

LIIAARC

Laboratorio de Investigación en Inteligencia Artificial, Automatización, Robótica y Control

Taller de Adquisición de Datos

PARTE I



Marzo - 2023

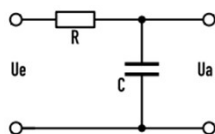
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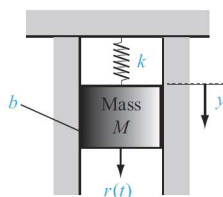
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Modelos



$$\tau \frac{dU_a(t)}{dt} + U_a(t) = U_e(t)$$



$$M\ddot{y}(t) + b\dot{y}(t) + ky(t) = r(t)$$

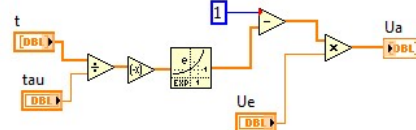
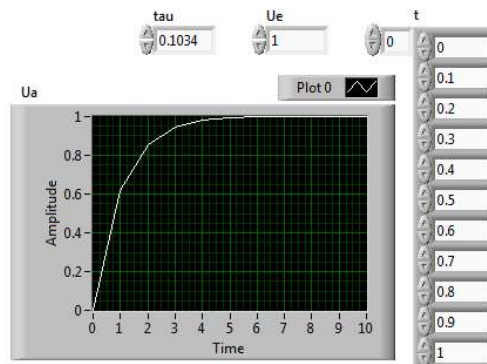
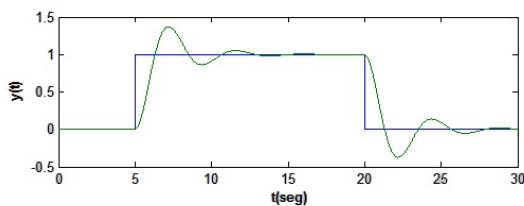


$$\frac{\theta(s)}{E(s)} = \frac{K_m}{s[(L_a s + R_a)(J s + B) + K_b K_m]}$$

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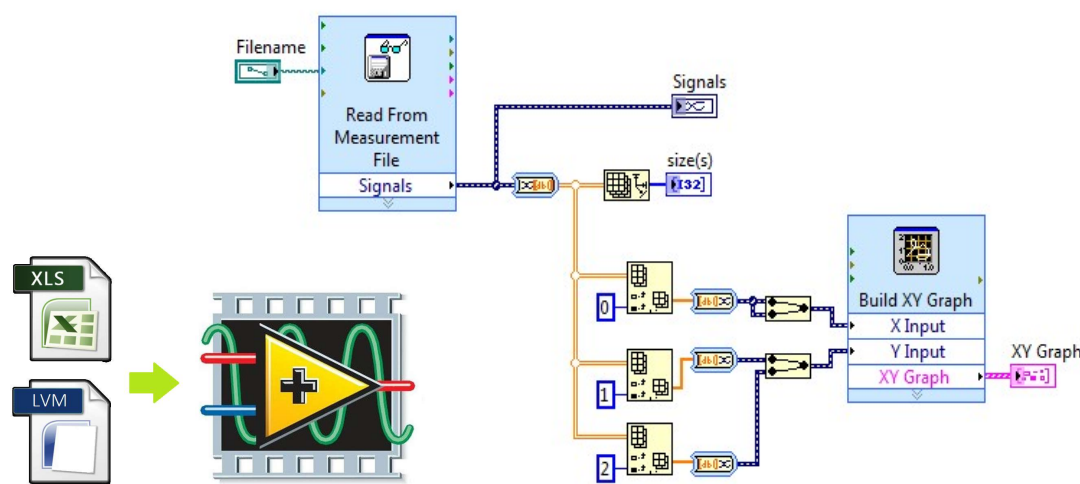
Simulación de Modelos

```
clear all; close all; clc
wn=1.5;
zeta=0.3;
num=wn^2;
den=[1 2*zeta*wn wn^2];
P=tf(num,den);
t=0:0.01:30;
N=length(t);
r=[zeros(1,500) ones(1,1500) zeros(1,1001)];
y=lsim(P,r,t);
plot(t,r,t,y);
datos=[t' r' y];
save data41.lvm datos -ascii -tabs
```



