**MATLAB CODE FOR SERIAL INPUTTING AND PLOTTING OF WAVEFORM**

clear all;clc;close all;

arduino=serial('COM6','BaudRate',9600);

fopen(arduino);

x=1:100;

for i=1:length(x)

y(i)=fscanf(arduino,'%d');

end

t = y/1024\*5;

A = y;

count=zeros(0,1023);

for k=1:1024

count(k)=length(find(A==(k-1)));

end

m = max(count);

in = find(count==m);

fclose(arduino);

disp('making plot..')

figure('Name','The Digital Values From Serial Port');

subplot(2,2,1)

plot(x,y);

title('Serial Port Data');

ylim([0 1023]);

xlabel('From Serial Port');

ylabel('Digital Voltage');

subplot(2,2,2)

plot(x,t);

title('The Analog Plot Of Voltage');

ylim([0 5]);

xlabel('From Serial Port');

ylabel('Analog Voltage');

fprintf('%d is found toh be maximum count of %d ',in-1,m);

subplot(2,2,3)

t = 0:1023;

plot(t,count),title('Frequency Count');

xlabel('Digital Value');

ylabel('No Of Occurences');

xlim([0 1023]);

subplot(2,2,4)

d = count/length(A)\*100;

plot(t,d);

title('Digital Values Frequency Percentage');

xlabel('Digital Value');

ylabel('Percentage of No Of Occurences');

xlim([0 1023]);