**Temperature and Wind Speed Visualization**

readChannelID = 12397;

TemperatureFieldID = 4;

WindSpeedFieldID = 2;

readAPIKey = '';

[data, timeStamps] = thingSpeakRead(readChannelID, ...

'Fields', [TemperatureFieldID, WindSpeedFieldID], ...

'NumPoints', 300, ...

'ReadKey', readAPIKey);

temperatureData = data(:, 1);

windSpeedData = data(:, 2);

yyaxis left

plot(timeStamps, temperatureData, '-r');

ylabel('Temperature (°C)');

xlabel('Timestamp');

yyaxis right

plot(timeStamps, windSpeedData, '-b');

ylabel('Wind Speed (m/s)');

title('Temperature and Wind Speed vs. Time');

grid on;

**Wind Speed and Wind Direction**

readChannelID = 12397;

WindDirFieldID = 1;

WindSpeedFieldID = 2;

readAPIKey = '';

windDir = thingSpeakRead(readChannelID, ...

'Fields', WindDirFieldID, ...

'NumPoints', 60, ...

'ReadKey', readAPIKey);

windSpeed = thingSpeakRead(readChannelID, ...

'Fields', WindSpeedFieldID, ...

'NumPoints', 60, ...

'ReadKey', readAPIKey);

rad = deg2rad(windDir);

rad = rad + pi/2;

u = cos(rad) .\* windSpeed;

v = sin(rad) .\* windSpeed;

compass(u, v);

title('Wind Speed and Direction (Compass Plot)');