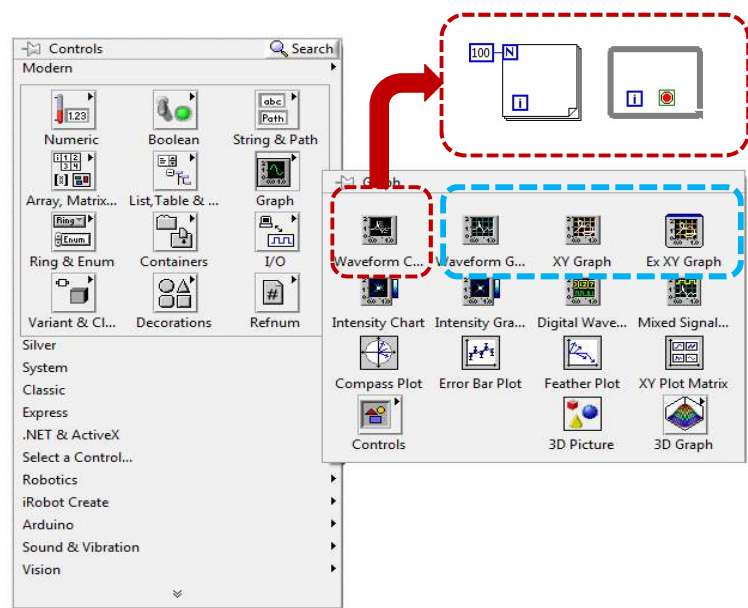
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Lectura de Datos con ARRAYS



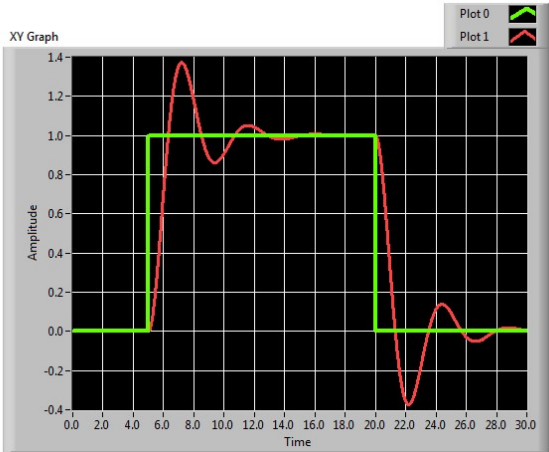
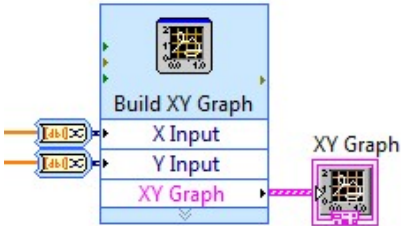
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Waveforms



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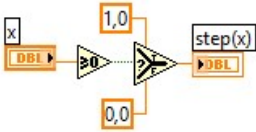
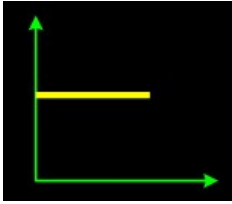
Waveform XY Graph



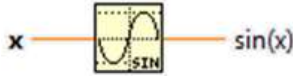
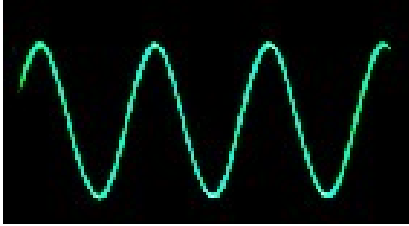
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Funciones Matemáticas

