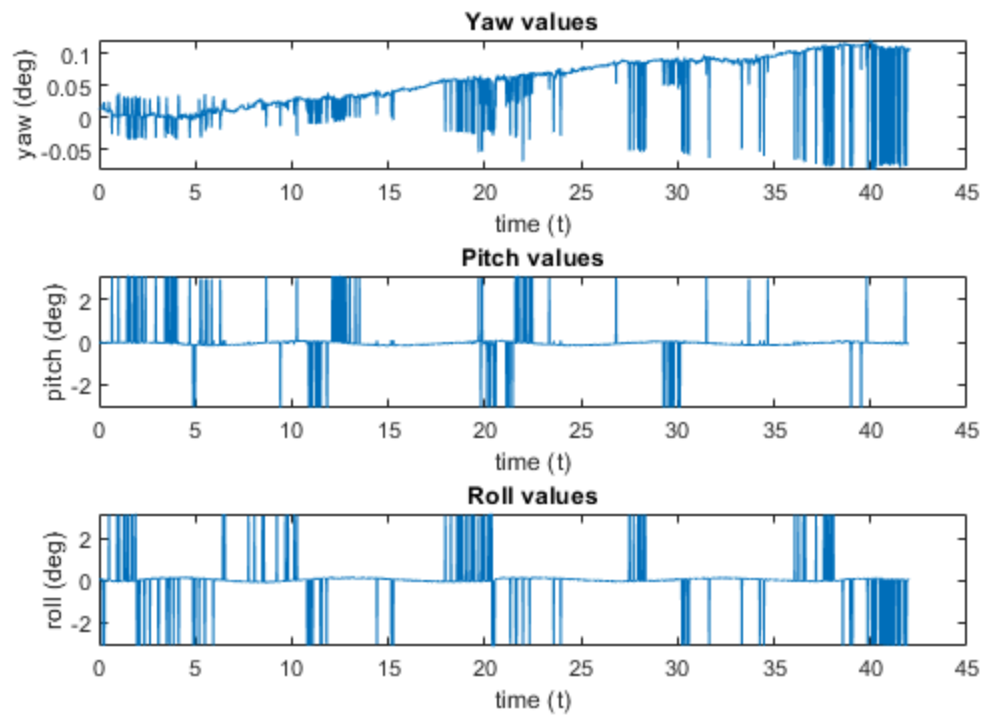
figure(2)
subplot(3,1,1)
plot(tnew, p_x)
ylabel("x (mm)")
xlabel("time (t)")
title("X position")
subplot(3,1,2)
plot(tnew, p_y)
ylabel("y (mm)")
xlabel("time (t)")
title("Y position")
subplot(3,1,3)
plot(tnew, p_z)
ylabel("z (mm)")
xlabel("time (t)")
title("Z position")
sgtitle('Drone Position Plots')

figure(3)
subplot(3,1,1)
plot(tdeg, yaw)
ylabel("yaw (deg)")
xlabel("time (t)")
title("Yaw values")
subplot(3,1,2)
plot(tdeg, pitch)
ylabel("pitch (deg)")
xlabel("time (t)")
title("Pitch values")
subplot(3,1,3)
plot(tdeg, roll)
ylabel("roll (deg)")
xlabel("time (t)")
title("Roll values")
sgtitle('Drone Angle Plots')

```



Drone Angle Plots



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