Función Escalón Unitario


$$step(x) = \begin{cases} 1 & x \geq 0 \\ 0 & x < 0 \end{cases}$$

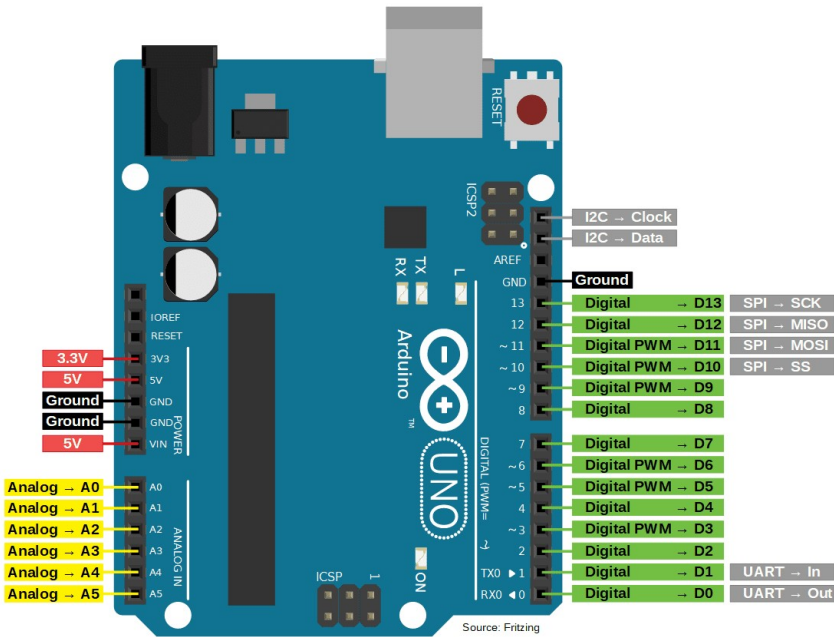
Función Seno


$$\sin(x) = A \sin(\omega x + \varphi)$$


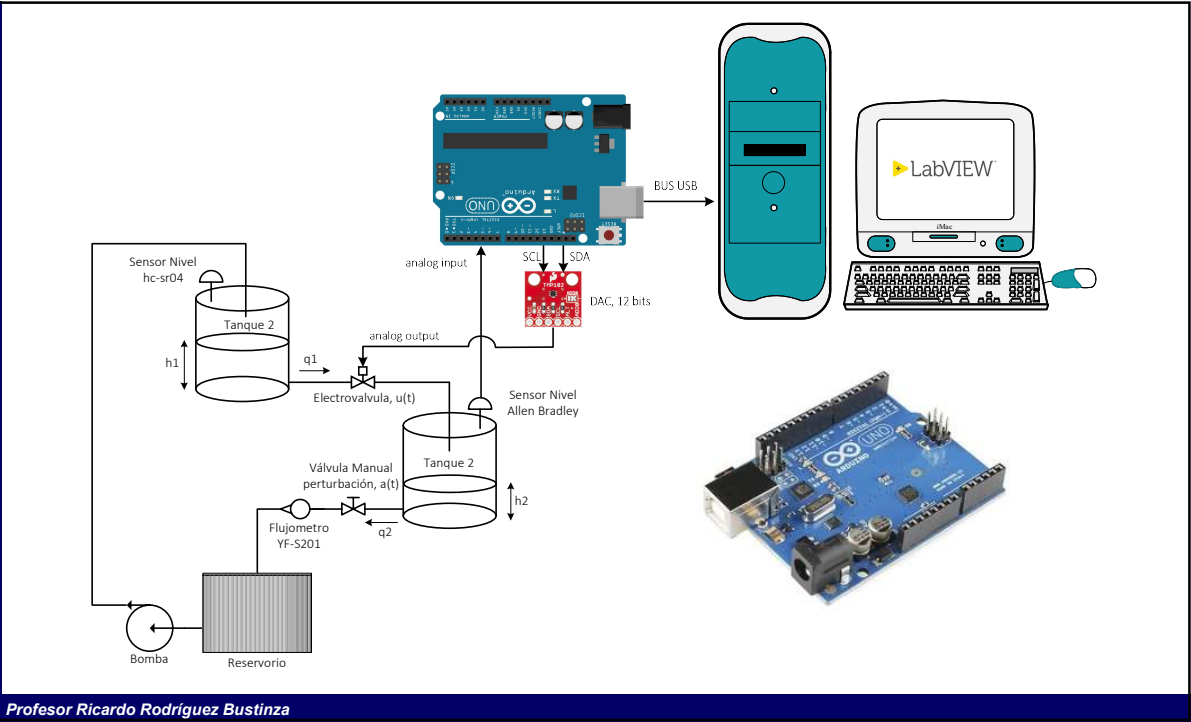
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Introducción a Linx Arduino

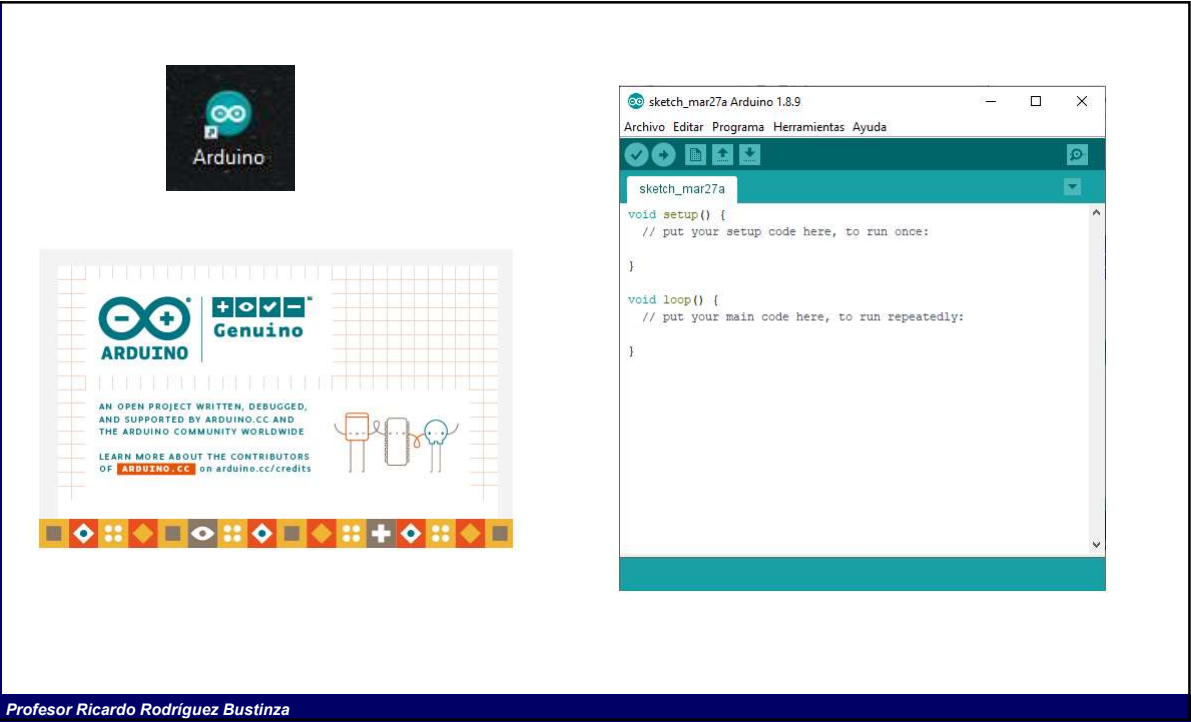
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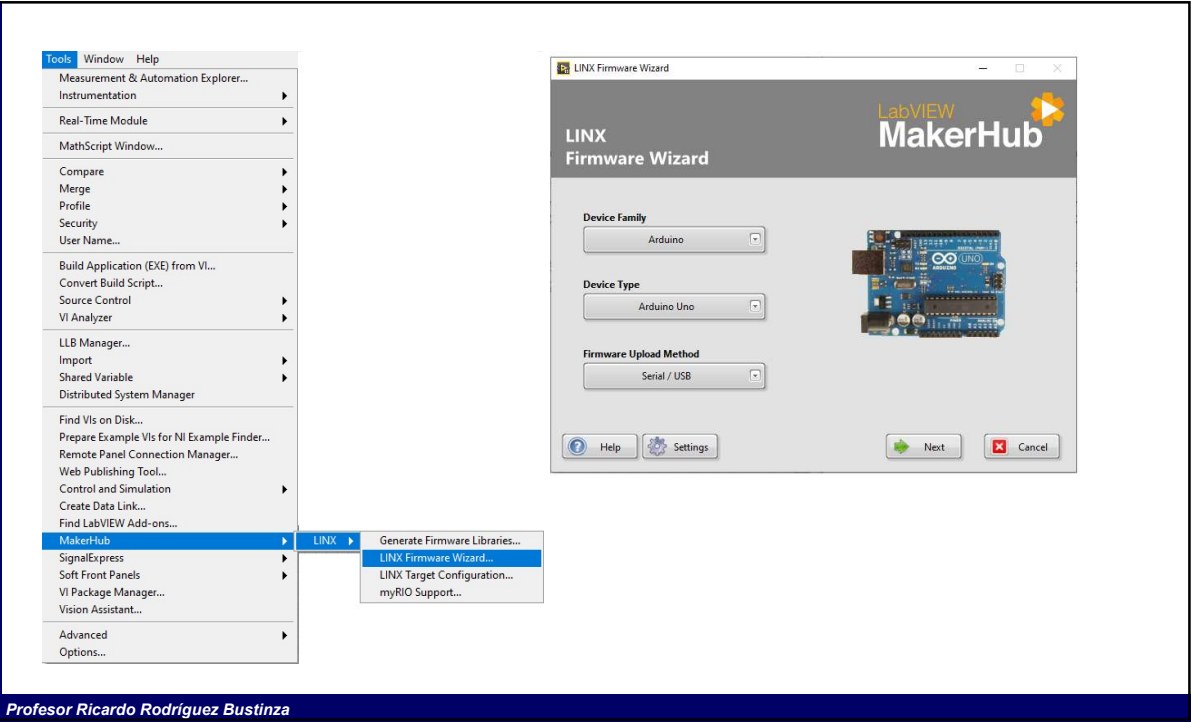
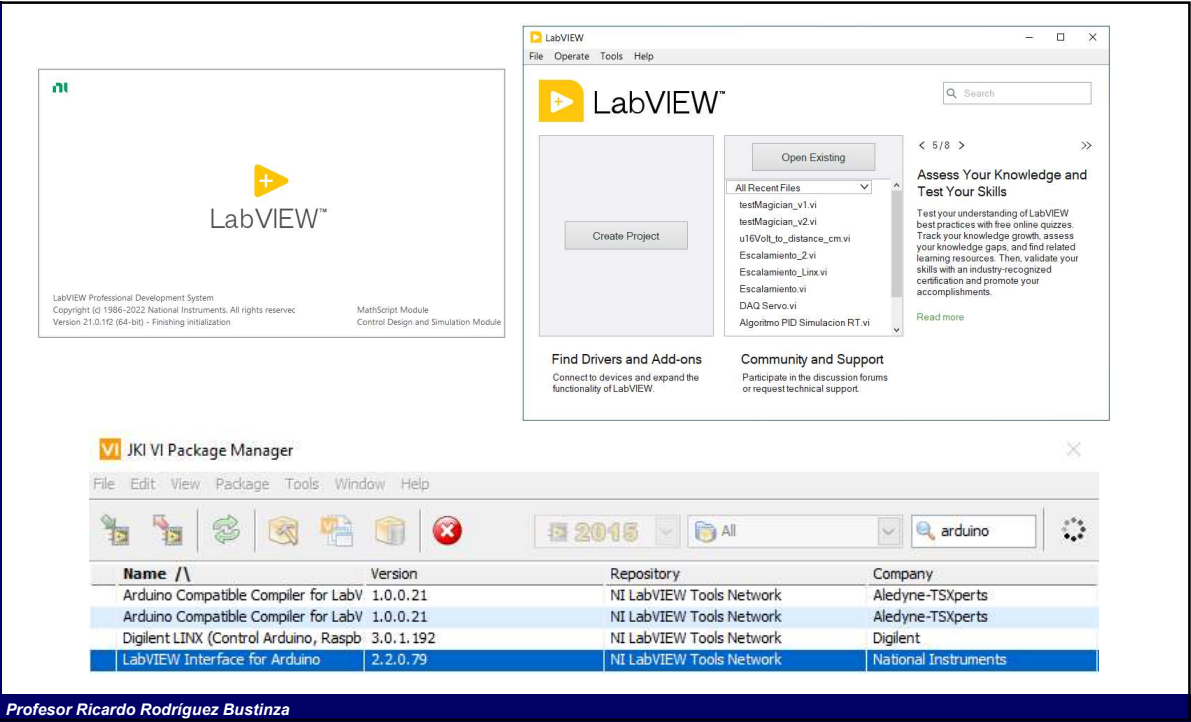
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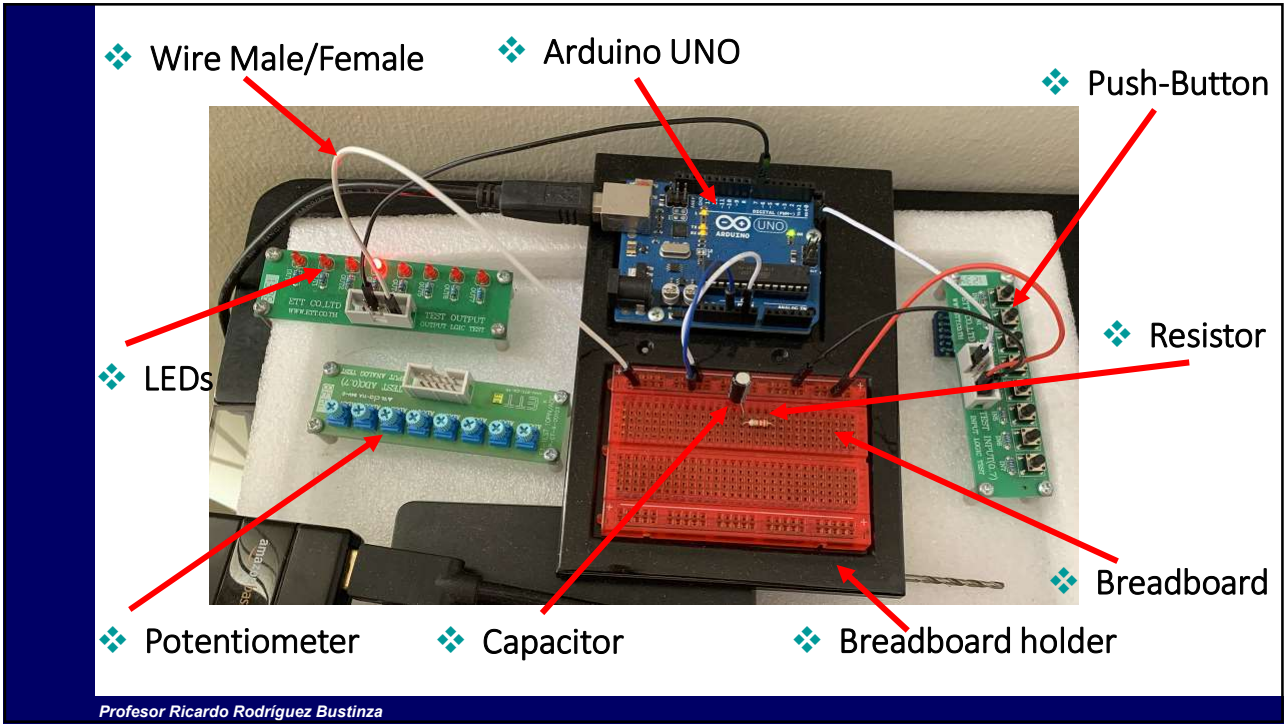
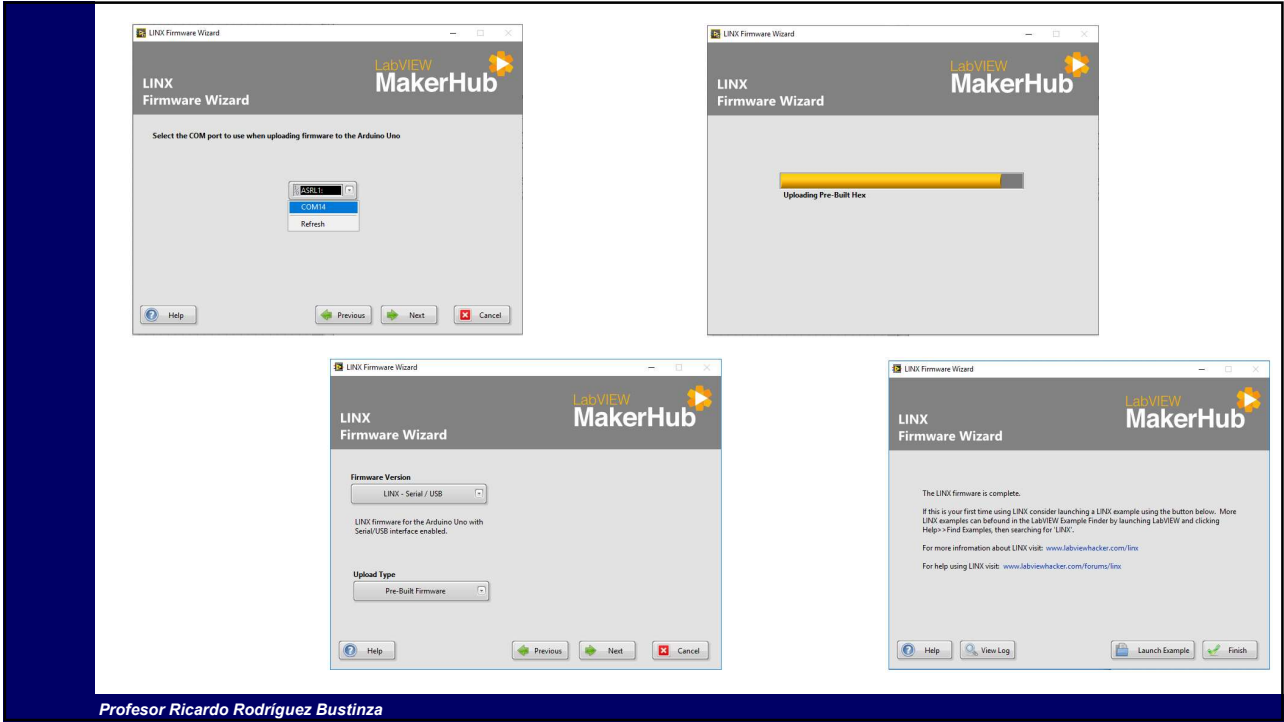


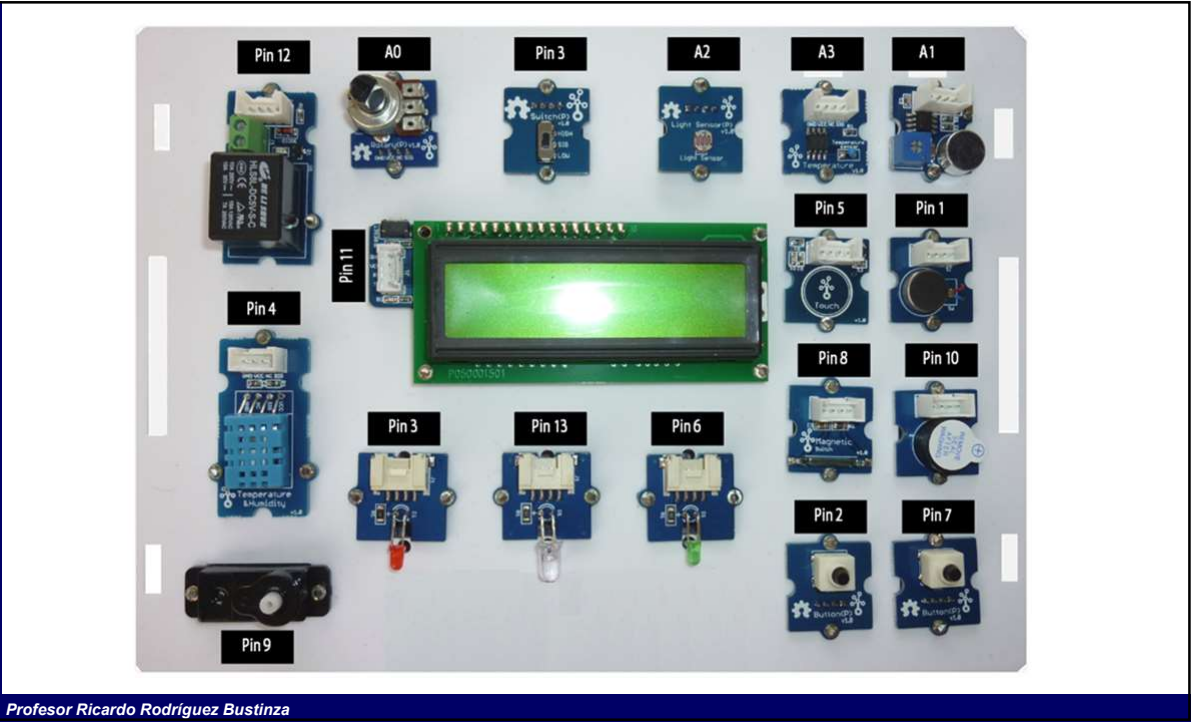
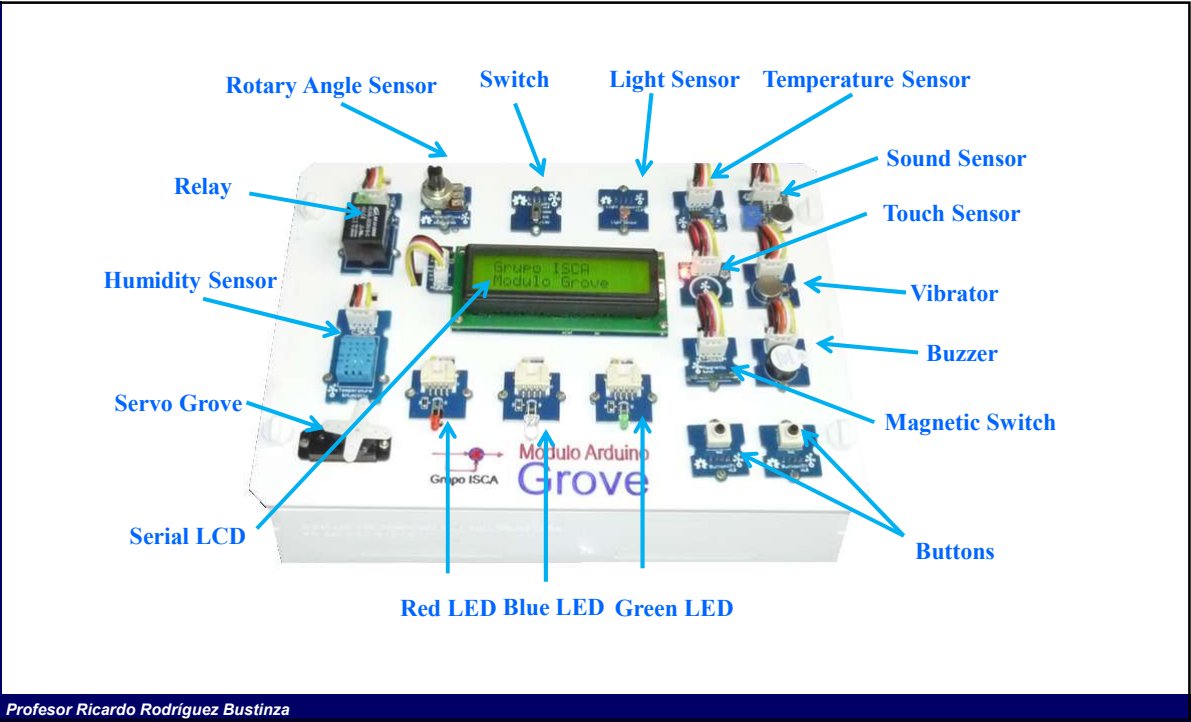
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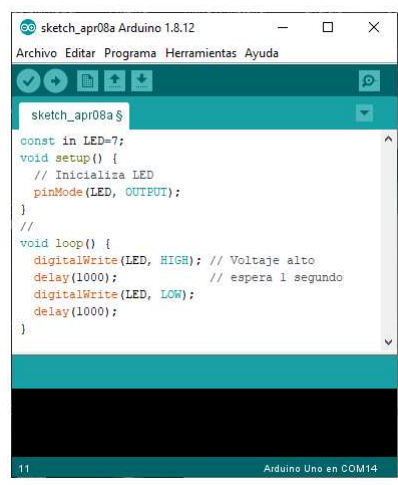
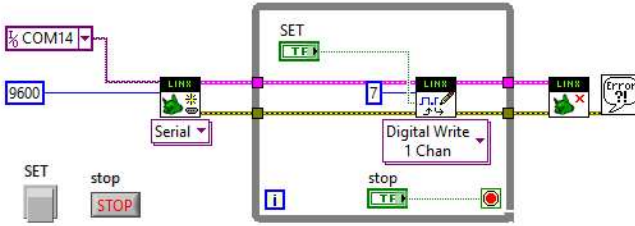
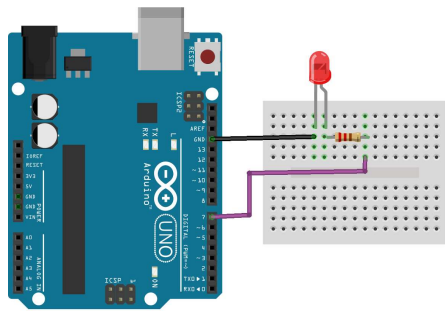


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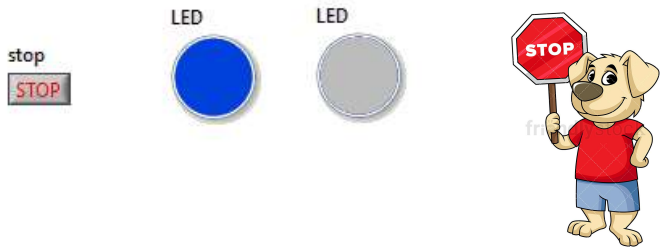
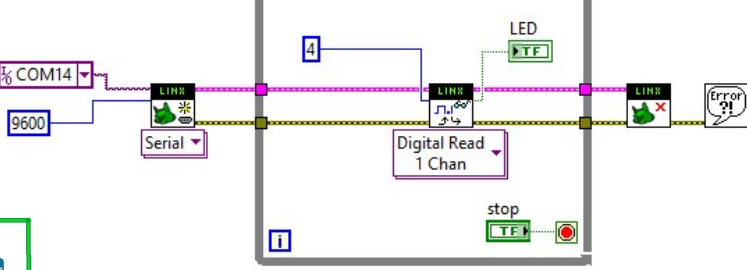
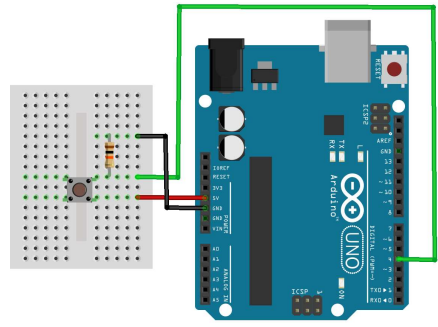
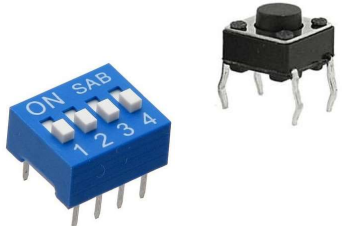








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